

SJR

31

Opinion

JUNEAU EMPIRE

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Sea World project is worthwhile

Several years ago, the National Marine Fisheries Service and the National Park Service ran into a serious problem. The humpback whales that had frequented Glacier Bay National Monument (now a national park) had all but disappeared, and they didn't know why. In fact, they didn't know much at all about the huge marine mammals.

The disappearance of the whales sent NMFS and the Park Service scrambling. Did an increase in tour ship traffic cause the whales to leave? Did the whales simply leave because they found food elsewhere? Years of research later and after manipulating the tour ship traffic in the bay, they still don't have all the answer to these and other questions.

That's what ignorance gets you: intelligent guesses but little else.

Just as the humpback whale is something of a mystery to scientists, so too is the killer whale, also called the orca. Until a couple of decades ago, orcas were considered mindless marauders of the sea. It was only after they were captured that scientists began to learn about them, discovering that they are highly intelligent animals and can even be trained.

Unfortunately, two decades ago, so little was known about them that many orcas died as they were rounded up in areas of Washington state's Puget Sound.

Those practices have been stopped by the federal government, and any activities involving orcas are now closely supervised and take place only after public hearings and close scrutiny of permit applications by the National Marine Fisheries Service.

The Hubbs-Sea World Research Institute has received a permit from the National Marine Fisheries Service to study killer whales and to capture 10 from Alaska waters off Southeast Alaska, Prince William Sound and Kodiak during the next five years. The whales, which will be breeding age, will go to new homes at the Sea World parks in San Diego, Calif.; Aurora, Ohio; or Orlando, Fla., where new, larger facilities are already under construction especially for them.

Sea World is thought of as an entertainment park, but it is much more. In the field of marine mammals, for example, Sea World pioneered the captive breeding of smaller animals such as bottlenose dolphins.

Now, its scientists hope to breed orcas for the first time in captivity, but that requires "pods" of 4-10 members to be established at its facilities. Right now, the facilities simply do not have enough breeding-age killer whales to attempt it, hence the need for several more.

Without the ability to capture more orcas, there can be no attempt at captive breeding.

With it, it is possible the captive killer whale population can become self-sustaining, negating the need to take any more animals from the wild — ever.

The breeding program is only a part of the research effort. Scientists will observe the animals in the wild through most of the summer, gathering information on their behavior. The only time they will get near them will be for the actual capture, in which they will use a net nearly a mile long to encircle the pod. The animals will be measured, blood samples taken and other tests done in conjunction with scientists from Alaska and elsewhere. The entire effort will last three hours at most. Then, all the killer whales will be released except for those chosen for the breeding project.

Sea World and aquarium detractors say no sea animals should be kept in captivity, but that position refuses to acknowledge the expanded knowledge and appreciation of marine life gained by the millions of visitors to places such as Sea World. Anyone who has ever been to a Sea World facility knows it is not only a top-flight form of entertainment but a world-renown research organization.

Before the Alaska Legislature is a pair of resolutions regarding the killer whale capture. Although much of the extraneous — and inaccurate — language in the resolutions is apparently an attempt to malign Sea World and to stop or delay the project, the bottom lines call for Sea World to comply with the National Marine Fisheries Service permit, work with the Alaska Department of Fish and Game and repay the state for costs it encounters in observing Sea World's work.

The extraneous and inaccurate language aside, the resolutions would only reiterate the conditions of the permits and the wishes of Sea World to cooperate fully with the state to assure the project's success.

We urge legislators to find out about Sea World for themselves before accepting generalizations and accusations that are less than well-founded.

We believe that after they have been exposed to the facts, legislators will agree that the research project is well worth the effort and the \$1.5 million Sea World is ready to invest in it.

It will expand the extremely limited knowledge of killer whales, and it will possibly end the need to capture wild killer whales by pioneering a captive breeding program.

DON YOUNG
CONGRESSMAN FOR ALL ALASKA

COMMITTEES:
INTERIOR AND INSULAR
AFFAIRS
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Congress of the United States
House of Representatives
Washington, D.C. 20515

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July 13, 1983

Mr. Richard Roe
Acting Director
Office of Protected Species and
Habitat Conservation
National Marine Fisheries Service
National Oceanic & Atmospheric Adm.
Washington, D.C. 20235

Dear Dick:

It has come to my attention that you have under consideration a permit which would allow Sea World, Inc. to take killer whales for scientific research and public display under the authority of the Marine Mammal Protection Act. I request that you act expeditiously to grant the permit.

The project proposed by Sea World will have no adverse effect on killer whale populations in the Pacific Ocean. Only a small number of whales will be removed from the ocean and the remainder will only be taken (as the MMPA defines the term) for a short period of time. The project will provide an excellent research platform for scientists interested in killer whale research. In addition, the Sea World research and captive breeding programs will offer an excellent opportunity to increase the information base available on these animals. I see no reason why this project - which has been supported by scientists and the general public - should not go forward.

I understand that you have recommended that a public hearing be held in Seattle to discuss the permit application. While I do not object to giving the public the opportunity to comment, I seriously question the choice of Seattle as a location for the hearing. If any hearing is to be held, it should be in the area that will be affected by the research project. While I recognize that the need for quick action precludes further hearings in this instance, future policy of your office should include recognition of local needs as well as national needs. Hearings on this application should have been scheduled for Alaska, not Seattle.

I appreciate this opportunity to comment and trust you will resolve the permit problem quickly.

Sincerely,


DON YOUNG

Congressman for all Alaska

APR 2 1984


DY:rhm

North Slope Borough Health and Social Services Agency

Box 925
Barrow, Alaska 99723

(907) 852-2383

LMD:tjh
Ser: 373
3 June 1983



Director
National Marine Fisheries Service
U.S. Department of Commerce
Washington, D.C. 20235

Dear Sir,

This letter is being written in support of the proposed research project submitted to you by Sea World Enterprises Inc., 7 March 1983, regarding killer whales (Orcinus orca). Much of what is believed to be known at present regarding cetaceans in actuality is speculation based upon casual observations. It is imperative that research be conducted on such mammals for the long term benefit of not only the species being studied but also for related species.

Current knowledge regarding killer whales in the areas of population size, reproductive capabilities, age/growth relationships, genetics, sexual distribution, blood/chemistry values, and effects of environmental pollution (to include noise) is totally inadequate. As you well know, current knowledge of a species is necessary for proper management and the eventual survival of that species. If such information is not thoroughly gathered we may witness, or cause through our own ignorance, the premature disappearance of that species.

Many of my reasons for adamant support of Sea World's proposal stem from the current research on the bowhead whale being conducted through Dr. Tom Albert, Barrow, Alaska. The conditions through which the bowhead project is being conducted make it virtually impossible to gain adequate information for management in a period of time favorable to all concerned. The conditions to which I am referring are climatic, governmental, and resident human population on the North Slope.

If one species of great cetaceans could be studied thoroughly the information gained could conceivably be inferred to others. It would at least improve existing conditions.

The present population size and composition of orcas is unknown. Size/age relationships in the wild population are only speculative.

APR 2 1983

Current genetic concepts are as undefined in the killer whale as they are in the bowhead. Blood/chemistry values of the wild species have not been adequately documented, nor have the effects of environmental pollution and noise.

Baseline data are critically needed in all these areas. How else can one judge the meaning of fluctuations in population size or pod composition when such information has not been collected in the past for reference? The same holds true for the other parameters discussed.

I urge you to favorably consider the proposal presented to you by Sea World Enterprises dated 7 March 1983.

Respectfully,

Leslie M. Dalton

Leslie M. Dalton, D.V.M.
Public Health Officer/NSB

STATE OF ALASKA
THE- LEGISLATURE

POUCH Y - STATE CAPITOL
JUNEAU, ALASKA 99811
907-465-3800

LEGISLATIVE AFFAIRS AGENCY

M E M O R A N D U M

February 21, 1984

SUBJECT: Use of joint resolution
(SJR 31)

TO: Senator Vic Fischer

FROM: Billy G. Berrier *BGB*
Director
Division of Legal Services

You have asked whether, in a fact situation in which a joint resolution was introduced addressing both state and federal agencies and it was later determined that the resolution be addressed to only state agencies may a committee substitute or sponsor substitute so amended continue to be a joint resolution.

In my opinion this would be permitted.

Resolutions are covered in Rule 49(a) of the Uniform Rules of the Alaska State Legislature. Under paragraph (3) it is stated that a concurrent resolution is used to request action of executive agencies and under (5) it is stated that a joint resolution is used to express the wish or view of the legislature. No specific provision is made for addressing both state and federal agencies.

The joint resolution is the more formal since it is treated in all respects as a bill except for the veto while a concurrent resolution does not require the full enactment procedure. In a mixed resolution it is necessary that a joint resolution be used since part of the material requires the more formal procedure.

If the resolution were amended so that it only is addressed to state agencies in my opinion the amendment would be proper and would not require that the resolution be converted to a concurrent resolution.

Senator Vic Fischer
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February 21, 1984

There are specific matters in which the use of a joint resolution or a concurrent resolution is mandated. In my opinion in the fact situation involved here use of a concurrent resolution is not mandated since compliance with the more formal procedure necessarily includes compliance with the less formal and the language of the rule which applies is quite general.

BGB:ojb
J3/116



UNIVERSITY OF ALASKA, FAIRBANKS
Fairbanks, Alaska 99701

13 March 1984

Senator Vic Fischer
Alaska State Legislature
Pouch V
Juneau, Alaska 99811

Dear Vic:

I have been very much disturbed by your telephone call yesterday. Your charge that Dr. Lanny Cornell has acted dishonestly and the suggestion that I have had, at the least, poor judgement have caused me to examine once again my positions and statements regarding the killer whale - Sea World affair. I can not escape the conclusion that it is altogether a bizarre phenomenon, a model of media exploitation.

Consider for a moment what has been put to the Alaskan public: "a California amusement park of dubious reputation has been issued a permit to capture 100 killer whales in Alaskan seas for public display and profit. The permit was issued by a federal agency, the National Marine Fisheries Service, without consultation in Alaska and without adequate knowledge of the populations in question." What conclusion can be anticipated from the Alaskan public other than alarmed and righteous rejection?

Regrettably, the truth has been severely stretched and the accusations do not stand up to scrutiny. It has been my wish to express and to substantiate what I know of the facts in an effort to set the record right and to achieve some semblance of fairness. Naturally, there are risks in taking a view which has been rendered unpopular. And, of course, my own motives come up for question.

Please let me briefly review what I know. I have worked in collaboration with and with support of Sea World for the 20 years of its existence, and I claim to have knowledge of their operation, their commitment to quality of displays, education and science. I have never been on their payroll. I am not a Sea World stockholder, and I have absolutely no relation to their management and business. I have stated that Sea World is a world leader in what they do and that they have developed and set the standards for oceanaria everywhere.

Far from avoiding Alaskan consultations, their representatives have repeatedly visited the state. They have met with administrative, native, academic and other groups in Alaska. They actively sought to have the permit hearings held in Alaska and were refused that opportunity for reasons which are unclear to me. The removal of not more than 10 killer whales over 5 years, which the permit calls for, is based upon the most conservative determinations of population abundance. The proposed research program, while obviously of value to Sea World, is also an unprecedented opportunity for marine scientists and for the State of Alaska to expand our knowledge of these animals and their environment.

So much for a quick review of my position. Turning now to your specific allegations... I have known Dr. Cornell and I have worked with him for several years. He enjoys an excellent reputation, and I am fully satisfied that he is a man of integrity, honesty and sincerity of purpose. You indicated yesterday that he had (1) denied State of Alaska authority and contradicted his earlier testimony and (2) accused you of "playing politics with the killer whale issue." You also questioned my motives and my judgement in relation to my statements and testimony. Surely you would not deny both Dr. Cornell and me a chance to respond.

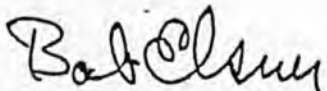
I confronted Dr. Cornell yesterday by telephone with your charges. He, of course will speak for himself, but he most emphatically stated, as he has to me repeatedly, that he has great respect for your efforts to seek a compromise position. He fully supports the revised senate resolution which you have drawn up. His suggestions of political manipulation were not directed at you. As for the state's authority, Dr. Cornell has to my knowledge always insisted that the cooperation of the State of Alaska was essential for the success of the project. Indeed such is stated in the Senate resolution to which he has agreed. Frankly, I believe that what you refer to is yet another misunderstanding in a long sequence which have over and over again clouded this issue. Can we not, as rational men, find some common ground of comprehension and good will in which to achieve goals providing benefits to all concerned participants - Alaska, Sea World, our knowledge?

My motives are to support a professional and scientific approach to needed new knowledge of our Alaskan Marine Frontier upon which societal decisions can be based. I have repeatedly stated that I will take part in the proposed killer whale research, although that represents a minor part of my research program. I agree with your admonition that my participation must always be crystal clear to avoid the suggestion of hidden and dissembling motives. I assure you that I will make every effort to do so. Please recognise, however, ~~that~~ the extent and profit from that participation is vanishingly small. Still, I defend it and I am willing to see it exposed to scrutiny.

Finally, I should like to tell you of an event which illustrates better than long, tiresome discussions just what Sea World's contribution to public education is. In recent days two dolphins have given birth in their San Diego establishment. The mother-infant pair is on public display in an underwater viewing tank where thousands of people can witness nursing and other maternal care activities without disturbance to the animals. It is difficult to imagine a more significant and more deeply moving medium for providing public appreciation of those marine species with whom we share this globe. Such appreciation should be of special value to Alaskans, since we are lucky enough to live in a region unequalled in the wealth and diversity of our marine mammal inhabitants, killer whales included.

Please be assured of my enthusiasm for whatever initiatives may be required to produce a resolution of this issue and to move ahead to realise its promise.

Respectfully,



Robert Elsner
Professor of Marine Science

(Postscripts on following page.)

PS. I think that the suggestion that I had written to Washington, to which you alluded, comes from the fact that a copy of my earlier letter to Representative John Ringstad was sent to the National Marine Fisheries Service. It was in fact sent to the Juneau office, not to Washington.

I wish to point out another indication of the professional credibility of the Hubbs-Sea World Research Institute. Their director, Dr. William Evans, has recently been appointed - pending congressional confirmation - to be chairperson of the Marine Mammal Commission. That appointment also speaks for the independence of HSWRI from the Sea World business organization.



UNIVERSITY OF ALASKA, FAIRBANKS
Fairbanks, Alaska 99701

19 March 1984

Governor William Sheffield
State Capitol
Pouch A
Juneau, Alaska 99811

Dear Governor Sheffield:

The matter of the proposed capture of killer whales near the south coast of Alaska has attracted an unusual amount of attention and publicity. The purpose of this letter is to convey to you my concern for what I regard as a considerable misunderstanding of the intentions and goals of the California oceanarium, Sea World, and to indicate my support for the anticipated capture activities and associated research program.

The Sea World organization has been given a permit by the National Marine Fisheries Service to temporarily hold up to 100 killer whales. From these animals, which will be retained for no more than several hours, two each year, a total of ten, would be taken into permanent captivity. A research program would be undertaken on those temporarily held and upon those permanently retained. All of these activities would be preceded by an observational study of killer whale population abundance, composition and distribution to supplement what is already known.

In my opinion, the proposed studies and captures have been planned with extraordinary efforts to avoid unnecessary environmental disturbance. Sea World has tried to foster full cooperation with Alaskan interests, notably the Alaska Department of Fish and Game. I have been involved directly with the research planning, I am a member of the Scientific Advisory Board which has been established by Hubbs-Sea World Research Institute for the purpose of over-seeing the killer whale investigations and I am a member of the proposed research team. Seventeen marine mammal scientists from 12 institutions will take part in that program. It represents an unprecedented opportunity for us to learn more about the biology, ecology, behavior, physiology and life history of this relatively unknown species. The results of these studies can not fail to benefit the people of the state of Alaska in terms of new knowledge pertaining to wise management of our rich marine environment.

Sea World will benefit also, of course, but it would appear to me to be an opportunity lost if we fail to take part in this enterprise. Several unfortunate misunderstandings have arisen in connection with the planned killer whale captures. Some of these problems relate to the manner in which the permit was awarded. Sea World officials have repeatedly visited Alaska over a period of several years. They have met with Fish

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UNIVERSITY OF ALASKA

Governor Sheffield

19 March 1984

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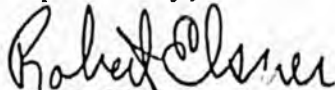
and Game personnel, University of Alaska, native groups and others for various collaborative activities and in an attempt to explain their wishes regarding killer whales. They actively sought to have the public hearings related to the permit procedure held in Alaska, but that request was denied and the hearings were held in Seattle last September. That regrettable situation has given credence to the suggestion that Sea World has wished to avoid encounter with Alaskan legislators, administrators and the public. The evidence points in the opposite direction, but much damage has been done to their credibility.

I have been working in collaborative research programs with Sea World personnel intermittently throughout the 20 year history of that organization, earlier while I was a member of the research staff and faculty of Scripps Institution of Oceanography and subsequently during the 11 years while I have been on the faculty of the University of Alaska. In my view Sea World has throughout its history shown an unselfish devotion to research on marine mammals. Many reputable scientists as well as advanced students have thereby had available to them resources and assistance which would otherwise be impossible to obtain. Sea World has established the highest standards for animal capture, maintenance in captivity and educational display. They are, in fact, the world leaders in this field. Many millions of Americans, including thousands of Alaskans, have visited Sea World. In this manner Sea World has become responsible in large measure for the current appreciation and awareness among the public of significant features of the marine environment.

In addition to Sea World's accomplishments in display and research, a notably successful and unique captive-breeding program has been developed. That program is so successful, in fact, that the need for further capture of dolphins in the wild has been eliminated. One of the primary purposes for the proposed killer whale capture is the initiation of a similar captive breeding program with that species.

For the various reasons stated, I believe that every effort should be taken to foster improved communication and understanding among the federal, state and public groups sharing an interest in the killer whale issue, and that we should proceed to share in the benefits to be realized. The extensive hearings are a matter of public record, and the conditions imposed within the NMFS permit appear to exercise conservative safeguards and control. Sea World officials have repeatedly stated their willingness to work closely with the State of Alaska in re-affirming and providing assurance that those restrictions will be formally and deliberately adhered to.

Respectfully,



Robert Elsner

Professor of Marine Science

SUMMARY

SEA WORLD, INC. KILLER WHALE (ORCINUS ORCA)
SCIENTIFIC RESEARCH AND PUBLIC DISPLAY PERMIT

After three years of study and preparation and nine months of public, government and scientific review, Sea World, Inc. was issued a permit by the National Marine Fisheries Service (NMFS) under the authority of the Marine Mammal Protection Act of 1972 to collect killer whales (Orcinus orca) for the purposes of public educational display, captive breeding and scientific research.

The permit authorizes the collection of an average of two killer whales per year from Alaskan waters over a five year period - a total of 10 whales - for public educational display and propagation in Sea World's facilities in San Diego, California, Orlando, Florida and Aurora, Ohio.

Killer whales occur in groups or pods. As the two animals a year are collected, an unknown number of associated animals - probably less than 10-20 a year - will be encountered. The second portion of the project as approved by NMFS will allow recognized scientists from a number of universities such as the University of Alaska and other research institutions to detain some of these additional animals for a brief period to conduct important, nonharmful research. This research is in part responsive to and supportive of the recommendations and policies of the International Whaling Commission.

The killer whales selected for maintenance at Sea World will be merged with its current captive population. This will allow Sea World to establish in all three facilities social units comparable to the four- to ten-member pods frequently found in the wild and considered to be the primary breeding unit. Sea World expects these groups to become reproductive. This expectation is based on several years of documented study on whales and a pilot propagation program with dolphins and other marine mammals which has culminated in the successful breeding of 27 bottlenose dolphins (Tursiops truncatus) at Sea World and dozens of seals and sea lions. Sea World also currently has a pregnant beluga whale.

PUBLIC DISPLAY AND CAPTIVE BREEDING

This portion of the permit authorizes the collection of a total of 10 killer whales over a five year period from Alaskan waters. An average of two animals will be collected per year. Of the 10 animals removed, approximately two to three will be males

and approximately seven to eight will be females. All will be juveniles and young adults between 340 cm and 550 cm (approximately 11 feet to 17 feet) long. These animals will be merged with Sea World's animals and maintained in Sea World's facilities in San Diego, California, Orlando, Florida and Aurora, Ohio. The Sea World objective is two-fold: to establish a captive breeding program and to continue to maintain public educational display schedules for the rapidly increasing attendance at Sea World (nearly 7 million visitors in 1983 and an estimated 10 million for the year 1990).

Captive Breeding Program

In 1981 scientists at Sea World began to develop plans for a killer whale breeding program. The program rationale and approach are based on its highly successful breeding program which has resulted in live births of 27 bottlenose dolphin calves since 1977. (Sea World has five more pregnant bottlenose dolphins and one pregnant beluga whale in San Diego.) During the formative stages of this dolphin breeding program some theorized that marine animals could not be expected to reproduce in captivity in significant numbers. Sea World commenced its breeding program and proved the capability in just a few short years. The total number of births at Sea World is greater than the combined births at all other facilities in the U.S. during the 1977-1983 time frame.

From the data available on killer whales in the proposed study area, it appears that an average pod contains about four to six individuals. Under the program, Sea World would establish a small colony of five or six animals of varying sex and age classes in each of its facilities. We are convinced that such groupings will enhance social adjustment, breeding and educational display.

Until recently, Sea World's female killer whales have not been old enough to reproduce. We have only recently observed the beginning of sexual activity. One male killer whale is currently of breeding size and age, and several females are approaching sexual maturity. Hopefully these animals will be the first to conceive and reproduce successfully. They and the newly collected animals will form a core group for the breeding colonies.

Sea World scientists are confident killer whales can successfully reproduce in a Sea World environment. The program is designed to be self-sustaining as are the current bottlenose dolphin, California sea lion and harbor seal populations at Sea World.

Sea World will be able to maintain educational display schedules and its commitment to the public, as well as its responsibility to science and the species' reproduction in captivity.

Public Display

In the space of two decades, Sea World has had an unparalleled impact on public awareness of marine mammals. This is due entirely to the public display of these magnificent animals and educational programs based on their physical presence. It is impossible to convey on paper the thrill and joy people experience as they touch the smooth skin of a killer whale and feel the warm air rush from its blow. These experiences - and Sea World offers many different kinds - foster a deep and unforgettable bond which serves to endear the animals of the sea to mankind. No movie, TV program or book could have such a profound effect.

Since the opening of the first small park in San Diego in 1964, Sea World has hosted nearly 75 million visitors. In the last 10 years alone, Sea World has shown an attendance increase of over 10 percent each year. Sea World's formalized educational program "Exploration Breach" has taught dozens of marine life programs to over 1.5 million students since its inception in 1972. A program coordinator for the Orange County Public School System in Florida wrote in recent correspondence, "We are dependent upon Sea World to provide marine biological programs. During May of 1983 alone, over 20,000 students were involved from the state's educational institutions."

Sea World provides continuing education programs, conducts a preceptorship program for veterinary medical students and offers an impressive range of programs for the mentally, visually or severely handicapped. Sea World has been the recipient of numerous educational and graphics awards and was rated by the Stanford Research Institute as "the world standard, against which all others of its kind are measured," adding that it is "superior from a family perspective in every way."

NON-HARMFUL SCIENTIFIC RESEARCH

Killer whales to be studied under the permit will be examined in the field. Killer whales can be found as solitary individuals but are usually in groups ranging from 4-20 animals. The encirclement of such a group offers an opportunity for research which would otherwise be wasted.

An International Whaling Commission (IWC) workshop on killer whales held in 1981 (IWC 32: 617-694) stated in one of its reports: "...noting that chromosomal and biochemical studies may yield information concerning stocks and populations of killer whales, the meeting recommends that such studies be undertaken for all killer whales currently in captivity, and, whenever opportunity exists, to conduct studies on stranded and harvested whales in the wild."

Sea World has already conducted such studies with captive killer whales as well as other marine mammals and wishes to encourage these and other important studies of free-ranging killer whales coincidentally with the collection of animals for public display.

The National Marine Fisheries Service permit allows for the restraint of up to 90 animals for a length of time necessary to conduct the benign research activities for which the animals are selected. Some of the data collection procedures require only a few minutes. Other procedures require several hours. All will be conducted boatside or on the science vessel and the whale subjects released immediately afterward.

The permit reflects various requirements and restrictions, some of which are:

- 1) The collection over a five-year period of an average of two animals per year (for a total of 10 animals) for public educational display and captive propagation.
- 2) The authority to conduct important, nonharmful scientific research on up to 90 additional animals encircled in the nets coincidentally during the five-year collection effort. A specific number of animals for each research activity is defined. Some studies require further review and authorization from the Assistant Administrator of the National Marine Fisheries Service in consultation with the Marine Mammal Commission and the State of Alaska.
- 3) Animals incidentally encircled for research might be examined up to two times, but not more than once in each calendar year. Previously studied animals may be restrained, measured, blood-sampled, remarked if necessary and may have radiotelemetric packs removed or changed if necessary.
- 4) The permit must be reviewed and reauthorized by the Assistant Administrator for Fisheries in consultation with the Marine Mammal Commissioner annually.
- 5) The permit requires suspension of all activities in the event of any mortality. Any animal that dies will be considered taken under the 10 authorized for public educational display and captive propagation.
- 6) The permit prohibits the taking of any pregnant, nursing or unweaned animals.
- 7) Detailed status, annual and thorough research and activity reports will be submitted.
- 8) In addition, annual meetings will be held to define future goals and examine data produced by the research project.

A number of scientists and organizations will be associated with the research conducted under this permit. Among these are: Dr. John Burns, Alaska Department of Fish and Game; Dr. Robert Elsner, University of Alaska; Dr. John Hall, Anchorage Alaska; Mr. Kenneth C. Balcomb, Ocean Research Education, Gloucester, Massachusetts; Dr. Deborah Duffield, Portland State University; Dr. Colin M. Bloor and Francis C. White, University of California, Dr. Dan Costa, University of California, Santa Cruz; Dr. Sam Ridgway, Naval Ocean Systems Center, San Diego, CA; Mr. Stephen Leatherwood, Hubbs-Sea World Research Institute, San Diego, CA; Dr. Bruce Mate, Oregon State University, Newport, Oregon, Dr. Bernd Wursig, Moss Landing Marine Laboratory, Moss Landing, California; and Dr. Lanny H. Cornell, Sea World, San Diego, California.

SJR 31



March 19, 1984

The Honorable Bettye M. Fahrenkamp
Alaska State Legislature
Pouch V
Juneau, Alaska 99811

Dear Senator Fahrenkamp:

I thought you might be interested in the enclosed letter which is the result of our last meeting with Alaska Department of Fish and Game personnel. The letter clearly states Sea World's position on the killer whale project and our commitment to cooperative effort with the State of Alaska, continuing a relationship which in the case of some of our people dates more than 20 years. In 1983 over 21,000 Alaskans visited Sea World parks in California, Ohio and Florida. It would appear from these numbers that Alaskans have a longstanding relationship with Sea World as well.

We look forward to a continuing relationship with the Alaska Department of Fish and Game and with the legislature as well. Hopefully, Alaska will soon regain management of at least some marine mammals under authority of the Marine Mammal Protection Act.

We at Sea World hope to be able to continue assisting the State in any way possible in the conduct of research, the use of our animals as models for research as we have so frequently done in the past, or in gathering information to help Alaska make management decisions. We appreciate Alaska's unique environments and animals and the need to learn about them.

If you have any questions regarding this project or Sea World, please do not hesitate to contact me.

Sincerely,

Lanny H. Cornell, D.V.M.
Sr. Vice President/
Zoological Director

MAR 21 1984

Sea World

March 12, 1984

Don W. Collinsworth
Commissioner
Alaska Department of Fish and Game
Old Taku Twin Theater Building
8th and Egan Streets
Juneau, Alaska 99802

Dear Mr. Collinsworth:

As you know, the Sea World killer whale collecting/research project is divided into three phases:

Phase I - Observational research to establish population numbers, pod composition and range to the extent possible.

Phase II - Actual collection - purse seining killer whales to collect one or two animals each year for public display and captive breeding research.

Phase III - Hands on research on some of those animals encircled ccidental to Phase II. Phase III research will include (but not be limited to):

A) 50-500cc of blood for hematology, blood chemistry, genetic studies and analysis for pollutants (heavy metals, pesticides, etc.)

B) Morphometrics.

C) Cryogenic marking as needed to establish identifications for sighting by fishermen, etc.

D) Tooth extraction on 1 to 5 animals each year for Hubbs-Sea World Research Institute and National Marine Fisheries Service tooth aging study.

E) Such tests as Alaska Department of Fish and Game deem needed and are compatible with the limitations of Permit No. 439.

As we have discussed with the Alaska Fish and Game staff, Sea World and the Hubbs-Sea World Research Institute will begin

Don W. Collinsworth
March 12, 1984
page two

the Phase I research as called for in the National Marine Fisheries Permit and as agreed with the Alaska Department of Fish and Game. Phase I research will begin in April and continue through September each year for the 5-year period of the project. Thus at the end of this project considerable observational information will be available to the Alaska Department of Fish and Game and National Marine Fisheries Service as well as the rest of the scientific community.

During the course of each summer, and again at the end of each year, the Hubbs-Sea World Research Institute will submit the data to your office. As we have discussed with your staff, although the National Marine Fisheries Service view is that the Marine Mammal Protection Act supersedes state authority for all marine mammals, Sea World will voluntarily seek state authorization prior to the onset of Phase II and Phase III. Thus just as the National Marine Fisheries Service federal permit requires population data to be submitted prior to authorizing actual collection, so will Sea World assume that the state desires to be part of the authorization process as well. And we will await such authorization prior to commencing actual collecting.

As you know, Sea World's history of cooperation with the Alaska Department of Fish and Game dates back to 1961. We will continue to cooperate in every way possible in the future as well.

Sincerely,



Lanny H. Cornell, D.V.M.
Sr. Vice President/
Zoological Director

LHC/ld
cc: D. Kelso
L. Pamplin
P. McGuire

SJR 31

SOLACE ENTERPRISES

P.O. Box 4885
Anchorage, Alaska 99510

March 15, 1984

Governor William Sheffield
Office of the Governor
Third Floor, State Capitol
Pouch A
Juneau, Alaska 99811

Dear Governor Sheffield:

I am writing you today as a deeply concerned marine mammal scientist. My letter concerns what I fear has become an emotionally pitched situation regarding the proposed killer whale capture by Sea World Inc., and associated research by Hubbs Sea World Research Institute. As a killer whale researcher since 1969 and resident of Alaska since 1975, I find the extreme misconceptions regarding the proposed program very disturbing. We all, lay and professional alike, agree that we know very little about the role of killer whales in the Alaska region marine ecosystem. These large carnivores likely have a dynamic impact on the ecosystem as well as a direct need for large amounts of food in order to grow and thrive.

From results of the existing Alaska region killer whale data base we know that a minimum of 239 killer whales spend at least a portion of the year in the three areas of Alaska we have information on (Southeast, Prince William Sound and Shelikof Strait). Based on these minimum counts the National Marine Fisheries Service has decided that, using IWC policies as guidelines and input from scientists and interested members of the public, the population is sufficient to allow Sea World Inc. to take an average of 2 killer whales per year (not more than 10 total) from Alaskan waters for display and breeding program purposes.

MAR 21 1984

The resulting program proposed by Sea World and the Hubbs Sea World Research Institute was developed with three major themes in mind. These themes are:

1. In accordance with the stipulations of the NMFS permit, conduct, at the outset, further population studies using completely passive (benign) research techniques of observation and photographic documentation of killer whales in the three study areas. Develop an interim report documenting the results of the population studies, and present the report to the NMFS for review prior to receiving authorization from the NMFS for capture activities.
2. After obtaining authorization from the NMFS (based on completion of No.1 above), conduct live capture operations for killer whales in Southeast, Pr. William Sound or Shelikof Strait, with the primary purpose of removing an average of 2 killer whales per year (total not to exceed 10) for display and breeding program purposes.
3. Using well accepted scientific research techniques described in the permit, conduct research on those killer whales incidentally captured and later released (not to exceed a total of 90 killer whales over the 5 year period).

These are, as I read the federal permit and understand the extensive conversations I have had with Sea World and Hubbs Sea World Research Institute professionals, the goals of the proposed activities.

A great deal of unfortunate misunderstanding and misconception has arisen concerning the entire program. Having listened to much testimony by both professional and interested lay persons, I believe the misconceptions fall into three main categories:

A. Need for killer whale research in Alaska region waters.

I believe the vast majority of both professional and lay people involved to date agree that we simply do not know as much as we should about how killer whales fit into the Alaska region marine ecosystem, and what impact these largest of porpoises have on that ecosystem. Response by many apparently well meaning people has been to suggest that we can gain enough information through the use of passive techniques and that the proposed research program will not use passive techniques.



As I have pointed out, Sea World must, according to the NMFS permit, conduct passive population level studies and report the results of those studies to the NMFS prior to NMFS authorization to begin capture activities. Thus you can see that passive studies are indeed an integral and required part of the overall research program.

In addition, I think it obvious that we cannot, with any validity, conduct passive observation programs during those critical and extensive portions of the year when the majority of killer whales are away from the protected waters of Southeast or Prince William Sound. We must know what the annual movements of killer whales in our region are if we are to better understand how this species fits into the marine ecosystem. We cannot look at killer whale activities only during the calm, convenient summer months and presume that these activities represent accurately the behavior and movements of the populations throughout the rest of the year. Fortunately telemetric techniques are available to help us understand the long term movements of killer whales. In order to utilize these well established techniques, we must be able to handle the animals for a short while in order to instrument them.

I also believe the other proposed research techniques are equally well established and important if we are to better understand this species of marine mammal. I think Mr. Jay Hair, Executive Vice President of the National Wildlife Federation, the world's largest private, not-for-profit conservation organization, with more than four million members, in his June 13, 1983 letter to the NMFS summed up very nicely the need for the proposed research program. Mr. Hair said, "Sea World Inc., seeks to conduct important field studies on killer whales, which are neither threatened nor endangered, a species for which little population and life history information exists." Mr. Hair further said, "The applicant, through the Hubbs-Sea World Research Institute and the assistance of qualified university researchers, is well equipped to conduct the proposed studies. We are especially encouraged that the applicant proposes to conduct telemetry, growth and gut contents studies on killer whales, although we note that few of the 90 animals proposed for capture and release will be part of these important studies. Much more information would be gained by conducting the full range of these benign procedures on the greatest number of killer whales practical." Mr. Hair concluded by saying, "We conclude that the research proposed by the applicant will add significantly



to the data base on killer whales and will further clarify the status of the species off the West Coast. The future of this species hinges on the accumulation of research information such as that proposed by the applicant. For these reasons the National Wildlife Federation requests that the National Marine Fisheries Service grant the permit for taking for research."

B. Need for State of Alaska permits.

A great deal of discussion has centered on the need for State of Alaska permits prior to the onset of activities by Sea World. As I understand the language of the NMFS permit and the Marine Mammal Protection Act of 1972, the existing federal permit is all that is legally required at present for the applicant to conduct activities, at least in federal waters. While no state or federal permit is required to photograph and observe killer whales as long as the animals are not harassed, I am under the impression that the applicant has, since at least 1977, been working closely with the present and former Commissioners of Fish and Game in order to be sure that State of Alaska fish and wildlife resource interests are heeded and that Fish and Game officials are kept well informed of all proposed or intended activities.

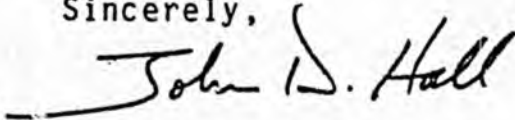
C. Need for captive killer whales for display and breeding program purposes.

Some people who have had the extreme good fortune to be able to see killer whales in the wild have suggested that there is little educational value to observing killer whales in captivity. This seems to me to be an incredibly short sighted and selfish view for that tiny minority of Americans to take. The vast majority of Americans who wish to learn of and appreciate the uniqueness of marine mammals have an exceptional opportunity to view first hand these fine animals in professionally run oceanaria such as Sea World. The millions of people who annually visit marine parks would never have had an opportunity to see, touch, feed or appreciate whales and pinnipeds if those parks did not exist. Films, even fine ones such as produced by Jacques Cousteau, pale before an opportunity to make eye contact with killer whales or touch the strangely soft, smooth skin of a bottle-nose porpoise.



I think it will be terribly short sighted and selfish if we Alaskans, representing only about 0.2% of the population of the rest of the United States, should refuse to allow activities that have been determined to be in the best interests of the entire nation. Governor Sheffield, as an Alaskan and marine mammal scientist, I urge you to support this effort to learn more about killer whales, both in the wild and in a professionally run oceanarium.

Sincerely,

A handwritten signature in cursive script that reads "John D. Hall". The signature is written in dark ink and is positioned below the word "Sincerely,".

John D. Hall, Ph.D.
President

JDH:hje



DEPARTMENT OF FISH AND GAME

OFFICE OF THE COMMISSIONER

P.O. BOX 3-2000
JUNEAU, ALASKA 99802
PHONE:

July 6, 1983

Mr. Robert B. Brumsted, Chief
Permits and Documentation Division
U.S. Department of Commerce
NOAA/NMFS
Washington, D.C. 20235

Dear Mr. Brumsted:

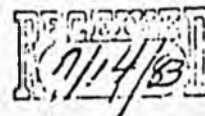
The following comments pertain to a scientific research and public display permit application submitted to your agency by Sea World, Inc. (application P2M). Taking of up to 100 killer whales would be authorized with up to 10 actually being removed from the wild. It is our understanding that most of the proposed research involving taking (as defined in the MMPA) as well as the capture and removal of whales would occur in waters adjacent to Alaska.

The Department of Fish and Game recommends approval of the Sea World, Inc. application. Killer whales are an important and highly visible component of the marine fauna of our waters. Nonetheless, relatively little is known about these magnificent animals. It is important that basic information about habitat preferences and utilization, movement patterns, food habits, and stock identity be obtained. The Federal Government is now on an accelerated leasing schedule of the outer continental shelf, for purposes of petroleum exploration and production. It is very important that basic biological information about living resources that use those lease areas be obtained.

We foresee a steady reduction in Federal and State funds available for biological investigations of our marine areas. Sea World, Inc. appears willing to underwrite, at least in part, scientific research which has applicability to issues raised by development of the outer continental shelf. We fully recognize that significant benefits will also accrue to Sea World in the form of gate receipts generated by killer whales they capture and maintain for public display. The trade-off, however, appears acceptable especially in view of the number of killer whales occurring in waters near Alaska.

One condition of the permit that we request is that approval of the State of Alaska must be obtained prior to any effort by Sea World, Inc. to take killer whales in State waters, under the broader authority of a Federal permit. There are many reasons for this, not the least of which is to avoid conflicts within designated State sanctuaries or marine

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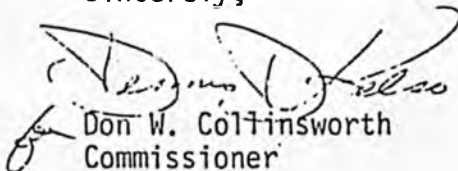


July 6, 1983

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mammal viewing areas. Additionally, there are other areas where the work might be interpreted as harassment of killer whales and might result in strong opposition from our citizens. Killer whales have an important role in the religious and social systems (e.g., clan totems) of peoples of some cultures within Alaska.

Thank you for the opportunity to comment.

Sincerely,


Don W. Collinsworth
Commissioner

cc: John Burns, ADF&G
C
C

CENTURY ENGINEERING, INC. CONSULTING ENGINEERS • PLANNERS

June 16, 1983

Mr. Robert B. Brumsted
Protected Species Division
National Marine Fisheries Service
Washington, D.C. 20235

Dear Mr. Brumsted:

I am writing you today with regard to the Marine Mammal Permit Application submitted by Sea World, Inc. to take by live capture, up to 100 killer whales, Orcinus orca, in the waters of Alaska and California over the next 5 years.

I am, though not surprised, disappointed at the recent outcry from certain elements of the marine mammal research community over this proposed activity.

As an eight year resident of Alaska with significant killer whale research in Prince William Sound (and resulting publications) under my belt, I believe it is incumbent upon the Secretary of Commerce, in conjunction with the NMFS and the Marine Mammal Commission, to endorse and expedite this matter to the maximum extent possible.

I have known, both as professional colleagues and personal friends, scientists and administrators of Sea World for the past 16 years. They have uniformly, and to an individual, placed the health and welfare of the animals they were working with foremost in their priorities. They have always been most cooperative and supportive of the research interests of professional colleagues, myself included.

When public sector funding or facilities for aspects of my marine mammal research was not available, Sea World has consistently stepped forward to provide support so the research might be continued. In 1969, when the Naval Undersea Center facilities at Pt. Loma in San Diego were still under construction, Sea World made available a killer whale and tank, and all associated support, so that I might conduct the behavioral audiogram work leading to our first understanding of killer whale hearing abilities. In 1976, when continuation funding from the Marine Mammal Commission was withdrawn before I was able to complete testing of the gastric lavage I designed for use on marine mammals, Sea World stepped forward and made available several porpoises, sea lions and support personnel, so that the lavage might be tested and perfected.

In 1977, when funding from NOAA was not available to conduct the summer aerial surveys I thought necessary in Prince William Sound, Sea World financed an extensive mid-summer effort, at considerable expense to themselves, in order that I might provide the Dept. of the Interior with a more complete picture of the summer cetacean distribution in Prince William Sound.

These are but three personal examples of the outstanding efforts by Sea World, Inc., and its employees, to assist with marine mammal research at considerable cost and risk to themselves.

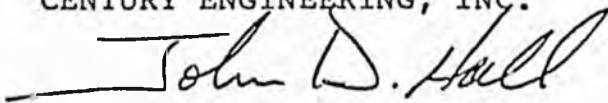
With the current significant reduction in public sector funding for marine mammal research, it seems even more imperative that the offer by a private sector source to fund highly important research, designed to meet the needs specified by the IWC, be accepted and allowed to proceed unimpeded.

I think most of us in marine mammal research would agree that it is extremely unlikely that any specimen collection activities regarding sacrificed killer whales will be permitted in the foreseeable future. Yet most workers would also agree that measurement of life history parameters critical to the successful management of the species is necessary. It would appear that one of the best ways to accomplish the necessary research, without sacrificing animals, would be to conduct non-destructive research on captive animals. The research and display program proposed by Sea World in their permit application would meet the criteria of non-destructive testing, and in addition would be conducted and overseen by the most professional and dedicated captive marine mammal staff, with the very best holding facilities, in the world.

To deny this permit application, in light of our critical need for additional killer whale information would, it seems to me, be not unlike shooting ourselves in the foot. I think we will find it very difficult to make scientific progress with a serious foot wound.

Sincerely,

CENTURY ENGINEERING, INC.



John D. Hall, Ph.D.
Senior Ecologist

JDH/css

cc: Mr. John Twiss

June 10 1983

To: Bob Brumstead
Acting Chief
Division of Endangered Species and Marine Mammals
NMMS
Dept. of Commerce
Washington D.C. 20235

6/17/83

From:
ORRIG MATKIN
North Gulf Oceanic
Society
Box 156
Cordova, AK
99574

Dear Dr. Brumstead

Excuse the hand written letter. I am currently in the field and do not have access to the typewriter.

I write concerning Sea World's application to take killer whales in Alaskan waters. I have a background of marine mammal research having done my M.S. research under Dr. Francis Fay at the University of Alaska on Marine Mammal-Fishery Interactions in Alaska and having completed several contracts for humpback whale research in Prince William Sound since that time. I have produced several papers concerning killer whales in the Prince William Sound-Copper River Alaska area and Puget Sound.

I feel Sea World's proposed project is feasible and would greatly advance research in the area. I have personally desired increased attention to the study of killer whales in the Prince William Sound region and this would seem a good opportunity for the initiation of that research. I believe capture operations should be closely monitored, however, I believe the opportunity exists to obtain animals without a large risk to the health and well-being of those animals.

I would support granting of research/capture permits as outlined in the Sea World application. An opportunity exists for carefully controlled capture and research and it should be taken.

Sincerely,
Orriq Matkin

APR 2 1984

APPENDIX 6
KILLER WHALES KEPT CAPTIVE¹

NAME	SEX	SIZE		CAPTURE DATE	PLACE ²	POD ³	AQUARIUM ⁴	STATUS	FINAL SIZE		TIME CAPT
		length (cm)	weight (kg)						length (cm)	weight (kg)	
1 No name	F	521	1,557	11/61	NH, CA	—	Marineland, CA	D* 11/61, gastroenteritis, pneumonia	521	1,857	1 day
2 Moby Doll	M	467	—	7/64	SI, BC	—	Vancouver, B.C. (held at Burrard Drydocks)	D 10/64, drowning (exhaustion?)	467	1,034	3 mos
3 Nanu	M	655	3,600	6/65	N, BC	—	Seattle, WA	D 7/66, clostridial enterotoxaemia	—	—	1 yr.
4 Shamu	F	410	1,090	10/65	CI, WA	—	Sea World, CA (first at Seattle, WA)	D. 8/71, pyometra, septicemia	544	—	6 yrs
5 Skana (Walter)	F	427	1,360	2/67	YH, WA	K	Vancouver, B.C. (first at Seattle, WA)	D 10/80, fungus	—	—	13½ y
6 Ramu	M	406	1,000	2/67	YH, WA	K	Sea World, FL (first at Seattle, WA)	Alive as of 8/80	—	—	13½ y
7 Kilroy	M	290	390	2/67	YH, WA	K	Sea World, CA (first at Seattle, WA)	D. ?/79, pneumonia?	—	—	12 yrs.
8 Katy	F	249	270	2/67	YH, WA	K	Seattle, WA	D. 5/67	—	—	3 mos
9 Kandu	F	312	700	2/67	YH, WA	K	Sea World, CA (Seattle, Wa. until 12/69)	D. 6/71, liver necrosis, pneumonia	442	—	4 yrs.
10 Orky	M	427	1,814	7/67	PtH, B.C.	—	Marineland, CA	D. 7/69, pneumonia (influenza?)	512	2,250	2 yrs.

*D = died

¹Includes all orcas kept for exhibition or research, plus those kept for more than a month with the intention of exhibition, even if they were later released or escaped; also includes orcas born in captivity.

²See Appendix 5 for full place names and capture data.

³According to Michael A. Bigg's system of letter designations for B.C.-Washington population of killer whales. "?" indicates that designated pod was present at the capture in the company of orcas from unidentified pods which may have been among those taken captive.

⁴See Appendix 7 for full names and addresses of aquariums that have exhibited killer whales.

11. Lupa	F	549	2,495	2/68	VB, WA	—	New York, NY	D. 9/68, respiratory ailment	—	—	7
12. Hugo	M	399	900	2/68	VB, WA	—	Miami Seaquarium, FL	D. 3/80, aneurysm of the brain	700	4,536	12
13. Hyak	M	500	1,800	2/68	PH, B.C.	—	Vancouver, B.C. (held at Pender Harbour)	Released 2/69	—	—	1
14. Irving (Skookum Cecil)	M	600	3,600	4/68	PH, B.C.	—	Vancouver, B.C. (held at Pender Harbour)	Escaped 8/68	—	—	4
15. Natsujalia	F	579	—	4/68	PH, B.C.	—	Vancouver, B.C. (held at Pender Harbour)	D 11/68, heart failure	—	—	7
16. Hyak (II) (Tung Jen)	M	290	450	4/68	PH, B.C.	—	Vancouver, B.C. (first at Pender Harbour)	Alive as of 10/80	—	—	12
17. Corky	F	401	1,150	4/68	PH, B.C.	—	Marineland, CA	D 12/70, mediastinal abscess	501	—	2
18. Orky (II) (Snorky)	M	511	—	4/68	PH, B.C.	—	Marineland, CA	Alive as of 10/80	—	—	12
19. Kianu	F	579	2,722	4/68	PH, B.C.	—	Shirahama, JAP. (Marine World, CA until 4/78)	D. 6/80	—	—	12
20. Bonnie	F	610	2,946	4/68	PH, B.C.	—	Marine World, CA	D. 7/68, stillbirth	—	—	3
21. Tula	M	399	—	7/68	MI, B.C.	—	Dolfinarium, NETH	D. 10/68, fungus (external)	—	—	3
22. Ishmael	M	518	2,041	10/68	YH, WA	P	U.S. Navy, HI	Escaped 2/71	—	—	2
23. Alah	M	579	2,495	10/68	YH, WA	P	U.S. Navy, HI	D ?/74	—	—	5
24. Haka	M	427	1,452	10/68	YH, WA	P	Sealand, B.C.	Alive as of 10/80	—	—	12
25. Mamek	M	399	1,361	10/68	YH, WA	P	Sea World, TX	D 6/74	—	—	5
26. Cuckoo	M	399	—	10/68	YH, WA	P	London Zoo, GB Farmingdale, N.Y., U.S.A. until 1977	D. 4/74 streptococcal meningitis, abscess, enterocolitis, etc.	—	—	5
27. Nana	F	427	—	4/68	CI, WA	—	Marineland, CA	D 5/77	—	—	1
28. —	F	427	—	4/68	CI, WA	—	Seattle, WA	D	—	—	—

#	NAME	SEX	SIZE		CAPTURE DATE	PLACE ²	POD ³	AQUARIUM ⁴	STATUS	FINAL SIZE		C
			length (cm.)	weight (kg.)						length (cm.)	weight (kg.)	
29	Calypso	F	518	2,000	12/69	PH, B.C.	A5	Marineland, FR. (Cleethorpes Zoo, G.B.)	D. 12/70, cause unknown	—	—	1
30	Corky (II)	F	366	—	12/69	PH, B.C.	A5	Marineland, CA	Alive as of 10/80	—	—	10
31	Patches	F	287	499	12/69	PH, B.C.	A5	Marineland, CA	D. 8/71, salmonellosis	365	—	11
32	No name	M	411	—	12/69	PH, B.C.	A5	Marineland, CA	D. 5/72, pneumonia	493	—	21
33	Nepo	M	366	1,136	12/69	PH, B.C.	A5	Marine World, CA	D. 7/80, pneumonia	686	4,082	10
34	Yaka	F	320	662	12/69	PH, B.C.	A5	Marine World, CA	Alive as of 10/80	—	—	10
35	—	?	457?	—	2/70	CI, WA	—	Seattle, WA (?)	Unknown	—	—	—
36	Chime	F	351	—	3/70	PB, B.C.	M	Sealand, B.C.	D. 11/72, Chediak-Higashi Syndrome	427	—	23
37	Newtka (Nootka)	F	411	1,814	3/70	PB, B.C.	M	Marineland, ONT. (first at Sealand, B.C., Japanese Deer Park, CA, Seven Seas, TX)	Alive as of 10/80	—	—	10
38	Scarred-jaw Cow	F	579	—	3/70	PB, B.C.	M	Sealand, B.C. (held at Pedder Bay)	D. 5/70, malnutrition	—	—	21
39	Charlie Chin	M	670	—	3/70	PB, B.C.	M	Sealand, B.C. (held at Pedder Bay)	Released 10/70	—	—	7
40	Pinked nose Cow	F	610	—	3/70	PB, B.C.	M	Sealand, B.C. (held at Pedder Bay)	Released 10/70	—	—	7
41	Lil Nooka	M	351	—	8/70	PC, WA	L8?	Sea-Arama, TX	D. 3/71	—	—	7
42	Winston (Ramu III)	M	406	—	8/70	PC, WA	L8?	Sea World, CA (Windsor Safari Park until 10/78)	Alive as of 8/80	—	—	10
43	Lolita	F	430	909	8/70	PC, WA	L8?	Miami Seaquarium, FL	Alive as of 8/80	—	—	10
44	Jumbo	M	475	1,300	8/70	PC, WA	L8?	Kamogawa, JAP.	D. 7/74, liver dysfunction	533	1,600	4
45	Chappy	F	350	600	8/70	PC, WA	L8?	Kamogawa, JAP.	D. 4/74, periostitis of lumbarbone	382	555	—
46	Clovis	M	335	—	8/70	PC, WA	L8?	Marineland, FR.	D. 2/73, clostridial myositis	520	—	—
47	Ramu (IV)	M	351	726	8/70	PC, WA	L8?	Marineland, AUST.	D. 8/71	—	—	—
48	Whale	F	280	—	8/70	PM, WA	—	Munich, W. GER. (first at Seattle, WA)	D. 10/71, cause unknown	—	—	—
49	Kona	F	434	—	8/71	PC, WA	L8	Sea World, CA	D. 9/77, mediastinal abscess (containing bullet)	582	2,409	—
50	Kandu (II)	M	396	818	8/71	PC, WA	L8	Marineland, ONT. (first at Seattle, WA, Bremen, W. GER.)	D. 10/79, pneumonia	—	—	—
51	Kandu (III)	F	323	864	8/71	PC, WA	L8	Sea World, CA	D. 6/75, uremia-nephritis	508	—	—
52	—	M	401	—	11/71	CI, WA	—	Seattle, WA (?)	D.	—	—	—
53	—	M	411	—	11/71	CI, WA	—	Seattle, WA (?)	D.	—	—	—
54	Kanuck	M	290	800	3/72	CI, WA	—	Sea World, CA	D. 12/74, anemia, fungus (Candida) infection	419	—	—
55	Sandy	F	488	—	3/73	OC, WA	—	Sea World, FL (first at Seattle, WA, Sea World, CA)	D. 10/77, cerebral hemorrhag.	579	3,182	—
56	Nootka (II)	F	579	—	8/73	PB, B.C.	K	Sealand, B.C.	D. 5/74, ruptured aorta	579	—	—
57	Taku ("KI")	M	700	—	8/73	PB, B.C.	K	Sealand, B.C. (held at Pedder Bay)	Released 10/73, (radio-tagged)	700	—	—
58	Kandy	F	540	1,818	8/73	PB, B.C.	—	Marineland, ONT.	D. 11/73, pneumonia	540	—	—
59	Frankie	M	594	—	8/73	PB, B.C.	—	Sea World, CA	D. 1/74, pneumonia (influenza?)	594	—	—
60	Nootka (III)	F	381	864	8/75	PB, B.C.	Q	Sealand, B.C.	D. 5/76, perforated post-pyloric ulcer	344	1,041	—
61	—	M	427	1,164	9/75	PB, B.C.	Q	Marineland, ONT.	Alive as of 9/80	—	—	—
62	—	F	610	—	1/76	BL, WA	O	Seattle, WA	Released 4/76, (radio-tagged)	—	—	—
63	—	M	549	—	1/76	BL, WA	O	Seattle, WA	Released 4/76, (radio-tagged)	—	—	—

NAME	SEX	SIZE		CAPTURE		POD ¹	AQUARIUM ⁴	STATUS	FINAL SIZE		TIME CAPT
		length (cm)	weight (kg)	DATE	PLACE ²				length (cm)	weight (kg)	
64 Kim	F	450	1,400	10/76	ICE.	—	Marineland, FR.	Alive as of 8/80			3 1/2
65 Kenau (7601)	F	300	420	10/76	ICE.	—	Sea World, CA (Dolfinarium, NETH. until 6/77)	Alive as of 7/80			3 1/2
66 Gudrun	F	270	350	10/76	ICE.	—	Dolfinarium, NETH.	Alive as of 9/80			3 1/2
67 No name	M	228	200	2/77	Live birth	—	Marineland, CA	D. 3/77, pneumonia, bowel stasis, cerebral edema	228	145	18 da
68 Miracle	F	305	364	8/77	MB, B C	—	Sealand, B.C.	Alive as of 9/80			3 yrs
69 Kona (II) (7791)	F	300?	—	10/77	ICE.	—	Sea World, CA (Dolfinarium, NETH. until 12/77)	Alive as of 6/80			2 1/2
70 Kanuck (II) (7705)	M	300?	—	10/77	ICE.	—	Sea World, CA (Dolfinarium, NETH. until 12/77)	Alive as of 6/80			2 1/2
71 Kandu (V) (7706)	F	300?	—	10/77	ICE.	—	Sea World, CA (Dolfinarium, NETH. until 12/77)	Alive as of 6/80			2 1/2
72 Hoi Wai (Susie Wong)	F	270	350	10/77	ICE.	—	Ocean Park, HONG KONG (first at Dolfinarium, NETH., Windsor Safari Park, G.B. till 1/79)	Alive as of 6/80			2 1/2
73 Winnie	F	275	—	10/77	ICE.	—	Windsor Safari Park, G.B. (first at Dolfinarium, NETH.)	Alive as of 9/80			2 1/2
74 No name	M	326	—	10/77	ICE.	—	Dolfinarium, NETH.	D. 12/77, agranulocytic anemia	326	490	2 mo
75 No name	M	236	210	10/78	Live birth	—	Marineland, CA colitis	D. 11/78, pneumonia,	236	159	11 d
76 7801	M	300?	—	10/78	ICE.	—	Sea World, CA	Alive as of 4/80			1 1/2
77 7802	F	300?	—	10/78	ICE.	—	Sea World, CA	D.	—	—	—
78 7803	F	300?	—	10/78	ICE.	—	Sea World, CA	Alive as of 4/80			1 1/2
79 7804	F	300?	—	10/78	ICE.	—	Sea World, CA	Alive as of 4/80			1 1/2
80 Betty	F	—	—	10/78	ICE.	—	Marineland, FR.	Alive as of 6/80			1 1/2
81 ———	F	300?	—	10/78	ICE.	—	Sea World, CA (Marineland, ONT. until 6/79)	Alive as of 4/80			1 1/2
82 No name	?	300?	—	11/78	ICE.	—	Sædyrasafnid, ICE.	D. 1/79, heart attack	—	—	2 n
83 No name	?	300?	—	11/78	ICE.	—	Sædyrasafnid, ICE.	D. 1/79, pneumonia	—	—	2 n
84 No name	?	300?	—	11/78	ICE.	—	Sædyrasafnid, ICE.	Released. 2/79			3 n
85 No name	?	300?	—	11/78	ICE.	—	Sædyrasafnid, ICE.	Released. 2/79			3 n
86 No name	?	300?	—	11/78	ICE.	—	Sædyrasafnid, ICE.	Released. 2/79			3 n
87 ———	M	700	4,000	2/79	JAP.	—	Taiji Whale Museum, JAP.	Alive as of 6/80			1 y
88 ———	F	610	3,100	2/79	JAP.	—	Taiji Whale Museum, JAP.	D. 5/79	—	—	3 m
89 ———	F	635	3,100	2/79	JAP.	—	Shirahama, JAP.	D. 3/79	—	—	1 m
90 ———	F	650	—	2/79	JAP.	—	Shirahama, JAP.	D. 4/79	—	—	2 m
91 ———	M	520	—	2/79	JAP.	—	Shirahama, JAP.	Alive as of 6/80			1 y
92 King	M	370	760	6/79	ICE.	—	Kamogawa, JAP. (first at Sædyrasafnid, ICE., Lubeek, W. GER., Marineland, ONT. until 3/80)	Alive as of 9/80			1 y
93 No name	M	300	—	10/79	ICE.	—	Marineland, ONT (first at Sædyrasafnid, ICE.)	Alive as of 9/80			11 m
94 Kandy (II)	F	300	—	10/79	ICE.	—	Marineland, ONT (first at Sædyrasafnid, ICE.)	Alive as of 9/80			11 m
95 No name	M	300	—	10/79	ICE.	—	Marineland, ONT. (first at Sædyrasafnid, ICE.);	D. 1/80, acute enterotoxaemia	—	—	3 n

= NAME	SEX	SIZE		CAPTURE		POND	AQUARIUM*	STATUS	FINAL SIZE	
		length (cm)	weight (kg)	DATE	PLACE				length (cm)	weight (kg)
96	M	300	—	11/79	ICE	—	en route to Kamogawa/JAP. Connlyland, SWITZ. (first at Sædyrasafnid/ICE, Mannheim, W. GER.)	Alive as of 6/80	6 mo	
97. Caren	F	362	915	11/79	ICE	—	Kamogawa, JAP (first at Sædyrasafnid, ICE, Marineland, ONT until 3/80)	Alive as of 9/80	16 mo	
98	?	—	—	11/80	ICE	—	En route to Spain 12/80, (first at Sædyrasafnid, ICE.)	Alive as of 12/80	1 mo	
99. No name (no. 1)	F	300	400	11/80	ICE	—	Vancouver, B.C. as of 12/80, en route to Marine World, CA. (first at Sædyrasafnid, ICE.)	Alive as of 12/80	1 mo.	
100. Blossa	F	400	820	11/80	ICE	—	Vancouver B.C.	Alive as of 12/80	1 mo.	
101. Finna	M	350	600	11/80	ICE	—	Vancouver, B.C. (first at Sædyrasafnid, ICE.)	Alive as of 12/80	1 mo.	
102. No name (no. 4)	F	—	—	11/80	ICE	—	Vancouver, B.C. as of 12/80, en route to Japan (first at Sædyrasafnid, ICE.)	Alive as of 12/80	1 mo	

APPENDIX 7 INSTITUTIONS WHICH HAVE KEPT KILLER WHALES CAPTIVE

AUSTRALIA

Marineland of Australia
P.O. Box 823
Southpost, Q 215, Main Beach
Gold Coast, Queensland, Australia
(Two orcas exhibited 1969-1971; none since then)

Telephone: 93-334949
Private company
Owner: Roland de la Poype
Manager: Michael Riddell
Trainer: Martin Padley
Consulting vet: Dr. D.C. Taylor and Dr. A.G. Greenwood
(Four orcas exhibited since 1970; two alive 9/1980, both captured off Iceland)

CANADA

Marineland and Game Farm
7657 Portage Road
Niagara Falls, Ontario
Telephone: 416-356-8250
Private company
Owner: John Holer
Vet: Dr. Charles Godsell
Head trainer: Bill Roberts
(Seven orcas exhibited; four alive 10/1980)

GREAT BRITAIN

Cleethorpes Zoo and Leisure Park (Closed 1978)
Kings Road
Cleethorpes, South Humberside
Great Britain
Consulting vet: Dr. D.C. Taylor
(One orca exhibited for a few months in 1970; none since then)

Sealand of the Pacific Ltd.
1327 Beach Drive
Victoria, B.C. V8S 2N4
Telephone: 604-598-3366/73/74
Private company
Owner: Bob Wright
Manager: Angus Matthews
Vet: Dr. Alan Hoey
Head trainer: Cees Schrage
(Six orcas exhibited; two alive 10/1980)

Dudley Zoological Society Ltd. (Dudley Zoo)
Castle Hill
Dudley, Worcester
Great Britain
Telephone: Dudley 52401
Owned by zoological society
Director: M.J. Williams
Curator: C.B. Round
Consulting vet: Dr. D.C. Taylor and Dr. A.G. Greenwood
(One orca exhibited 1971-1974; none since then)

Vancouver Public Aquarium
P.O. Box 3232
Vancouver, B.C. V6B 3X8
Telephone: 604-685-3364
Owned by nonprofit society
Director: Dr. Murray A. Newman
Curator: K. Gilbey Hewlett
Head trainer: Klaus Michaelis
(Nine orcas exhibited, including Moby Doll and several orcas at Pender Harbour; three alive 12/1980)

Flamingo Land (Flamingo Park Zoo)
Kirby Misperton
Malton, Yorkshire
Great Britain YO17 OUX
Telephone: Kirby Misperton 287
Private company
Consulting vet: Dr. D.C. Taylor
(One orca exhibited 1968-1971; none since then)

FRANCE

Marineland Côte D'Azur
avenue Mozart, 06600
Antibes, France

Royal Windsor Safari Park
St Leonards
Windsor, Berkshire



Ginger Baine
Senator Vic Fischer
Pouch V, State Capitol
Juneau, AK. 99811

January 12, 1984

Dear Senator Fischer:

Sea World, Inc.'s permit to capture 100 orcas (killer whales) in Alaska coastal waters over the next five years may possibly jeopardize the State's viable orca population. As a result, Rep. Rod Chandler (R-WA) has introduced a bill to the U.S. House of Representatives that will serve to prohibit the capture of orcas for commercial public display. Also, some Alaska officials are considering the introduction of similar legislation to protect the State's orcas. I am providing your office with pertinent information concerning the practice of holding orcas in captivity.

**GREENPEACE
NORTHWEST**

GOOD SHEPHERD
CENTER
4649 SUNNYSIDE
AVENUE NORTH
SEATTLE, WA
98103

TELEPHONE
206/632-4326

Sea World's precedent-setting permit--which has been issued by the National Marine Fisheries Service (NMFS)--not only threatens the viability of the Alaska population, but also could hold detrimental implications for the International Whaling Commission (IWC) commercial whaling ban that will take effect in 1986. The United States' credibility as a world leader for protection of whales could be undermined if a whale capture operation of Sea World's magnitude is allowed.

A rising awareness of the plight of the whale has induced growing public opinion that the cruel practice of capturing orcas and the inhumanity of holding them captive must end. Not only will the whales captured for permanent display be impacted, as often other family (pod) members have been injured or traumatized--and even killed--during such operations. Then, in captivity, an orca's lifespan averages approximately seven years (according to Sea World's figures), while orcas usually live from 50 to 100 years in the wild.

I have included Rep. Chandler's H.R. 4457; a Greenpeace position paper; the Washington State Senate Resolution that prohibits capture of orcas in State waters; pertinent news clippings; as well as a selection and an appendix from Erich Hoyt's The Whale Called Killer (New York: E.P. Dutton, 1981).

Please act to protect the orca population of Alaska. Please do not hesitate to contact me at Greenpeace's Seattle office for any additional information and assistance. I look forward to working with you.

Yours Sincerely,

Alan Reichman
National Wildlife Coordinator
Greenpeace, U.S.A.

A NON-PROFIT
TAX-EXEMPT
ORGANIZATION

GREENPEACE U.S.A.

2007 "R" St. N.W.
Washington, D.C. 20009

Tel. (202) 462-1177
Tlx. 89-2359

GREENPEACE U.S.A. POSITION CONCERNING THE CAPTURE AND PUBLIC DISPLAY OF KILLER WHALES (ORCINUS ORCAS)

Orcas have become a top attraction for aquariums and amusement parks worldwide. Unfortunately, the dangers of orca capture operations and the problems associated with keeping representatives of the species alive in captivity warrant the end of this practice. Greenpeace U.S.A. urges that no more permits be issued to allow the capture of orcas for public display, and non-benign, intrusive research purposes.

Greenpeace U.S.A. is opposed to the capture of orcas for public display for the following reasons:

1-The life expectancy of orcas in captivity is considerably lower than for wild, free orcas residing in their natural habitats. Furthermore, a significant number of orcas do not survive initial introduction to captive enclosures and die during their first year in captivity.

2-Sustained capture operations in specific geographic regions have resulted in considerable drops in orca populations within those regions. Given the high mortality rate for captive orcas, and aquariums' continuous need to replace deceased orcas--as well as the desires of additional facilities to obtain orcas for display--any issuance of a capture permit will sanction the issuance of future permits. As a result, serious population depletions could be incurred in areas such as Alaska, Iceland, etc.

3-Given the physical size of orcas and the intricate, dynamic nature of their family units (pods) humane capture techniques for the species have not been devised. Orcas have been killed incidentally during capture operations in the past. Also, the rigors of transport in boats and cargo planes are considerable.

4-Captive enclosures for orcas simply are not suitable for the well-being and health of the animals. An adequate habitat replica for orcas simply cannot be created at the present time. The orca's inability to reproduce in captivity clearly illustrates this problem.

5-As highly intelligent marine mammals, orcas suffer tremendous stress and trauma in captivity. Scientists have observed psychological and physiological differences between captive and free orcas. This stress and trauma factor causes psychological and physiological ailments in captive orcas.

Greenpeace U.S.A. urges that the capture of orcas for captive display and non-benign, intrusive research not be permitted. We must weigh human wants for entertainment against the needs of these animals for well-being--and survival. Research should be conducted in a benign, non-intrusive fashion; orcas should not be herded and captured for research purposes.

GREENPEACE U.S.A.

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Washington, D.C. 20009

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-2-

Orcas should not be held in captivity. Moreover, eventually the captivity and public display of other cetacea species should be phased out. Many of the problems associated with holding orcas in captivity apply to other species as well.

IN THE LEGISLATURE
of the
STATE OF WASHINGTON



SENATE RESOLUTION 1976-222

By Senators, Cunningham, Bailey, Lewis (Harry), McDermott, Wilson and vonReichbauer:

WHEREAS, Certain species of marine mammals are, or may be, in danger of extinction or depletion as a result of man's activities and such species should not be permitted to diminish beyond the point at which they cease to be a significant functioning element in the ecosystem of which they are a part; and

WHEREAS, There presently exists within Puget Sound and the salt waters contiguous thereto a species of mammal commonly known as the "killer whale;" and

WHEREAS, There is inadequate knowledge of the ecological and population dynamics of such mammals and of the factors which bear upon their ability to reproduce and survive in an atmosphere of continuing encroachment by man; and

WHEREAS, It is the sense of the Washington Legislature that the killer whales should be protected and encouraged to develop in a natural state and that the primary objective of their management should be to maintain the health and stability of the marine ecosystem; and

WHEREAS, Present methods and techniques of pursuing and capturing the killer whales present substantial and serious questions as to their efficiency, humaneness and effect on marine life in this delicate ecosystem;

NOW, THEREFORE, BE IT RESOLVED, By the Senate of the State of Washington, that the United State Congress be requested to declare an immediate moratorium on the intimidation, harassment, hunting and capturing of killer whales in Puget Sound and adjacent salt waters;

BE IT FURTHER RESOLVED, That the United States Congress be requested to direct the appropriate federal agencies to cease issuing permits to hunt and/or capture this mammal and revoke all such existent permits;

AND BE IT FURTHER RESOLVED, That copies of this resolution be sent to the United States Department of Commerce, the National Marine Fisheries Service, members of the Congressional delegation from this state, the Marine Mammal Commission, and the Scientific Advisors on Marine Mammals.

Adopted March 9, 1976



SUBMISSION TO NMFS PUBLIC HEARING, SEATTLE, WASH. AUGUST 16-17, 1983

My name is Paul Spong. I am the director of ORCALAB, a 13 year old research station located on Hanson Island in the Johnstone Strait region of British Columbia, Canada.

I wish first to thank you for the opportunity to be here and secondly to say that I am somewhat disappointed at having just ten minutes allocated, as I had hoped to occupy your attention for half an hour. However, I have negotiated a few minutes here and there from some of the other participants who have read my written submission and think it deserves to be heard in its entirety. I therefore beg your indulgence. I won't take half an hour, but I may take twenty minutes. If I cease to be relevant I shall of course expect you to stop me.

I wish to present the report of a workshop on the Sea World application to capture 100 and take 10 Orcinus orca. Those involved wish to make it clear that they participated as individuals, not as representatives of the universities, government or private organisations to which they belong. Collectively, the group effort represents the insight of more than 70 years of scientific and other observation of Orcinus orca, in captivity and in the ocean.

Sir, may I proceed?

REPORT OF WORKSHOP ON:
SEA WORLD APPLICATION TO
CAPTURE 100 AND TAKE 10
ORCINUS ORCA.

TC: National Marine Fisheries Service,
Washington, D.C.

PARTICIPANTS: David Bain
Grahme Ellis
Linda Ellis
Deborah Ford
John Ford
Jeff Jacobsen
Susan Kruse
Paul Spong

OBSERVERS: David Garrick
Helena Symonds
Peter Thomas

INFORMATION: Michael Bigg

INTRODUCTION:

1. The meeting was convened by Spong and held at Orcalab, Hanson Island, B.C. and at locations in the Johnstone Strait region, August 12-15, 1983. Bigg was consulted by phone and reviewed the final draft.

2. Although the participants were willing to comment upon the content of the Sea World proposal, it was agreed that others had spoken capably regarding many specifics and to therefore emphasise the potential of field work with *Orcinus orca*, it's relevance and it's need regarding proposals such as Sea World's.

3. To preface with the conclusion, the Alaskan *Orcinus orca* population, being unexploited and available, represents a unique scientific opportunity which should be grasped before uninformed exploitation occurs. The Sea World breeding plan might be feasible in the future but is unlikely to succeed given the present state of knowledge.

4. The IWC has adopted a mandate to regulate the take of *Orcinus orca*; under it's evolving rules a previously unexploited population should be subject to numerical determination before exploitation. Though it has been started, this has not been concluded for the Alaskan *Orcinus orca* population. Obviously, it should reach a point of scientific and statistical satisfaction before exploitation is permitted.

5. Contemporary field studies of *Orcinus orca* (Bigg et al, 1976; Bigg, 1981; Balcomb et al, 1980; Ford and Fisher, 1981) began as a result of live capture from Puget Sound-British Columbia pods in the absence of any knowledge about the population being exploited, and concern for the impact of these removals on the population.

75 animals were removed from this unknown population between 1964 and the present.

It was soon found that individual whales could be identified by natural markings. By 1976 the total B.C. population was individually identified and an accurate census reached.

The conclusion from this work was that the total B.C. population of *Orcinus orca* was just a fraction of what it was previously thought to be. The present B.C. population is 285.

These photo ID studies resulted in discovery of pod dynamics: a family-based social system in which pods are individual family groups stable over time.

Studies of pod distribution indicated there was another level of social organisation, into communities comprising several pods which may occupy home ranges.

Age structure of the population was determined.

Studies of dialects in *Orcinus orca* began in 1978. It was determined that there are pod differences in calls and that stock structure and relationships between pods can be examined using calls. These and related studies continue. There is a good chance that they will succeed in illuminating presently unclear relationships between individuals and pods that are critical to reproduction. Until this information is available, it makes little sense to cull individuals for a breeding programme, as it would amount to haphazard selection and therefore be unlikely to succeed.

Given sufficient effort, it is likely that within a few years there could be sufficient information for selection of certain individuals from the Alaskan *Orcinus orca* population, and have a good chance that they will breed successfully. At present, breeding dynamics are largely unknown and any breeding programme that involves selection and removal of pairs is unlikely to succeed.

SPECIFIC COMMENTS:

1. Proposal to pull teeth:

(i) In general, the purpose of aging teeth is to determine the age structure of a population, mortality rates and birth rates. In *Orcinus orca*, the technique should be avoided, it doesn't work well, tooth rings become occluded at 25-30 years, although one individual has been aged at 34 years (Christenson, 1982). Mitchell's 1981 conclusion that an animal visually identified over a continuous period that implied an age of 80 at least, was just 35 years old at death, illustrates the problem. The periodicity of dentine layering has not even been clearly established yet.

(ii) Animals selected for captivity do not need to be aged 'v pulling teeth: length is sufficient.

(iii) If it is correct that tooth extraction is an easy procedure, it should be possible to prove it on captive. How many existing Sea World or other animals (Oo) have been aged using this technique, with what results?

(iv) Tooth extraction may cause structural damage to the lower jaw, involve possibility of infection, nerve and bone damage.

(v) In view of recent collections (e.g. USSR take of 920 in 1981) there are likely to be sufficient available teeth for any conclusion that would be informative regarding the species; the Sea World contribution would be a small addition to the collection presently available for analysis.

(vi) A proven technique exists for determining population age structure, reproduction and mortality: long-term photo identification. In British Columbia analyses of a 10 year data file indicate a median age of 48 years, so any definitive study would take some time.

(vii) Conclusion: if the study will not yield population age structure, there is little point in doing it.

2. Proposal to Examine Stomach Contents:

(i) Field work, though it might not be as conclusive regarding specifics, is likely to be sufficiently informative regarding feeding habits and needs. For example, in British Columbia scale sampling has established that all salmon species are taken.

(ii) If stomachs are sampled from an entire pod, content analyses are likely to be duplicate, therefore multiple replication of the procedure in a single capture is likely redundant.

(iii) If the whales are lifted on deck for this treatment, the stress involved may induce vomiting, though in such cases material might be salvaged from deck scrapings. If animals are left in nets for a prior adaptation period, digestion might reduce the usefulness of the lavage.

3. Proposal for Radio Tagging:

(i) Radio tags involving bolt attachment of packages to dorsal fins have proven ineffective and harmful in past studies (Bigg, pers. comm.) Photographs are appended documenting this point.

(ii) Suction tags have proven useful as a short-term method of benign radio tagging in other cetacean species (Goodyear, 1981), and should be used prior to any potentially injurious procedures.

(iii) Satellite tracking and benign attachment procedures may prove useful in the future, but at this time studies of movement using natural markings are likely to be more informative, especially if conducted over a long period.

(iv) At the present time, studies of movement using natural markings are probably more effective and less harmful than the proposed radio tagging.

4. Proposal to attach Spagetti or Streamer Tags:

(i) This is largely redundant, given the effectiveness of photo identification. The only advantages would be easier identification of marked animals by aerial observation and by untrained observers.

5. Proposal for Freeze Branding:

(i) This proposal is also redundant.

(ii) Cryogenic markings have a limited duration, almost certainly less than that of natural markings (Bigg, pers. comm.)

6. Proposal to conduct Hearing Studies:

(i) In itself, the use of surface electrodes and computer extraction of auditory evoked potentials would not be harmful.

(ii) However, stress associated with removal of the animals from the water is cause for concern. The procedure would prolong deck time, as it could not be accomplished simultaneously with gastric or stomach lavage.

(iii) In view of the small number of subjects required for this type of study, there are probably already sufficient numbers of captives available. How many captives has the procedure been applied to?

7. Proposal to conduct Liver Biopsies:

(i) This procedure, presumably of use in the selection of animals for permanent removal, is also likely to be stressful.

(ii) Blood analyses are likely to be as useful for chromosome study and health screening.

(iii) Has the procedure been proven safe and useful with captives?

8. Proposed Breeding Programme:

(i) Given the present state of knowledge, selection of animals for breeding will be difficult. It is not even possible to say whether they should be from the same or different pods or dialect groups. For example, Marineland's Orky and Corky, the only captive pair to produce offspring to date (4, all failed to survive infancy), are from the same dialect group. However, another pair from a single capture, Marineworld's Yaka and Nepo, did not breed or even attempt copulation.

(ii) Of all the combinations of haphazard captive pairings that have occurred over the past 15 years, none has resulted in successful breeding and rearing. This indicates the dimension of the problem.

(iii) Experiential, as well as genetic factors seem likely to be critical. In the Marineland case, the parents do not seem to have sufficient knowledge about rearing to conduct it successfully. Although this factor might be countered by placement of mature animals in the captive group, this presents another problem: mature *Orcinus orca* do not survive very long in captivity.

(iv) Possibly the best experience/age compromise would be to take 4-5 year old animals that had younger siblings. These might have learned something about rearing and still be young enough to survive.

(v) Given sufficient field effort, it would probably be possible to make selections with a fair chance of success. Once the breeding units

are sorted out, this could be done. Skin and blood samples would enable determination of parents and offspring. However, this would require invasive procedures. Moreover, it is first necessary to determine pod membership, a task that requires at least two years of intensive effort.

(vi) Cytogenetic studies might be useful in determining blood lines. For example, saddle patch consistency between individuals very likely results from close genetic association. In Alaska, this study could possibly be done in 2-3 years.

(vii) If haphazard selection procedures are used, which would be the case if the project proceeds in the absence of the required knowledge, removals could be detrimental to pod survival. For example, in B.C.'s "B" pod, there is a single female; if she were to be taken the pod would eventually terminate.

(viii) If transient animals are selected first, they are very unlikely to breed with other individuals from resident pods. Would this mean the breeding programme would have to rely entirely on transients? It may not be immediately apparent which pods are transient and which are resident.

(ix) The proposal covers a size range from birth to sexual maturity. As indicated above, mature animals have very little chance of captive survival. Furthermore, the taking of mature reproducing members of a pod would likely diminish the reproductive potential of the pod, and as well disrupt the close-knit social structure of the pod by removing key members. Mature animals should not be taken.

(x) Determination of genetic associations, using acoustics, cytogenetics, behavioural observation and other methods, is one of the most exciting aspects of current field investigations of *Orcinus orca* in British Columbia and Puget Sound. Yet, in both populations the genetic situation is clouded by the fact that these are already exploited stocks. The Alaskan population, being unexploited, therefore represents a great scientific opportunity and challenge. It would be most unfortunate if the scientific opportunity is not fully exploited before physical interference with the pods occurs.

(xi) To conclude, not enough is presently known about the key factors involved in *Orcinus orca* reproduction for the Sea World breeding proposal to have any real chance of success at this time. However, if the needed scientific effort is made, perhaps within a few years enough will be known to justify the attempt.

SCALE OF TAKE:

1. If the Sea World request is granted, in fairness NMFS and others will be constrained to issue permits for further removals to replace existing display animals at other sites over the next five years.

2. This need can be anticipated as follows:

Miami 2 (Hugo, recently dead, Toki, old)

San Francisco	1-2	(Yaka, old, Nepo recently dead)
Los Angeles	2	(Orky, Corky, old)
Ontario	1-2	(Kandu, Nootka, old)
Vancouver	0-1	(Hyak, old)
Total	6-9	

Other sites:

Victoria	0	(just got 3 Icelandics, 2 alive)
Sea World	0	(have enough Icelandics to last a while)

Unexpected deaths are an unknown factor.

Added to the Sea World request, it is quite likely that permits for 20 removals from the Alaskan population could be issued in the next five years.

3. To maintain population levels with this level of removal, a capturable population of 500-1000 would be needed, if growth rates are similar to those of B.C. (1-2%). However, because the B.C. population is already depleted, it's growth rate is probably higher than that of the Alaskan population. It is reasonable to conclude that the Alaskan population should be demonstrated to comprise at least 1000 available animals before a take of 20 is permitted.

RESEARCH WORTH DOING:

This should be non-injurious to the whales, not like tagging or pulling teeth, and could include the following:

Blood tests:

- Health
- Enzymes
- Chromosomes
- Hormones (nepro status)

Photos: ID

- Morphology
- Sexing

Respiratory gases

Hearing tests

Measurements

Acoustics

Stomach contents (marginal)

Biopsies (for protein sequences - marginal)

RESEARCH THAT IS NOT PROPOSED BUT SHOULD BE:

Recordings of sounds from individuals, ? using contact hydrophones.

Stress measurement.

Extensive population study using photo identification techniques, prior to permit issuance.

POTENTIAL CANADIAN CONFLICT:

1. The Sea World application does not specify capture site: within Alaskan waters.
2. The northern British Columbia community of *Orcinus orca* probably spends some time in Alaskan waters, although the duration and distance of this penetration is not yet known.
3. Because of this there is a possibility that B.C. pods could be subject to capture within Alaskan waters.
4. This potential conflict should be resolved before any permits are issued to take the species in Alaskan waters.

SUMMARY:

1. The permit request to take 10 animals exceeds the number required for public display by Sea World.
2. Establishment of a breeding programme is the only justification for a large take, but:
3. *Orcinus orca* need experience to successfully rear calves.
4. Experienced animals will be very difficult to maintain.
5. Distantly related *Orcinus orca* may not be able to breed due to chromosomal incompatibility.
6. Closely related *Orcinus orca* may have inbreeding problems.
7. An appropriate pair could be determined for B.C. whales within 2

years (if politically acceptable, they could then be taken).

8. Several years of study will be needed before a pair of Alaskan animals could be taken that would have a reasonable chance of breeding.

9. As the Alaskan *Orcinus orca* population is still unexploited, great care should be taken to avoid repetition of the mistakes of the past that were made with B.C. and Puget Sound populations.

10. The IWC, as it has adopted a mandate to manage *Orcinus orca* stocks, should be involved in the process. If NMFS wishes to issue the permit requested by Sea World, it should be referred to the IWC for comment by the Scientific Committee.

CONCLUSION:

Sea World should show why their breeding programme will succeed where they and others have failed. Considerable research needs to be done before it is seriously considered. Once the research is done, a large take might be approved, provided the population is numerically sufficient to sustain it, and once Sea World has demonstrated that they have a reasonable chance to obtain a successful breeding result.

It would be foolish to proceed with a breeding programme in the present climate of knowledge about reproduction in *Orcinus orca*. In a few years more will be known, perhaps enough to do it successfully. To proceed now would be against Sea World's own best interest. If the programme is attempted now, and fails as it almost certainly will, NMFS might be heavily constrained to refuse any further application.

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Mitchell, E. AND A.N.T. GER, 1980. AGE OF REPORTEDLY OLD KILLER WHALE (*ORCINUS ORCA*), CATCHED FROM EDEN, TWOFOLD BAY, AUSTRALIA. REPORT OF THE INTERNATIONAL WHALING COMMISSION, SPECIAL ISSUE #3, 143-54

That concludes the workshop report. I should like to add a few personal remarks.

I, too, am a person who is greatly impressed by Sea World, its achievements and in many ways its attitudes. When I say they do a great job exhibiting and breeding penguins, I am not making a merely flippant remark. They do, and this represents a significant scientific and zoological achievement. Penguins are not their only success in innovative captive husbandry.

I recently had the pleasure of being escorted around Sea World by Lanny Cornell, Frank Powell, Frank Todd and Bill Evans. This was very helpful to me in gaining a clear perspective. There is no question that Sea World, in many ways, does a marvellous job. Yesterday someone described Sea World as the Disneyland of the ocean. I agree, and again this is not merely a flippant remark. Disney's achievements are a form of excellence. So are Sea World's. And in the field of marine and cetacean science, so are the achievements of Hubbs-Sea World Research Institute. Bill Evans, who cannot be here with us because of a serious illness, is a man whom I have known and respected for many years. He is a fine and serious scientist, and a compassionate and insightful man. I am sure we all wish him well and a speedy recovery.

Steve Leatherwood, whom I've also known and respected for many years, is a hardworking and competent, dedicated and thoughtful scientist and human being. He is also one of the most generous and best organized people I know. Try asking Steve for something sometime: he'll deliver. The only good thing I have heard about the Sea World plan so far is that Steve will direct and implement it. So far as the Sea World plan can be implemented, Steve Leatherwood will do a good job of it.

But there, I am afraid, we part company.

In my considered opinion, the Sea World proposal is ill-timed, for the following reasons:

1. Not enough is presently known about pod dynamics as they relate to breeding patterns to give the core project a real chance of succeeding. Such knowledge can be gained, but we shall have to be patient a little longer.

2. Approval of the project at this time would contradict the U.S. position in support of the IWC Convention. The guidelines under which the IWC operates clearly call for population evaluation, to a point of

satisfaction under review by the Scientific Committee of that body, prior to exploitation.

When I was at Sea World, Frank Todd, the brilliance who put together the penguin success, told me: "Paul, we should be working together, not against each other." I agree, I too want to end the acrimonious debate. When Bill Evans showed me his 300' long towed hydrophone array - a piece of gadgetry that enables him to follow cetacean sounds from up to six miles away - I wanted it. It's application to present field studies would end one of their prime deficiencies, namely the impact of close and continuous contact by scientists in boats.

The direction my own work is taking is towards less and less interference with the whales, without loss, indeed with enhancement of data gathering capabilities. I believe, for example, that it is entirely feasible to gather the entire range of physiological data proposed in the Sea World plan by working with co-operative, free subjects. I wish I had time to review a planned facility designed for this purpose.

My point is simply this: yes, let us work together, in good faith. Let us all hold our options open.

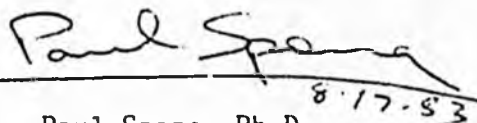
I suggest Sea World withdraw its full application for now, and that the NMFS approve a substitute proposal for two or three years of benign field work with the Alaskan *Orcinus orca* population. Then let us see where we should go.

In this spirit, I should like to offer the facilities of ORCALAB for the convening of a workshop, perhaps in mid-September, aimed at designing the first two years of the Alaskan programme.

I am grateful for your patience and the opportunity to speak.

Thank you very much.

Respectfully submitted by:


8.17.83

Paul Spong, Ph.D.,
Director,
ORCALAB,
P.O. Box 258,
Alert Bay, B.C.
Canada V0N 1A0.

AQUABIONICS INC

CONSULTING IN AQUATIC BIOLOGY & FISHERIES

NEW WAVE SEAFOODS

P.O. Box 80165
Fairbanks, Alaska 99708
(907) 479-2476

July 11, 1983

Mr. Robert Brumstead
Acting Chief of the Protected Species Division
U. S. Department of Commerce
National Marine Fisheries Service
Washington D. C. 20235

Dear Mr. Brumstead:

I am writing regarding the proposal by Sea World of San Diego to study and capture killer whales in Alaskan waters.

I am a retired marine biologist and my son and I fish commercially in Prince William Sound, as well as operate a small private salmon hatchery. We observe killer whales frequently and suspect that they are taking salmon although the numbers killed are probably insignificant in comparison with other sources of mortality. From the article in the Cordova paper, the Sea World application sounds like an excellent program and we strongly support it. The program should provide much needed information, particularly on the possibility of a breeding program. We also believe that the Prince William Sound killer whale population could well support the capture of a few animals without endangering the species or interfering in the least with the viewing pleasure of kayakers, tour boat customers or ferry travelers. In a sense it would be multiple-use of a resource, with millions of clients enjoying killer whales in a Sea World Park contrasted to the few hundreds that presently may or may not see a pod of killer whales on their trip over the Sound.

Thank you for your consideration,

AQUABIONICS INC.

Jack Van Hyning
Jack M. Van Hyning, Ph.D.
President

APR 2 1984

7/18/83



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
P.O. Box 1668
Juneau, Alaska 99802

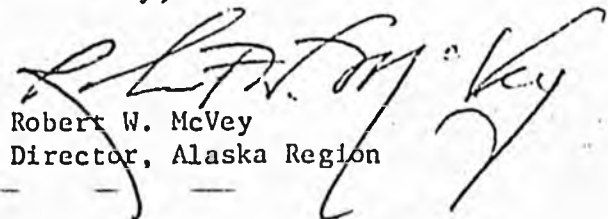
April 28, 1983

Lanny H. Cornell, D.V.M.
Senior Vice President/Zoological
Director, Sea World
1720 South Shores Road
San Diego, California 92109

Dear Mr. Cornell:

We have reviewed your permit application to take killer whales and we do not foresee objecting to its issuance. The proposal appears to be in line with the legal requirements of the Marine Mammal Protection Act and a worthwhile research effort. As you point out in your application, this issue has created public controversy in the past. We strongly encourage and commend your efforts to meet and discuss this issue with interested parties prior to commencing this project.

Sincerely,


Robert W. McVey
Director, Alaska Region

APR 2 1984





Alaska Princess CHARTERS inc.

8RA 647 Anchorage, AK 99507 (907) 345-5583

May 23, 1983

Mr. Robert Brumsted
Protected Species Division
National Marine Fisheries Service
Washington D.C. 20235

Dear Mr. Brumsted

After reading about Sea World Inc.'s application to remove up to ten killer whales from Alaskan waters, we are supporting the application and recommend approval by the National Marine Fisheries Service.

As a charter boat operator in Prince William Sound, we often see killer whales and our passengers are thrilled to see them in their natural habitat. We realize, however, that not everyone has the opportunity to view these whales in such a setting. Sea World provides a place for the average person to view and gain an appreciation for marine mammals.

The commercial aspect of Sea World's operation helps pay for the research they conduct. We support private research of marine mammals as it provides everyone with a greater understanding of these creatures without burdening federal, state or local governments.

Our attempts to gain information on the whales in Prince William Sound from various governmental agencies have proved fruitless as very little research has been done in the area. Even the 1980/81 Annual Report of the Marine Mammal Protection Act of 1972 published by the U.S. Department of Commerce states that killer whale populations are unknown. Sea World's research in Prince William Sound may enlighten everyone as to the types of whales here, population counts and their habits in the Sound. Our observations indicate that there is a large population of killer whales in the Sound. It is our opinion that the application to remove ten over the next five years will not adversely affect the population.

We hope you will approve Sea World's application expeditiously so that research may begin without undue delay.

Sincerely

Rachael D. Meeks
President
Alaska Princess Charters, Inc.

APR 2 1983

"DISCOVERED Prince William Sound With Us."

Sea World



Lanny H. Cornell, D.V.M.
Senior Vice President/
Zoological Director

January 9, 1984

Don W. Collinsworth
Commissioner
Alaska Department of Fish and Game
Support Building
Juneau, Alaska 99811

Dear Mr. Collinsworth:

As you will recall, several of us from Sea World have visited over the last several years with you and your staff to explore the possibility of our obtaining permits from the State of Alaska and from the federal government (National Marine Fisheries Service) to collect killer whales in Alaskan waters for public educational display and captive propagation here at Sea World and to conduct benign nonharmful research on wild killer whales in Alaskan waters. As you probably already know, we have obtained from National Marine Fisheries Service permits to collect an average of two killer whales per year over a five-year period - a total of 10 whales.

We therefore would like to follow through now with our original inquiry to collect an average of two killer whales per year from Alaskan waters (Kodiak, Shelikof Straits, Prince William Sound, Southeast) over a five-year period for the purposes of public educational display at our three Sea World parks in San Diego, California; Aurora, Ohio; and Orlando, Florida, and to conduct benign, nonharmful research on an unspecified number of killer whales which would be encircled coincidental to the collecting activities. These whales would be studied at the site of encirclement and released. The studies would include such things as morphometrics, blood

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sampling for genetic determination, photography, some animals would be cryogenically marked (painless freeze branding) and approximately six animals over the five-year period would have small radio-packs attached so their movements could be monitored by satellite. All of these activities, of course, and others as your Department recommends, will be conducted in concert with your scientists as well as those from the University of Alaska. As you know, we have worked closely in the past with such eminent scientists as Dr. Robert Elsner and Dr. John Burns, among others. Previous studies in concert with the Alaska Department of Fish and Game have included work on seals, sea lions and walrus. (We have, over the last few years, rescued and returned to good health an average of six or so walrus pups per year in cooperation with your Department and various Alaskan native corporations as well as Fish and Wildlife Service.)

These proposed studies on killer whales and other marine mammals in Alaska will provide data that are currently unavailable on the natural history, physiology, population dynamics, etc. as we have discussed. In addition, locations of groups of killer whales and other cetaceans will be more exactly pinpointed to allow tourist vessels and scientists to observe them in the wild.

Although we have had reports over the last few years of large numbers of killer whales ranging from several hundred to several thousand in Alaskan waters, the literature currently indicates there are approximately 250 to 300 animals minimum in the areas we suggest. We are currently in the process of conducting field research which will give us a more concise idea of minimum population numbers. Some of these early data will be available later this year and should boost the minimum numbers.

There have been some misconceptions about this project. Some would imply it is too extensive or is

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in conflict with the U.S./IWC position. This is not the case, however. Neither the United States' position on whaling nor the IWC moratorium are threatened. Both the Russians and the Japanese are envious of the United States' capabilities with public display. These they do not now have, but they will, in time, develop them. Further, the IWC position presently allows for the aboriginal taking of whales and, as you know, the United States' position on this issue immeasurably exceeds any position on live capture for public display. We believe these "problems" are intended to divert attention from the cruth.

Our only intent at the outset was and still is to follow the IWC requests which outline coordination of science with capture for public display so as to accumulate as much knowledge as possible about marine mammals.

As you are already aware, the IWC charter currently extends only to the great whales taken for slaughter on the high seas. It was once previously extended to include bottlenosed whales, following six years of debate - a move still protested by some of the members. The IWC has not extended the charter to cover other whales and has ~~certainly~~ never studied live capture for public display as an obligation.

Some IWC killer whale management recommendations have been made: 1) The IWC asked the Soviets not to kill any more killer whales in the Antarctic after they killed over 900 killer whales in 1979-80. This request is valid, however, only until the Soviets provide more data on population and provide information on those already killed. The Soviet reply has been that they intend to slaughter no more killer whales and thus they foresee no need to supply the data requested. 2) Norway has been allowed to kill 52 killer whales each year ad infinitum, based on a minimum population of 1,115 killer whales in their waters. This quota is voluntary, but the Norwegians are complying.

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Many countries which are signators to the IWC charter also are in favor of the moratorium and also currently exhibit killer whales for public display. They are not likely to abstain from or vote against the moratorium unless it conflicts with their display of cetaceans.

There is no move at present to include live capture in the IWC charter as this almost exclusively occurs in sovereign waters, not on the high seas. And, the total numbers taken for public display are so minute as to be nonexistent compared to those in fisheries, commercial slaughter and for scientific research alone. There are in all of North America a total of approximately 1400 seals, sea lions, dolphins and whales to educate 110-120 million visitors each year to zoological parks and aquaria.

We have on several occasions attended meetings to discuss the project. In May 1983 we suggested to National Marine Fisheries Service that the appropriate site for a public hearing would be in Alaska. We have met with representatives of the University of Alaska, the Alaska Department of Fish and Game, National Marine Fisheries Service, Alaska, the Alaska Congressional delegation representatives, as well as representatives from Governor Sheffield's office. In addition we have met with Alaska charter and tourist interests and look forward to more cooperation with these groups to enhance their knowledge of wild marine mammals.

The field studies and the research alongside or aboard our collecting vessels is to be accomplished in concert with scientists from Sea World, the Hubbs-Sea World Research Institute, the University of Alaska Institute of Marine Science and the Alaska Department of Fish and Game, as well as other scientists you may designate. Several of us will be in Juneau on or about February 8, 1984 and would like to continue our discussions on this matter

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with you at that time at your convenience. We will be visiting earlier in that week with some of the people already indicated at the University of Alaska in Fairbanks.

Sea World currently maintains three killer whales in our Orlando, Florida park, three in San Diego, California and two for our Aurora, Ohio facility. Our goal would be to double these numbers for the creation of small breeding groups which would also serve to enhance our public educational displays.

Our oldest male killer whale is approximately 25 years old and has been with us for over 15 years. Other killer whales in our care have been with us for approximately 7 years and are 10-12 years old. All are doing well and are approaching sexual maturity. Thus we believe we have an opportunity which has never before been available - the captive propagation of killer whales.

To accommodate the success of our propagation program, we have designed and begun construction on huge new killer whale facilities in our Orlando park. This 5 million gallon "ocean" will be 4-5 times larger than our current facilities which are the world's largest. We also plan similar facilities in our San Diego park to be completed in 1987. We have also just finished remodeling the Ohio whale pools.

The research project, which is currently budgeted at \$250,000 per year for the five year period, a total of \$1.25 million, will be administered by the nonprofit Hubbs-Sea World Research Institute. Almost all of these funds will be spent in Alaska, as that is where the majority of the work will take place. This means an added \$5-7 million to the Alaska economy if you include a dollar multiplier of 5-7.

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We have successfully conducted many projects in Alaska without incident in the past with the cooperation of the Alaska Department of Fish and Game, and we look forward to the onset of this particularly important project with your approval and cooperation.

Sincerely,

Lanny H. Cornell, D.V.M.

LHC/lđ

cc: Robert A. Hinman

SECRETARY
of STATE



Ralph Munro

Olympia Washington 98504
(206) 753-7121

TESTIMONY OF

RALPH MUNRO
Secretary of State

BEFORE THE
NATIONAL MARINE FISHERIES SERVICE

August 16, 1983

Seattle, Washington

Mr. Chairman, my name is Ralph Munro, Secretary of State for the state of Washington. I also am a member of the newly formed Orca Rescue Coalition and may be the only public official in America who has watched a whale capture from a very close distance. Ironically, that capture was by the same individuals who request permits from the National Marine Fisheries Service today.

I defer from my previously prepared testimony to read a letter to you (read Governor's letter). I would like to enter this letter into the record.

Mr. Chairman, I would also like to enter into the record a letter from the Department of Game of the state of Washington. Rather than read the entire letter, I will only read the last two paragraphs of this letter drafted by our Game Department scientists and conservationists.

"Placing a killer whale in captivity is akin to signing its early death warrant. These animals have a long life in the natural world. Shortening that life span to a fraction of its potential is not justifiable.

Again, I want to register the Washington Department of Game's strong opposition to the issuance of a permit to Sea World for capture of 100 killer whales in West Coast waters. Sincerely, The Department of Game, Frank R. Lockard, Director."

Mr. Chairman, the state of Washington opposes permits in question for a number of reasons.

First, the international reasons. As stated so well by Congressman Don Bonker and others, we believe that these permits are seriously undermining our position at the International Whaling Commission bargaining table. How can we, in good conscience, ask Japan to cease whaling when we are issuing permits to amusement parks for animals that we know will only live 3, 4 or 5 years.

Secondly, as stated in the Governor's letter, we believe Canada and British Columbia should have the opportunity for input. There are a number of Southeast Alaska pods of Orcas that may migrate back and forth across the United States/Canada border at that location. What right do we have to take these whales without at least some input from Canada? For that reason, we call for a public hearing in British Columbia.

On the national level, we oppose the permit, also.

This permit, if granted, is an exemption from our national policy of not taking whales for commercial gain. As recently as last month, the United States Senate unanimously approved a resolution offered by Senator Bob Packwood of Oregon that urges the United States to "use all diplomatic and legal means to achieve world-wide compliance with the International Whaling Commission moratorium" on commercial whaling.

Thirdly, the permit process itself disturbs us.

It has not been made entirely clear whether we are to testify today on the original application, or the questions submitted by the Marine Mammal Commission, or on the responses to the questions. There are conflicts that have not been resolved between the three documents.

Regardless of the fact that Sea World asked that there be no public hearings on this permit application, we believe that the public's voice should be heard. The application for permit, the questions from the Marine Mammal Protection Commission, the applicant's response, and this public hearing have brought up virtually scores and scores of questions that must be answered. For this reason, we are respectfully requesting that public hearings be held in both the state of Alaska and the state of California. If, in fact, those public hearings do not answer the questions involved, then we intend to request Congressional hearings on the entire permit request.

Because of the deadline for signing up to testify, we know of many people who did not know of this hearing. We respectfully request that this be taken into consideration in granting hearings in Alaska and California.

The permit itself also raises a number of questions. The application is extremely vague about herding and harassing the whales. A number of witnesses in Puget Sound have watched these same applicants using airplanes and a flotilla of power boats to herd pods of whales half way down the Sound. Will this, or will it not, be allowed?

Secondly, there is no mention in the permit about utilization of depth charges or underwater explosive devices. Will they, or will they not, be allowed? I have stood less than 50 yards away while they closed the net and watched the individual who is applying for this permit with a lighted torch on the stern of a high-speed boat dropping virtually scores of underwater explosive devices into the waters to keep the whales from escaping the purse seine. It was a horrible experience to watch. This permit makes no mention of explosive devices.

What of the populations of Orcas on the west coast of America today? Very little research has been done in the wild on this subject. Mr. Chairman, we call for a publicly funded survey of Orcas on the west coast of America. This important research should not be conducted by a private amusement park, but by a publicly funded research body.

When you read the details of the permit, you find out that Sea World has offered themselves the opportunity to recapture individual whales up to three times over a five-year period. What this means is that the permit really offers them the opportunity to capture two, three, or four hundred whales, rather than the 100 specified in the permit headlines.

Finally, the applicants themselves should answer a number of questions to the National Fisheries Marine Service. Because so much of this permit application is based on the experience and knowledge of Sea World's capture skills and collecting personnel, perhaps the Fisheries Service or the Marine Mammal Commission should obtain the answers to questions that bother us a great deal here in the state of Washington.

We would like to know the specific number of whales that have died in capture operations conducted by these same individuals. If the National Marine Fisheries Service is not interested in the answers to these questions, we as citizens of this state certainly are interested. We know of the applicant's report here in Puget Sound and we know because we are discussing animals that may or may not migrate into Washington State, these questions are valid and deserve answers to the citizens of our state.

What happened in 1970 in Penn Cove, whereby numerous citizens reports that more than 80 whales were driven into the cove, netted, and somewhere between 3 and 6 subsequently died, had their bellies slit open, chains wrapped around them, taken out to sea and sunk in order to keep the public from knowing of their deaths?

What was the problem in Yukon Harbor when 15 were captured and 3 died in the process? Who was responsible in Carr Inlet, when another whale, netted by the current applicant, died? What happened in 1969 in Penn Cove, when another animal died, and if it was not for a citizen-inspired law suit in which Sea World subsequently relinquished all rights to capture whales in Washington state waters, how many would have died in Budd Inlet and through other places in the Sound?

Of all the whales that have been taken from Puget Sound by this applicant, only one remains alive today at Sea World.

Other witnesses today will describe in detail the Budd Inlet capture. Hopefully there are some here who will describe the even more gruesome operation in Penn Cove, where many whales died.

These facts may not be pertinent except that the application is made by exactly the same people.

Finally, Mr. Chairman, I have a personal message for you that I hope you will consider in your deliberations when you return to Washington and also when you discuss this with the other staff. We appreciate this hearing very much and hope you will grant the opportunity for the public hearings in Alaska, British Columbia and California.

I was raised on a bay just 8 miles west of this room at a little spot called Crystal Springs on Bainbridge Island. My grandfather went there in a rowboat in 1889, the year of our statehood, to stake his claim and his future in America. He watched the whales every year from Crystal Springs, as have my father, who still lives there at the age of 83, and I, who have lived there all my life. The Orcas migrating down the Sound, often times pods from the ocean seeking salmon runs or seals to feed on. These migratory ocean pods, which may be same you are addressing in your permit today, have given us some of the most exciting moments of our lives.

I remember a warm summer evening when I was about 6 years old, sound asleep in our bedroom close to the beach. My father came in and awakened me and told me to listen because the whales were so close to the beach that we could hear them, and sure, enough, we could. We went out into the night to see the phosphorous as they fed inside the kelp beds near our house.

Then another occasion, just five days ago, last Wednesday afternoon, standing on a major state highway west of Port Angeles, my family and a young Makah Indian boy watched two whales feeding in the kelp beds less than 150 feet from shore. We watched them there in the wild from the edge of the highway. Cars from Florida, Ohio, California, Mississippi, all over the country, stopped and watched these whales with us.

Standing there on that occasion, I think about the three generations of my family who have had an opportunity to see these whales in the wild.

I thought about that young Makah boy who has documented evidence of more than 30 generations of his family who have watched the whales, respected and sometimes worshipped them.

As you return home to the joy of your own family, I hope you will remember that your final decision on this permit will make a major impact on the children here in the Pacific Northwest. The bottom line is simply this: Will my little boy have the opportunity to be the fourth generation of his family to watch the whales at Crystal Springs? He has that right, Mr. Chairman, and it should not be taken away from him. There is absolutely no reason in the world that the children of this state should have to go to Southern California and pay \$10.00 to an amusement park operator to see our whales. The time has come to stop this madness. Please do not issue these permits.

C. General Conditions

1. Responsibilities of Permit Holders

a. The Permit Holder, in effecting the taking and/or importing authorized by this permit, will be considered to have accepted and to be prepared to comply with the provisions of this Permit, applicable Regulations, and the Act.

b. The Holder shall be responsible for the activities of any individual who is operating under the authority of the Holder's Permit relating to the taking, importing, transportation, or maintenance and care of any marine mammals authorized to be taken or imported hereunder.

c. Under the terms of the Regulations, a violation of any of the terms and conditions of this Permit shall subject the Holder and/or any individual who is operating under the authority of the Holder's Permit to penalties provided in the Act.

d. All personnel of the Holder, including veterinarians, requiring State or Federal licenses to practice their profession shall be, and so long as employed by the Holder in that capacity, remain, duly licensed under the appropriate law.

e. As stated in Section 216.34 of the Regulations:

1. This Permit must be in the possession of the person to which it was issued, or an agent of such person, during:

- a. The time of the authorized taking or importing;
- b. The period of any transit of such person or agent which is incident to such taking or importing; and
- c. Any other time while any marine mammal taken or imported under this Permit is in the possession of such person or agent.

2. A duplicate copy of this Permit must be physically attached to the container, package, enclosure or other means of containment, in which the marine mammal is placed for purposes of storage, transit, supervision or care.

2. Requirements for Taking, Importing, and Transporting Marine Mammals

a. No marine mammal authorized to be taken or imported hereunder, as the case may be, shall be taken by the Holder or any other person, in violation of the law of any country having jurisdiction over the taking.

b. This Permit does not authorize the Holder or any other person to take marine mammals in the territorial waters of any country without the consent of such country. The Holder is responsible for securing such consent and complying with appropriate laws of that country.

c. No marine mammal may be imported unless the Assistant Administrator for Fisheries determines that the methods of taking, holding, and transporting marine mammals in the country of origin are consistent with the provisions and policies of the Act.

d. Importation of marine mammals is subject to the provisions of 50 CFR Part 14. Importers are advised to see 50 CFR Part 14 for importation requirements and information.

e. The marine mammals authorized by this Permit to be taken shall be taken in a manner determined by the Assistant Administrator to be acceptable.

f. All marine mammals must be taken in a humane manner. In the event the Assistant Administrator for Fisheries determines that any method of taking authorized herein or otherwise is not humane, taking by such method shall immediately cease and taking shall not resume until an acceptable method of taking has been prescribed by the Assistant Administrator for Fisheries. Any inhumane taking shall subject the Holder to the penalties of the Act, including revocation of this Permit. ✓

g. The Holder shall neither take nor import any mammal which is pregnant, a lactating female, or is an unwearied young mammal, unless such taking or importing is specifically authorized in Section B of this Permit. ✓

h. The Holder shall employ a duly certificated common carrier by air, water, rail, or road in the transportation of any marine mammals, except that the Holder may use a private vehicle for such transportation if such vehicle is operated by Holder's personnel and the provisions of this subsection are complied with in the course of the transportation involved.

i. All aspects of the transportation plans must be found satisfactory by a duly licensed doctor of veterinary medicine.

3. Veterinary Program

a. A doctor of veterinary medicine shall be on the staff of the Holder, or otherwise generally available to the Holder when needed, in order to:

1. ensure that the taking of marine mammals is conducted in a humane manner;
 2. provide prompt and appropriate medical treatment of marine mammals being captured, transported, or maintained in captivity;
 3. supervise medically necessary humane destruction of sick, diseased, stressed, injured, or lame animals; and
 4. provide for the development and implementation of an appropriate disease control program.
- b. In the event of the humane destruction of an animal, the Holder shall perform an autopsy on the animal and within seven days of the death of such animals, shall notify the appropriate regional office of the National Marine Fisheries Service of the death and send to such office a copy of the autopsy report.
- c. Any pregnant animals shall receive proper veterinary attention. All births involving any animal taken under this Permit shall be reported to the Assistant Administrator for Fisheries.

4. Records and Reports

- a. The Holder shall submit a report within 30 days of the taking or importing authorized herein, describing the method and location of the taking, including any problems or complications which might have arisen in connection with the taking. The Holder shall submit a report by January 1, following the date of issuance of this Permit, and annually thereafter, describing the health and condition of the marine mammals. These reports shall be submitted to the Assistant Administrator for Fisheries, National Marine Fisheries Service, U.S. Department of Commerce, Washington, D.C. 20235.
- b. The Holder shall submit a report within 30 days of the taking or importing of scientific specimen materials listing the species, type of material, method of preservation, and the disposition of the specimens. This report shall be submitted to the Assistant Administrator for Fisheries, National Marine Fisheries Service.
- c. The Permit Holder shall maintain sufficient written records regarding the marine mammals taken or imported as authorized herein, and regarding each marine mammal of the species authorized herein to be taken or imported in its possession or otherwise acquired, to allow for adequate identification of each such mammal. Such records shall include, but are not limited to, species, physical description of the animal, date and location of acquisition (whether by capture or other means), and identifying characteristics, either natural or artificially produced. Such records shall be available for inspection by a duly authorized representative of the Assistant Administrator

for Fisheries at the facility in which the animal is located.

d. In the event of mortality of these marine mammals, the Holder shall provide a report of the death within 30 days, including autopsy and clinical history, in a form consistent with accepted veterinary medical practices, and a copy of the records required in Section C-4c of this Permit.

e. In the event that any marine mammal is killed during the course of taking or importing, said marine mammal shall be considered as having been taken or imported, and the number of live animals of the kind permitted to be taken or imported shall be reduced accordingly, unless the Assistant Administrator for Fisheries determines that the death was due to causes beyond the control of the Holder, and that the remains of the mammal were disposed of in a satisfactory manner, in which case the Holder shall be entitled to take or import an additional animal.

f. If, within 30 days of taking or importing, a marine mammal dies or is determined by the Holder to be unacceptable for his purposes, the Holder shall be entitled to take or import an additional mammal provided that the unacceptable animal, or the remains of the dead animal, is disposed of in a manner satisfactory to and approved in advance by the Assistant Administrator for Fisheries and provided further that in the case of death the Assistant Administrator determines such death was due to causes beyond the control of the Holder. The foregoing replacement privilege, shall apply only in those cases in which the Assistant Administrator determines that the status of stock to which the animal in question belongs will not be adversely affected by further taking.

5. Sale or Disposition of Mammals or Progeny

a. The Holder shall not sell or otherwise dispose of (1) any mammal, the taking or importation of which is authorized by this Permit, or the progeny of any such mammal, or (2) any mammal in his possession or control on the date of the issuance of this Permit or subsequently acquired, which is of the same species as any mammal the taking or importation of which is authorized by this Permit, or the progeny of such a mammal except with the approval of the Assistant Administrator and subject to such terms and conditions as the Assistant Administrator may prescribe. All animals subject to this paragraph shall be marked or otherwise identified in a manner satisfactory to the Assistant Administrator for Fisheries.

b. In the event of the death of any marine mammal or of the species of marine mammal authorized to be taken or imported, the Holder shall make every reasonable attempt to notify the scientific community of the availability of specimen materials. The Holder may contact the appropriate Regional Director or

the Assistant Administrator for assistance in this matter.

c. The Holder is authorized to deposit specimen materials that have been taken or imported, into scientific collections which meet the minimum standards of collection curation and data recording and maintenance as established by the scientific community. The Holder is authorized to export and re-import such materials as necessary.

6. Display Program

a. Any marine mammal taken or imported pursuant to the terms hereof may not be displayed at any facility of the Holder other than the facility for which the permit was sought, unless specific permission is requested and obtained from the Assistant Administrator. However, the Holder may hold the mammals at another facility acceptable to the Assistant Administrator in the manner required hereunder.

b. Any display program in which any of the marine mammals taken or imported hereunder are to participate shall be designed so as not to fatigue or overwork the mammals. A duly licensed veterinarian shall certify to the Assistant Administrator that any display programs involving any mammals taken or imported pursuant to this Permit will not unduly fatigue or injure such animals.

7. Research Program

a. The Holder is authorized to conduct scientific research on any marine mammal taken hereunder provided such scientific research reasonably can be expected not to cause death or permanent injury to the animal and is approved in advance by the Assistant Administrator.

8. Inspection

Upon request by the Assistant Administrator, the Holder shall permit any employee(s) of the National Marine Fisheries Service or any other person(s) duly designated by the Assistant Administrator, to inspect the Holder's records and facilities insofar as such records and facilities pertain to activities authorized by this Permit, relate to species covered by this Permit, or pertain to the Assistant Administrator's responsibilities under the Act.

9. Transferability and Assignability

The Holder shall not transfer or assign the permit granted herein to any other person, as person is defined in Section 3(10) of the Act. This Permit is of no force and effect if transferred or assigned to any other such person.

10. Permit Amendments

a. The provisions of this Permit may be amended upon reasonable notice by the Assistant Administrator.

11. Permit Fee

a. Section 216.31(d)(9) of the Regulations provides for a reasonable fee to be charged to cover the costs of issuance of this Permit. The fee for this Permit is \$200.00.

907-486-3910 Box 991



Kodiak, Alaska 99615

June 17, 1983

Honorable Frank H. Murkowski
United States Senate
Washington, D.C. 20510

Dear Frank:

I am writing in response to your statements regarding the proposed capture of killer whales by Sea World.

The representatives of Sea World contacted my office in hopes of arranging a meeting with any interested parties. We met with them on June 9th. Attending the meeting was Lanny Cornell, D.V.M.; Vice President of Sea World, Ed Asper and Corporate Director, Don Goldsberry. Others attending the meeting were Chris Blackburn, Reporter; Jeff Stephen, Manager of United Fishermen's Marketing Association; Hank Pennington, University of Alaska, Marine Advisory Agent; Jong S. Lee, Fish Industrial Technology Center, University of Alaska and John Strahle, Enforcement Officer for N.M.F.S.

I am enclosing a copy of an article from our local newspaper. After reading this article, you will have a better understanding of what Sea World is planning. Those of us attending the meeting had no objections to their plans. We believe the whales would not be harmed by the method of capture planned. Sea World plans on keeping only ten animals over the course of five years. This would probably mean two to three animals per year. I hope this will explain and answer the questions you have regarding the killer whale project.

I am,

Sincerely,

Alvin R. Burch
Manager

APR 2 1984

"Harvesting Alaskan Shrimp and Whitefish"

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL MARINE FISHERIES SERVICE

Notice of Issuance of Permit

On March 17, 1983, Notice was published in the FEDERAL REGISTER (48 FR 11310) that an application had been filed with the National Marine Fisheries Service by Sea World, Inc., 1720 South Shores Road, San Diego, California 92109 for a Public Display/Scientific Research permit under the Marine Mammal Protection Act of 1972 to take killer whales. Sea World requested to take a total of up to 100 killer whales over a 5-year period in order to study the biology, reproduction, and population dynamics of this species. Up to 10 animals were requested to be permanently maintained for public display and captive breeding, and up to 90 were requested to be captured, some maintained up to three weeks, studied, sampled, marked and/or tagged and released. Up to 10 of these animals were requested to be radio tagged and tracked. Also, Sea World requested to recapture and reexamine some animals. These activities were requested to be conducted in the waters off Alaska and California.

The public comment period originally closed April 16, 1983, and was subsequently extended until August 26, 1983 (48 FR 16934, 22976, and 32376.) A public hearing was held on August 16 and 17 in Seattle, Washington, and the hearing record remained open until August 26, 1983. All comments and documents postmarked by that date were evaluated and considered in the final decision.

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL MARINE FISHERIES SERVICE

Permit to Take Marine Mammals Permit No. 439

Sea World, Inc., 1720 South Shores Road, Mission Bay, San Diego, California 92109, is hereby authorized to take the marine mammals specified below for the purposes of public display and scientific research as described in the Permit Holder's application and subject to the provisions of the Marine Mammal Protection Act of 1972 (16 U.S.C. 1361-1407), the Regulations Governing the Taking and Importing of Marine Mammals (50 CFR Part 216) and the conditions hereinafter set out.

A. Number and Kind of Marine Mammals

1. Up to ten (10) killer whales (Orcinus orca), not less than 11.5 feet in length, of either sex may be taken and maintained in captivity. None of these animals shall be pregnant, nursing or unweaned. No more than two percent of the minimum population estimate for an area may be taken from that area over a two-year period. Furthermore, no more than two (2) animals may be removed from any distinct pod and no more than 1/2 of any sex/age class (immature, mature) may be removed from any distinct pod during a five-year period.
2. Up to ninety (90) killer whales (Orcinus orca) may be taken by capture and release. Animals encircled by net in the course of any authorized activity shall be considered as captured. Except for pregnant, nursing, or unweaned individuals, the following activities may be conducted on animals encircled, subject to the applicable conditions in Section B.
 - a. Up to 90 animals may be restrained, measured, photographed, and have blood samples, blowhole swabs and vaginal swabs taken.
 - b. Up to 90 that are not readily identifiable with natural markings, may be cryogenically marked.
 - c. Up to 20 may be spaghetti or streamer tagged.
 - d. Up to 10 may be radio tagged and tracked.
 - e. Up to 20 may have expired air samples taken.
 - f. Up to 20 may receive hearing tests.

- g. Up to 20 may be stomach lavaged.
- h. Up to 20 may have one tooth extracted.
- i. Up to 20 may have one liver biopsy taken.
- j. Up to 40 may be transported and temporarily held up to 3 weeks prior to release. All others shall be released as soon as possible at the capture site.

3. Animals previously captured under Section A-2 may be recaptured up to 2 times but not more than once in any calendar year. Previously studied animals may be restrained, measured, photographed, blood sampled, remarked if necessary, and have the radio pack removed or changed if necessary. All recaptured animals shall be released as soon as possible at the capture site.

B. Special Conditions

1. The animals shall be taken by the means, in the areas, and for the purposes set forth in the application unless otherwise specified in this Permit.
2. Not more than 30 animals under A-2 and A-3 may be taken per year in the Alaska areas. However, authorization from the Assistant Administrator for Fisheries is required prior to conducting any capture activities in any area. The Permit Holder shall conduct an initial survey of local abundance and shall submit a report which includes the number of animals, number of groups or pods, size of groups or pods and distribution of animals observed.
3. Not more than 4 animals under A-2 and A-3 may be taken per year in the California area. However, no animals shall be taken in California until authorized by the Assistant Administrator for Fisheries. Any request for authorization to conduct capture activities in California shall include a detailed report of at least one year's activities in Alaska, a detailed list of activities and numbers of animals proposed for California, and additional information on the population.
4. None of the animals authorized to be taken under Section A-2 shall be temporarily held beyond the time required for on-board research or beyond the time associated animals remain in the area, or transported to temporary holding facilities until authorized by the Assistant Administrator for Fisheries.
 - a. Provided the Permit Holder submits a satisfactory study design to determine whether the animals will rejoin a killer whale group or pod upon release, an initial authorization will be given by the Assistant Administrator for Fisheries, in consultation with the Marine Mammal Commission, to temporarily hold animals.

- b. Authorization to allow further temporary holdings will be based on the results of the pilot study, and the holding time will be limited to the maximum time experimental animals were held and known to rejoin a killer whale group or pod.
5. No liver biopsies, stomach lavage, tooth extractions, hearing tests or respiratory studies shall be conducted under Section A-2 until authorized by the Assistant Administrator for Fisheries, in consultation with the Marine Mammal Commission.
6. In the event of the mortality of any animal in the field, all further capture activities shall be suspended, and a detailed report shall be submitted which includes the events surrounding the incident, necropsy results, and steps that will be taken to avoid similar problems in the future. Any animal that dies shall be considered taken under A-1 of this Permit. Authorization from the Assistant Administrator for Fisheries is required prior to resuming capture activities.
7. Within 60 days of any capture activities, a detailed report shall be submitted which includes the dates and location of taking, numbers of animals and pods observed, composition of pods, numbers of animals encircled, numbers captured, disposition of animals captured (immediate release, held temporarily, permanently held for captivity), activities conducted on each animal, effects of the activities on the animals and any problems which may have arisen in connection with the activities.
8. By December 31 of each year the permit is valid, an annual report shall be submitted which includes a summary of activities conducted, the results of survey and monitoring efforts designed to provide information on the population and the effects of the activities on the animals taken, and a general plan of activities to be conducted in the following year. Authorization from the Assistant Administrator for Fisheries, in consultation with the Marine Mammal Commission, is required each subsequent year to continue activities.
9. Within 90 days of completion of the research, a final report shall be submitted which includes a summary of the results of the research.
10. The Permit Holder shall notify the Regional Director, Alaska Region, National Marine Fisheries Service, P.O. Box 1668, Juneau, Alaska 98802 (telephone 907-586-7221) or the Regional Director, Southwest Region, National Marine Fisheries Service, 300 South Ferry Street, Terminal Island, California 90731 (telephone 213-548-2575), as appropriate, prior to conducting any field activities in order to determine the specific dates and locations of activities and if a NMFS observer is required. The Permit Holder shall consult with the Regional Director sufficiently in advance to allow for such a determination.
11. Upon the request of the Assistant Administrator for Fisheries, the Permit Holder shall make available for study a copy of all film taken in conjunction with the authorized activities.

12. The Department of Agriculture's regulations and standards, "Marine Mammals; Humane Handling, Care, Treatment, and Transportation," shall apply and are made a part of this Permit.
 13. This Permit is valid with respect to the taking authorized herein until December 31, 1988.
- D. All General Conditions attached as Section C shall apply and are made a part hereof, except that Section C-2g, h and i are specifically waived.



William G. Gordon
Assistant Administrator for Fisheries
National Marine Fisheries Service

NOV 01 1983

Date

Notice is hereby given that on NOV 0 1 1983, as authorized by the provisions of the Marine Mammal Protection Act of 1972 (16 U.S.C. 1361-1407), the National Marine Fisheries Service issued a permit to Sea World, Inc., subject to certain conditions set forth therein. The Permit establishes restrictions on the number and locations of animals which may be removed from the wild each year, and requires a preliminary survey of each area prior to the collection of animals. The Permit does not authorize any extended temporary removal, capture activities in California waters, or liver biopsy, stomach lavage, tooth extractions, hearing tests or respiratory studies at this time, but these activities may be authorized in the future based on additional information which may be submitted by Sea World. The Permit requires suspension of activities in the event of any mortality, and provides for annual review and required reauthorizations in order for the Permit Holder to continue activities each subsequent year.

The Permit is available for review in the following offices:

Assistant Administrator for Fisheries, National Marine Fisheries Service, 3300 Whitehaven Street, N.W., Washington, D.C.;

Regional Director, National Marine Fisheries Service, Southwest Region, 300 South Ferry Street, Terminal Island, California 90731;

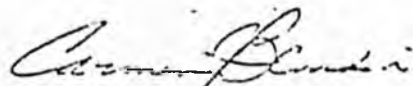
Regional Director, National Marine Fisheries Service, Alaska Region, P.O. Box 1668, Juneau, Alaska 99802;

Regional Director, National Marine Fisheries Service, Northeast Region, 14 Elm Street, Federal Building, Gloucester, Massachusetts 01930; and

Regional Director, National Marine Fisheries Service, Southeast Region, 9450
Koger Boulevard, St. Petersburg, Florida 33702; and

Regional Director, National Marine Fisheries Service, Northwest Region, 7600
Sand Point Way, N.E., BIN C15700, Seattle, Washington 98115.

The complete record, including the application, all supplemental information
and the hearing record, is available for review in the Office of Protected
Species and Habitat Conservation. For further information, contact the Office
of Protected Species and Habitat Conservation, National Marine Fisheries
Service, U.S. Department of Commerce, Washington, D.C. 20235 (telephone 202-
634-7529).



Carmen J. Blondin, Deputy Assistant Administrator
for Fisheries Resource Management
National Marine Fisheries Service

NOV 01 1993

Date.

SJR 31

Senator Vic Fischer spoke of his growing concern about the methods of capturing whales and asked that more consideration be given to Alaska and Alaskans when issuing permits for capture.

Dennis Kelso, Deputy Commissioner, and John Burns, Chief Marine Biologist, Alaska Department of Fish and Game (ADF&G), have determined that, based on ADF&G's best estimate of orca population in the areas affected, the population can biologically sustain the harvest of two whales a year for the next five years. ADF&G made comments to the National Marine Fisheries Service (NMFS) on the permit application, but their suggestions that specific conditions be included were denied. Burns pointed out the need for more baseline data on orca populations, and stressed the importance of State control in the taking of whales.

Lanny Cornell, Senior Vice President/ Zoological Director, Sea World, Inc., spoke of his company's history of cooperation with the State, and intention to seek a State permit from the Alaska Department of Fish and Game for the capture of orcas. He objected to the charges against Sea World in SJR 31.

Dr. Robert Elsner, Institute of Marine Science, University of Alaska, Fairbanks, felt the proposed project was a worthy one and that the University of Alaska would be happy to work with the Alaska Department of Fish and Game in overseeing the research and the capture of orcas.

Vivia Boe, Greenpeace, International, related her experience with monitoring Sea World's orca captures in Washington state. She discussed the federal lawsuit against Sea World, and the capture techniques used by Sea World in the past. She urged the resolution be strengthened to ensure the safe and humane treatment of Alaskan orcas.

Richard Osborne, Research Director, Moclips Cetological Society, Friday Harbor, Washington, recommended that research be done with photo identification methods to determine accurate population data before any management decisions on harvesting orcas are made.

Jim Brooks, Deputy Director, National Marine Fisheries Service (NMFS), Alaska Region, testified that the permit contained ample safeguards and the harvest by Sea World would be biologically irrelevant to the Alaskan orca population. Hearings were not held in Alaska because of limited time and money. He said the authority to manage marine mammals, even within 3 miles, lies with NMFS.

Larry Edwards, Alaska Environmental Lobby, spoke in support of SJR 31, and the need for placing additional conditions on the issuance of a permit.

John Howard, Juneau, spoke in support of Sea World's past research efforts, and feels Sea World should be allowed to conduct further research on orcas in Alaska.

The meeting adjourned at 5:33 pm.

Alaska State Legislature

BETTYE FAHRENKAMP, Chairman
ROBERT H. ZIEGLER, SR., Vice Chairman
DICK ELIASON
PAUL FISCHER
VIC FISCHER
BOB MULCAHY
ARLISS STURGULEWSKI



POUCH V
STATE CAPITAL
JUNEAU, ALASKA 99511
(907) 465-3834
(907) 465-3835

Senate

Committee on Resources

MINUTES

January 30, 1984
3:02 pm

Beltz Room
Room 211, Capitol

MEMBERS PRESENT

Senator Fahrenkamp, Chairman
Senator Ziegler, Vice Chair
Senator Eliason
Senator P. Fischer
Senator V. Fischer
Senator Mulcahy
Senator Sturgulewski

CALENDAR

SB 349, An Act relating to recreational activities in state parks.

SJR 31, Relating to the capture of orcas in Alaska waters.

SB 349

Senator Faiks testified in support of SB 349. This bill would require the Department of Natural Resources to consider the users of horses and other animals when promulgating new regulations in state parks.

Carol Wilson, Special Assistant to the Commissioner, Department of Natural Resources, spoke in support of this bill. It would allow the department to have a consistent guideline while still making decisions on a park by park basis. She referred to an existing order that allows horses in some parts of Chugach State Park.

Senator Mulcahy moved the bill from Committee with individual recommendations. The motion passed without objection.

SJR 31 RELATING TO THE CAPTURE OF ORCAS IN ALASKA WATERS.

RESOURCES COMMITTEE SUBSTITUTE

Based on premise that Sea World will come to State Fish and Game for capture permit - would require Fish and Game to put stipulations on the state permit:

1. submit population informatio.
2. do research recommended by state agencies
3. abide by methods, times, places of capture set by Dept.
4. station Fish and Game observers aboard capture vessels
5. reimburse state for expenses incurred in observing

Plus asks Governor to assure that before future permits are issued public hearings be held in Alaska.

STATE AFFAIRS COMMITTEE SUBSTITUTE

Contends that Sea World has broken its commitment to obtain State capture permits. Asks Congress to:

1. prohibit the taking of orcas in Alaska waters

OR 2. require that an Environmental Impact Statement be done

Asks National Marine Fisheries Service to:

1. suspend Sea World's permit until an EIS is done

OR 2. require them to get a State permit

RULES COMMITTEE SUBSTITUTE

Similar to State Affairs version, but:

Removes the reference to a "broken commitment".

Removes the requirement that an Environmental Impact Statement be done

Asks the Governor to oppose the taking of orcas OR require that Sea World abide by conditions set by Fish and Game

Does ask Congress to prohibit the taking of orcas OR require a State permit.

Does ask NMFS to suspend the permit OR require a State permit.



COMMITTEE REPORT

SENATE

FURTHER:

1/24/84

Date: 3-5-84

Mr. President:

The Committee on RESOURCES has had SJR 31
relating to the capture of orcas in Alaska waters.

under consideration and (a majority of the committee) (the committee)
reports it back with the following recommendations:

- do pass do not pass
- do pass with attached amendments(s)
- replace with CS for SJR 31 same title
 new title
- and recommends _____
- AND attaches a "Letter of Intent" New Fiscal Note
- reports it back without recommendation
- referred to the _____ Committee

MEMBERS SIGNING
DO PASS

[Signature]

MEMBERS HAVING
OTHER RECOMMENDATIONS:

[Signature] N/R
[Signature]

[Signature]
CHAIRMAN

SECRETARY
of STATE



Ralph Munro

Olympia, Washington 98504
(206) 753-7121

SJR 31

February 29, 1984

MAR 9 1984

The Honorable Bettye M. Fahrenkamp
Alaska State Senate
State Capitol
Juneau, Alaska 99811

Dear Senator Fahrenkamp:

I appreciated your taking the time to stop by my office while you were visiting the Washington State Capitol. All of us enjoyed meeting you and want you to feel free to come by any time that you are in the area.

I must apologize for lobbying you a bit on the issue of Southern California amusements parks taking whales from the Pacific Northwest and Alaskan waters. As you could tell, my feelings run very deep on this issue and I am delighted that we had a chance to talk.

Following your visit, I pulled a copy of my recent testimony to the National Marine Fisheries regarding this issue. I hope that you will take a few moments to review it because the concerns that are expressed in this testimony relate directly to you and the current pending legislation in the Alaska legislature.

My very best to you.

Sincerely,

RALPH MUNRO
Secretary of State

RM:tu

Enclosure

Mr. Chairman, my name is Ralph Munro, Secretary of State for the state of Washington. I also am a member of the newly formed Orca Rescue Coalition and may be the only public and elected official in America who has watched a whale capture from a very close distance. Ironically, that capture was by the same individuals who request permits from the National Marine Fisheries Service today.

I defer from my previously prepared testimony to read a letter to you (read Governor's letter). I would like to enter this letter into the record.

Mr. Chairman, I would also like to enter into the record a letter from our scientists and conservationists at the Department of Game of the state of Washington. Rather than read the entire letter, I will only read the last two paragraphs of this letter drafted by our Game Department scientists and conservationists.

"Placing a killer whale in captivity is akin to signing its early death warrant. These animals have a long life in the natural world. Shortening that life span to a fraction of its potential is not justifiable.

Again, I want to register the Washington Department of Game's strong opposition to the issuance of a permit to Sea World for capture of 100 killer whales in West Coast waters. Sincerely, The Department of Game, Frank R. Lockard, Director."

Mr. Chairman, the state of Washington opposes permits in question for a number of reasons.

First, the international reasons. As stated so well by Congressman Don Bonker and others, we believe that these permits are seriously undermining our position at the International Whaling Commission bargaining table. How can we, in good conscience, ask Japan to cease whaling when we are issuing permits to amusement parks for animals that we know will only live 3, 4 or 5 years.

Secondly, as stated in the Governor's letter, we believe Canada and British Columbia should have the opportunity for input. There are a number of Southeast Alaska pods of Orcas that may migrate back and forth across the United States/Canada border at that location. What right do we have to take these whales without at least some input from Canada? For that reason, we call for a public hearing in British Columbia.

On the national level, we oppose the permit, also.

This permit, if granted, is an exemption from our national policy of not taking whales for commercial gain. As recently as last month, the United States Senate unanimously approved a resolution offered by Senator Bob Packwood of Oregon that urges the United States to "use all diplomatic and legal means to achieve world-wide compliance with the International Whaling Commission moratorium" on commercial whaling.

Thirdly, the permit process itself disturbs us.

It has not been made entirely clear whether we are to testify today on the original application, or the questions submitted by the Marine Mammal Commission, or on the responses to the questions. There are conflicts that have not been resolved between the three documents.

Regardless of the fact that Sea World asked that there be no public hearings on this permit application, we believe that the public's voice should be heard. The application for permit, the questions from the Marine Mammal Protection Commission, the applicant's response, and this public hearing have brought up virtually scores and scores of questions that must be answered. For this reason, we are respectfully requesting that public hearings be held in both the state of Alaska and the state of California. If, in fact, those public hearings do not answer the questions involved, then we intend to request Congressional hearings on the entire permit request.

Because of the deadline for signing up to testify, we know of many people who did not know of this hearing. We respectfully request that this be taken into consideration in granting hearings in Alaska and California.

The permit itself also raises a number of questions. The application is extremely vague about herding and harassing the whales. A number of witnesses in Puget Sound have watched these same applicants using airplanes and a flotilla of power boats to herd pods of whales half way down the Sound. Will this, or will it not, be allowed?

Secondly, there is no mention in the permit about utilization of depth charges or underwater explosive devices. Will they, or will they not, be allowed? I have stood less than 50 yards away while they closed the net and watched the individual who is applying for this permit with a lighted torch on the stern of a high-speed boat dropping virtually scores of underwater explosive devices into the waters to keep the whales from escaping the purse seine. It was a horrible experience to watch. This permit makes no mention of explosive devices.

What of the populations of *Orcas* on the west coast of America today? Very little research has been done in the wild on this subject. Mr. Chairman, we call for a publicly funded survey of *Orcas* on the west coast of America. This important research should not be conducted by a private amusement park, but by a publicly funded research body.

When you read the details of the permit, you find out that Sea World has offered themselves the opportunity to recapture individual whales up to three times over a five-year period. What this means is that the permit really offers them the opportunity to capture two, three, or four hundred whales, rather than the 100 specified in the permit headlines.

Finally, the applicants themselves should answer a number of questions to the National Fisheries Marine Service. Because so much of this permit application is based on the experience and knowledge of Sea World's capture

skills and collecting personnel, perhaps the Fisheries Service or the Marine Mammal Commission should obtain the answers to questions that bother us a great deal here in the state of Washington.

We would like to know the specific number of whales that have died in capture operations conducted by these same individuals. If the National Marine Fisheries Service is not interested in the answers to these questions, we as citizens of this state certainly are interested. We know of the applicant's record here in Puget Sound and we know because we are discussing animals that may or may not migrate into Washington State, these questions are valid and deserve answers to the citizens of our state.

What happened in 1970 in Penn Cove, whereby numerous citizens reports that more than 80 whales were driven into the cove, netted, and somewhere between 3 and 6 subsequently died, had their bellies slit open, chains wrapped around them, taken out to sea and sunk in order to keep the public from knowing of their deaths?

What was the problem in Yukon Harbor when 15 were captured and 3 died in the process? Who was responsible in Carr Inlet, when another whale, netted by the current applicant, died? What happened in 1969 in Penn Cove, when another animal died, and if it was not for a citizen-inspired law suit in which Sea World subsequently relinquished all rights to capture whales in Washington state waters, how many would have died in Budd Inlet and through other places in the Sound?

Of all the whales that have been taken from Puget Sound by this applicant, only one remains alive today at Sea World.

Other witnesses today will describe in detail the Budd Inlet capture. Hopefully there are some here who will describe the even more gruesome operation in Penn Cove, where many whales died.

These facts may not be pertinent except that the application is made by exactly the same people.

Finally, Mr. Chairman, I have a personal message for you that I hope you will consider in your deliberations when you return to Washington and also when you discuss this with other staff. We appreciate this hearing very much and hope you will grant the opportunity for the public hearings in Alaska, British Columbia and California.

I was raised on a bay just 8 miles west of this room at a little spot called Crystal Springs on Bainbridge Island. My grandfather went there in a rowboat in 1889, the year of our statehood, to stake his claim and his future in America. He watched the whales every year from Crystal Springs, as have my father, who still lives there at the age of 83, and I, who have lived there all my life. The Orcas migrating down the Sound, often times pods from the ocean seeking salmon runs or seals to feed on. These migratory ocean pods, which may be the same you are addressing in your permit today, have given us some of the most exciting moments of our lives.

I remember a warm summer evening when I was about 6 years old, sound asleep in our bedroom close to the beach. My father came in and awakened me and told me to listen because the whales were so close to the beach that we could hear them, and sure enough, we could. We went out into the night to see the phosphorous as they fed inside the kelp beds near our house.

Then another occasion, just five days ago, last Wednesday afternoon, standing on a major state highway west of Port Angeles, my family and a young Makah Indian boy watched two whales feeding in the kelp beds less than 150 feet from shore. We watched them there in the wild from the edge of the highway. Cars from Florida, Ohio, California, Mississippi, all over the country, stopped and watched these whales with us.

Standing there on that occasion, I think about the three generations of my family who have had an opportunity to see these whales in the wild.

I thought about that young Makah boy who has documented evidence of more than 30 generations of his family who have watched the whales, respected and sometimes worshipped them.

As you return home to the joy of your own family, I hope you will remember that your final decision on this permit will make a major impact on the children here in the Pacific Northwest. The bottom line is simply this: Will my little boy who sits in this hearing room today have the opportunity to be the fourth generation of his family to watch the whales at Crystal Springs? He has that right, Mr. Chairman, and it should not be taken away from him. There is absolutely no reason in the world that the children of this state should have to go to Southern California and pay \$10.00 to an amusement park operator to see our whales. The time has come to stop this madness. Please do not issue these permits.



Alaska State Legislature

Senate Committee on State Affairs

Vic Fischer, Chair • Pouch V

Juneau, Alaska 99811

(907) 465-4954

Official Business

MEMORANDUM

TO: Senator _____

FROM: Senator Vic Fischer

DATE: January 19, 1984

RE: Co-sponsorship of Senate resolution relating to the capture of Orcas (Killer Whales) in Alaska waters.

Attached is a copy of a resolution concerning the capture of Orcas in Alaska waters that I will introduce on Monday, January 23. If you would like to co-sponsor this resolution, please contact me or my aide, Ginger Baim, at 4954 before Friday, January 20.

Rep. Szymanski will introduce an identical resolution in the House on the same date. He has 24 co-sponsors at this time.

While the resolution is pretty much self-explanatory, following are salient points to consider:

- * Permits for capturing marine animals for research and/or public display are issued by the NMFS under authority of federal law. Without management authority for marine mammals, including Orcas, Alaska cannot restrict or prohibit capture in state waters. Because of this, Alaska has had virtually no say on whether these captures should be allowed or the conditions under which Orcas may be captured.
- * The National Marine Fisheries Service issued a permit to Sea World, Inc. to capture up to 100 Killer Whales in Southeast Alaska and Prince William Sound and to remove 10 to their stateside facilities for public display purposes.
- * Although the current permit authorizes Sea World to conduct research on the captured whales, it does not require it. As a result, if the past is any indicator, virtually all the "research" that will be done will be to assure that the 10 animals taken stateside are healthy and will have little value to the worlds scientific community.
- * This permit was issued without any public hearings in Alaska and virtually no press coverage until after the comment period had closed. The only public hearing on the permit was held in the State of Washington, where residents of that state strongly urged hearings in Alaska so that Alaskans would have an opportunity to comment.

- * The permit was issued without any reliable indicator of what the Orca population in Alaska is. Although estimates vary, there is little data to suggest that the total population of Orcas in Alaska is more than 500, and it is probably far less than that.
- * Considerable reduction in the overall Orca population of specific areas has followed Sea World, Inc. capturing attempts in the past. Evidence suggests that Orcas are reluctant to return to areas where capturing has occurred and that capturing attempts in Alaska would seriously diminish the opportunities for Alaska residents and visitors to observe Orcas in their natural setting.
- * There is evidence that Sea World, Inc. has violated terms of similar permits in the past, specifically by using underwater explosives to herd Orcas into their nets. The ADF&G was denied their request to approve or disapprove capture activities by Sea World, Inc. in order to avoid conflicts and assure compliance with terms of the permits.
- * The capturing, harassment, and public display in captivity of Orcas is offensive to the religious and cultural traditions of Native people in Southeast Alaska. The ANB passed a resolution in opposition to the permitted capture.

Because of these concerns, the resolve section of the resolution requests that future permits require that scientific research in response to recommendations of the UA, ADF&G, and other recognized scientific bodies be conducted on site (in Alaska waters) as a condition of granting the permit.

Further, it requests that public hearings be held in Alaska prior to issuing any future permits to capture Alaska Orcas, that the state have the ability to monitor compliance with the permits, and that the state be reimbursed for any losses that result from the permitted captures.

I have a great deal of information and backup on this issue that I would be happy to share. I believe it's important to keep the emotion out of this issue -- the facts are alarming enough. It's clear, through the statewide news coverage, that Alaskans are very concerned about this issue. I believe it's imperative that we address it through this resolution.



Official Business

Alaska State Legislature

SJR 31

Senate Committee on State Affairs

Vic Fischer, Chair • Pouch V
Juneau, Alaska 99811
(907) 465-4954

Clean copy?

MEMORANDUM

TO: Senator Bettye Fahrenkamp

FROM: Senator Vic Fischer *Vic*

DATE: January 19, 1984

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Bachett my wording*

JAN 19 1984

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*Done have
the resolution*

Alaska State Legislature

BETTYE FAHRENKAMP, Chairman
ROBERT H. ZIEGLER, SR., Vice Chairman
DICK ELIASON
PAUL FISCHER
VIC FISCHER
BOB MULCAHY
ARLISS STURGULEWSKI



POUCH V
STATE CAPITAL
JUNEAU, ALASKA 99811
(907) 465-3834
(907) 465-3835

Senate

Committee on Resources

M E M O R A N D U M

TO: Senate Resources Committee Members

FROM: Senate Resources Committee Staff

RE: January 30 Committee Hearing

DATE: January 26, 1984

On Monday, January 30, 1984, at 3:00 in the Beltz Room, the Senate Resources Committee will be hearing SJR 31, Relating to the capture of orcas in Alaska waters and SB 349, An Act relating to recreational activities in state parks.

SJR 31

On November 1, 1983, as authorized by the provisions of the Marine Mammal Protection Act of 1972, the National Marine Fisheries Service (NMFS) issued a permit to Sea World, Inc. to take killer whales (Orcinus orca) from Alaskan waters for the purposes of public display and scientific research. Under the terms of the permit, over the next five years ten killer whales may be taken and maintained in captivity; ninety killer whales may be captured and released up to three times each for the purpose of conducting research (activities such as blood sampling, hearing testing, liver biopsies, tooth extraction, and radio tagging are allowed). As a condition of the permit, authorization from the Assistant Administrator for Fisheries (NMFS) is required prior to conducting any capture activities, to resume capture activities following the mortality of any animal in the field, and at the end of each calendar year to continue activities.

There is concern over the permit process, (no public hearings were held in Alaska), and interest in assuring that the terms of the permit are complied with. There is evidence that Sea World, Inc. has violated terms of a similar permit during capture operations in the State of Washington, specifically by using explosives to herd orcas into nets. In 1976, the State of Washington sued Sea World, Inc. and their capture operation was subsequently shut down.

CS SJR 31, prepared in cooperation with the bill's sponsor, requests that the members of the Alaska Congressional Delegation persuade or require the NMFS to:

- 1) Place a NMFS observer on each vessel involved in capture activities.
- 2) Grant authority to the Alaska Department of Fish and Game (ADF&G) to approve or disapprove all capture activities.
- 3) Require that scientific research be done and that it respond to the recommendations of the University of Alaska, the Alaska Department of Fish and Game, and other recognized scientific bodies.

SJR 31 also requests that NMFS conduct a study of the impact of the capture of orcas on the ecosystem, and hold public hearings in Alaska prior to issuance of any future permits to capture orcas in Alaskan waters.

SB 349

AS 41.21.020.(6) authorizes the Commissioner of DNR to adopt regulations governing the use and designating incompatible uses within the boundaries of state park and recreational areas. SB 349 would require the department to consider the use of dogs, horses, and other animals in the adoption of these regulations.

Current regulation (11 AAC 12.120) allows the use of horses and pack stock on trails designated by the Director for that specific use. The Department has recently taken steps to accommodate the use of horses and pack animals in state parks, as evidenced by the attached Division Order No.55 which opens specific trails in Chugach State Park to the use of horses.

SJR 31

Rec 1/30/84 from
Sea World



EDUCATIONAL ACCOMPLISHMENTS OF SEA WORLD

In spite of its mere two decades as an institution, Sea World has had an unparalleled impact on public awareness of the marine environment, man's knowledge of this vast resource and our ultimate dependancy on the oceans for survival. Of the estimated over 118 million people who annually attend zoos, oceanariums and aquariums, seven percent attend Sea World parks. Since the opening of its first park in San Diego in 1964, Sea World, Inc. has hosted nearly 72 million visitors. In the last 10 years, Sea World has shown an average annual attendance increase of 10.25 percent. Assuming a modest three percent increase over the next ten years, total attendance at the three existing Sea World parks through 1992 will exceed 150 million. Marketing research shows that the largest group of Sea World visitors are young families with children.

Since the development in 1972 of "Exploration Breach", Sea World's formalized educational program for elementary through collegiate levels, over 1.5 million students have had the opportunity to directly experience and learn about marine life at one of the three Sea World parks as part of their curriculum. Other programs include: Underwater Friends, for grades K-3; Youth Awards, for campfire, scouts and youth groups; Career Explorations; Interworlds, for students K-4; and in-depth studies for high school and college students (many in cooperation with the University of California, San Diego, San Diego State University and the University of Florida system). The Sea World Shark Institute in the Florida Keys also offers a variety of educational experiences,

A program coordinator for the Orange County Public Schools in Florida wrote in recent correspondence, "We are dependent upon Sea World to provide marine biological programs. During May of 1983 alone, over 20,000 students were involved from the state's educational institutions."

Sea World also provides continuing education units which bring marine science instructors to the classroom and a preceptorship program for upper level veterinary medical students interested in marine and zoological medicine. Few similar organizations operate with an education budget exceeding \$1 million annually, which allows Sea World the freedom to conceive and construct such a wide-ranging and imaginative educational campaign.

In recent years, several very popular special programs have been developed. Gifted students' programs are presented for qualified students in grades K-6. Three special education programs are offered for mentally challenged, visually impaired and severely handicapped students. Each is a multi-sensory program designed for students who benefit from the individual approach. Sea World's Education Department also offers free curriculum aids, teacher orientation programs and inservice workshops. Sea World is committed to providing these programs at or below cost.

In addition to the organized education programs, trained interpreters/narrators are stationed at all major animal exhibits, including the killer whale area, to answer visitors' questions and present educational information. For those who wish additional information, guided tours are available. Other educational materials are presented in our award-winning graphic displays located in exhibit areas.

A sampling of Sea World's educational programs includes:

- Kelp Beds to Ice Berqs, K-6 educational program to premiere in Feb. 1984, designed as an out-of-park program, specifically for school assemblies, to introduce students to marine mammals and the ocean environment.
- Award-winning community outreach programs, such as: Sharks, Gigi: The California Gray Whale and Training Marine Animals, with 4600 participants in the first five months.
- Adult programs: Living World of the Sea, Marine Mammals, The Biology of Whales, The Plants of Sea World, Penguins, and Gray Whales.
- Sea World: An Educational Resource, offered in conjunction with San Diego State University as a two-day course for teachers.
- Undersea Fantasy, constituting the most sophisticated combination of film, live performance, animated characters and audience participation Sea World has ever achieved.
- Whales on the Move, a one-day session for groups of 10 or more in which half the day is spent on Sea World grounds and half at sea.
- Childrens' programs that bring out their creativity: Sea Life through Arts and Cratfs, and other learning opportunities such as Tide Pools, Birds, Oceanography and Ecology of Marine Animals.
- The rapidly expanding travelling marine education show Interworlds to the Sea, seen by over 50,000 students in five states and its in-park counterpart Interworlds, which won the AAZPA award in 1978.
- The Real World of the Scientist, a career oriented course for those seeking practical experience in science, and science internships in conjunction with the Florida Institute of Technology.

- A three credit-hour college level re-certification course offered in the Florida park to teachers wishing to stimulate students' interest in marine science.
- Sea World of Ohio's 30-week internship program conducted in conjunction with Central Michigan University's Park and Recreation Program.
- Sea World's involvement in supervising the Central Ohio Joint Vocational School District's Career Education program.

Sea World has initiated or participated in many special activities and events as well, including:

- The Young Adults Reading Olympics program for which Sea World of Florida contributes books, speakers, workshop advisors and fact sheets to approximately 50,000 students each year.
- Deaf Awareness Day, visited by 2000 people, at which sign language interpreters were provided and many video programs were translated into sign language.
- The annual Sea World Snow World Special Olympics for the developmentally handicapped, held since 1978.
- The hosting of underprivileged and handicapped children from other countries.
- The co-sponsorship with the National Art and Education Association of a national environmental art project in celebration of the Year of the Child, to increase sensitivity to the marine environment and encourage artistic expression.
- Participation in the CBS Reading program which involves approximately 45,000 students from Central Florida each year.
- Telelecturing, which is available to classes that cannot come to Sea World.

Other exceptional reflections on Sea World's educational value are:

- Its rating by the Stanford Research Institute in 1979 as "the world standard against which all others of its kind are measured" adding that it is "superior from a family perspective in every way."
- The steady stream of foreign dignitaries visiting the parks to learn about their unusual mix of entertainment, education and research.

- Students conducting research on marine science, who often find more information and books at Sea World's educational library than at their own public libraries.
- The Lake Erie Girl Scout Council's recognition of Sea World's contribution to community involvement by its granting of the 1981 "Appreciation Award".
- The National Safety Council's choice of Shamu, a Sea World killer whale, to be the "spokeswhale" for water safety.

The public display of marine mammals, the formal education programs, interpreters/narrators and graphics are indicative of Sea World's corporate belief that the public should be afforded the opportunity to personally experience the beauty, intelligence and agility of marine mammal species. Experiencing these exotic creatures only through one-dimensional photos, books and mass media cannot provide the awareness and appreciation that comes from personal observation.

Sea World has refined that talent for combining education and entertainment with a strong sense of responsibility for conveying ecologically sound, important information to the public. In this way, Sea World endeavors to promote greater awareness, understanding and appreciation of marine animals and their ocean environment with the hope of contributing to a more informed public, and thus building a more responsible society. AN INFORMED AND EDUCATED PUBLIC CONSTITUTES THE BEST PROTECTION FOR OUR MARINE MAMMAL RESOURCES.



SEA WORLD ENTERPRISES , INC.

GENERAL INFORMATION

AN OVERVIEW

Sea World Enterprises, Inc., is one of three major operating companies of Harcourt Brace Jovanovich, Inc. Harcourt Brace Jovanovich, Inc. (HBJ), one of the world's largest publishers, is a diversified company. HBJ creates instructional books, scholarly books, professional books and general books, including school and college textbooks. It publishes scientific journals as well as business and professional periodicals. HBJ distributes school and office supplies and manufactures graphic materials for school and office use. It publishes and scores educational tests. HBJ sells insurance to individuals and to corporate clients. It owns book clubs and television stations. It conducts seminars and courses in law, accounting and business.

Sea World Enterprises is organized into several groups:

- Sea World, Inc., is responsible for the operation of Sea World marine parks in San Diego and Cleveland, and the Sea World Marina at Perez Cove in San Diego.
- Sea World of Florida, Inc., operates the Sea World marine park in Orlando, the Sea World Shark Institute at Layton in the Florida Keys, Florida Festival (a food and merchandise complex adjacent to the Orlando theme park) and Florida Land Development Company.
- The Atlantis Restaurant in San Diego also is operated by Sea World Enterprises, Inc.

Principal Officers: The following are members of Sea World's Senior Management Committee:

Robert R. Hillebrecht, Chairman and Chief Executive Officer
Frank A. Powell, Jr., Executive Vice President
George J. Becker, Jr., Executive Vice President
Jan E. Schultz, Senior Vice President/Marketing
Lanny H. Cornell, D.V.M., Senior Vice President and Zoological Dir.

A Brief History

Sea World of San Diego is the company's original venture and continues to be the site of its corporate headquarters. Sea World was founded in 1963. The San Diego park was opened in 1964 on a 22-acre site.

In 1968 Sea World stock was offered to the public. In December of 1976 Sea World became a subsidiary of HBJ.

In the spring of 1970 Sea World opened Sea World of Ohio, in what was the first of several periods of expansion. Located near Cleveland in Aurora, that park continues to be operated during the summer, open to the public from the weekend before Memorial Day through the weekend after Labor Day. During the remainder of the year, Sea World of Ohio provides extensive education programs utilizing its aquariums and resident populations of marine animals. Sea World of Ohio is the only marine life facility of its kind in mid-America.

In December of 1973, Sea World of Florida was opened to the public on a site 12 miles southeast of Orlando, near Walt Disney World. Open year round, as is the San Diego park, Sea World of Florida is the anchor of a multi-million dollar family vacation development. Florida Festival, a \$7 million entertainment, dining and shopping complex was completed in late December of 1979 adjacent to the marine park. Plans call for a joint venture development of a 784-room destination resort hotel - Wyndham at Sea World - with the Trammell Crow Co.

The Sea World Shark Institute, located in the Florida Keys on Long Key in Layton, was constructed in late 1978. The 6.5 acre facility serves as an advanced shark research center for Sea World and other researchers and as a collecting station. Onsite laboratories and dormitories are available for use by selected academic and government teams. A research partnership agreement between Sea World and the Florida State University System was proposed in 1982 and signed in 1983. The program, which will be administered by the Florida Institute of Oceanography, will open the facilities of the Shark Institute to selected marine science instructors and graduate level students at all of Florida's State Universities and the University of Miami.

Throughout its history, Sea World has maintained the principle that an educated public remains the best protection for our marine environment. To this end, Sea World's goal is to present marine animals in family-oriented, entertaining shows and educational exhibits and to provide a center for quality marine research through the use of Sea World facilities and support of the non-profit Hubbs-Sea World Research Institute.

The Hubbs-Sea World Research Institute

Research has been an integral part of Sea World since its beginning. In 1963 the company participated in the founding of the non-profit Mission Bay Research Foundation, later named the Hubbs-Sea World Research Institute (HSWRI). Since then, Sea World has made its collection of marine animals and environments available to qualified research organizations for productive non-harmful research. Scripps Institution of Oceanography, Woods Hole Institute of Oceanography, San Diego State University, the Naval Oceans Systems Center and the Florida State Universities system are among institutions that have worked closely with

HSWRI. Some of the best known research projects involved "Gigi", the California Gray Whale, penguin studies and shark research.

Educational Programs

To date, more than 1.5 million individuals have participated in Sea World's educational programs at the company's three marine parks. Students experience the marine environment through a "hands on" approach to education. Programs are available for school classes, "gifted" children, disabled and other special physically and mentally handicapped students. Summer classes are open for both students and interested individuals of all ages. Special outreach projects take Sea World's education programs to the classrooms of students unable to make the field trip to a Sea World park. Included in programs are specially designed curriculum materials for use by classroom instructors prior to and following their students' visits to Sea World. More information on these programs is available by contacting the Education Department in each of the three Sea World parks.

Species Maintained

Each of the three Sea World parks maintains collections of marine mammals, freshwater and marine fishes, sharks, waterfowl and other birds. Included are: Killer whales (Orcinus orca), beluga whales (Delphinapterus leucas), Pacific pilot whales (Globicephala scammoni), Atlantic bottlenose dolphins (Tursiops truncatus), Pacific bottlenosed dolphins (Tursiops gilli), false killer whales (Pseudorca crassidens), Steller sea lions (Eumetopias jubata), California sea lions (Zalophus californianus), harbor seals (Phoca vitulina), manatees (Trichechus manatus), Pacific walrus (Odobenus rosmarus), California sea otters (Enhydra lutris), Northern elephant seals (Mirounga angustirostris) and others.

Other mammals in the collection include Malaysian short-clawed otters (Amblonyx cinerea) and American otters (Lutris caradensis).

More than 10,000 fish specimens of more than 350 species are maintained in the three parks. Nearly 100 species of reptiles, amphibians and invertebrates are also maintained by aquarium department personnel. Among the more unusual to be maintained in a controlled environment are pelagic sting rays (Dasyatis violacea), sawfish (Pristis pectinata), and chambered nautilus (A. nautilus). One of the world's largest collections of sharks includes, among others, bull sharks (Carcharhinus leucas) and brown sharks (Carcharhinus milberti).

Sea World's waterfowl (ducks, gees and swans) collection is the largest in this country and one of the largest in the world. The collection numbers nearly 200 forms and includes such endangered species as the Laysan teal (Anas laysanensis) and Nene goose (Branta sandvicensis). From 800 to 1000 waterfowl are raised each year. In addition, Sea World maintains one of the largest captive flamingo breeding colonies in the world.

Most significant of Sea World's bird collections is the Antarctic penguin collection housed in the \$7 million Penguin Encounter constructed in the San Diego park in 1983. Included in the collection are the only Antarctic penguins on display in this country, emperor penguins (Aptenodytes forsteri), and adelic penguins (Pygoscelis adeliae). The collection also includes a breeding colony of humboldt penguins (Spheniscus humboldti), the only one of the 17 species of penguins listed as endangered. Other penguin species maintained are king (Aptenodytes patagonica), rock penguin (Eudyptes crestatus), macaroni (Eudyptes chrysolophus), and gentoo (Pygoscelis papua). Additional species, such as the chinstrap (Pygoscelis antarctica), will be added to the collection shortly.

The Penguin Encounter is the result of a 10-year research project conducted by Sea World and HSWRI in conjunction with the National Science Foundation and will be the site of continuing research on these fascinating birds. Among the most significant accomplishments of the penguin project outside of the Antarctic is the hatching of emperor penguin chicks, beginning in 1980 and in each succeeding breeding season.

Attendance

By mid-1983, attendance at all Sea World parks passed the 75 million mark.

Sea World of San Diego

Sea World of San Diego is located in Mission Bay Park, a 4,500-acre recreational development owned by the City of San Diego. Commercial enterprises within the Mission Bay Park have lease agreements with the City of San Diego.

Mailing Address and Phone Number:
Sea World of San Diego
1720 South Shores Road
San Diego, CA 92109
(619) 222-6363

Public Relations Director:
Jackie O'Connor
Opened: March 21, 1964
110 developed acres.
Six shows (seven in summer).
30 educational exhibits.

Sea World of Ohio

Sea World of Ohio is the greater Cleveland area's most popular recreational attraction.

Mailing Address and Phone Number:
Sea World of Ohio
1100 Sea World Drive
P.O. Box 237
Aurora, OH 44202
(216) 562-8101

Public Relations Manager:
Elizabeth Barry
Opened: May, 1970
85 developed acres.
Seven major shows
20 educational exhibits.

Sea World of Florida

Sea World of Florida is located in the heart of the central Florida tourist destination.

Mailing Address and Phone Number:

Sea World of Florida
7007 Sea World Drive
Orlando, FL 32809
(305) 351-3600

Public Relations Manager:

John Rutherford
Opened: December 15, 1973
250 developed acres.
Five major shows.
21 educational exhibits.

PERMIT PROCESS



On March 7, 1983, Sea World submitted a permit application to take killer whales (Orcinus orca) for scientific research and public display. The application detailed the purpose of the proposed taking and the proposed scientific research project. The application also contained extensive documentation in support of the permit request. In conformity with the applicable statutory and regulatory requirements and recommendations of the Marine Mammal Commission, Sea World was issued its permit on 1 November, 1983.

In recognition of possible public interest in the proposed taking, Sea World pursued extensive efforts to ensure that the public was well-informed about the permit application. After the publication of the first public notice on March 17, 1983, Sea World requested a 30-day extension of the comment period to allow more time for interested parties to review the application and submit comments. The period was subsequently extended to Aug. 26, 1983 to accommodate other administrative requirements and a public hearing.

Meetings Sponsored by Sea World

In addition, on May 9 and 12, and June 5-10, 1983, Sea World held informal meetings to discuss the pending application in San Diego, California, Washington, D.C. and Anchorage, Juneau, Cordova and Kodiak, Alaska. Sea World selected these locations because it concluded that these cities were easily accessible to many of the interested parties including most major conservation and animal welfare organizations.

Much of the discussion at the meetings focused on Sea World's proposed scientific research program and, in particular, the scientific research protocols Sea World intended to apply, as well as its proposed captive breeding program. Representatives from Sea World described the protocols that will be used in the program and explained that they are well-established and accepted within the scientific community and have been successfully applied in breeding bottlenose dolphins (Tursiops truncatus) and other marine mammals at Sea World. It was also explained that the proposed captive breeding program was based on the successful program conducted with Tursiops and that the proposed taking was nearly identical to the Indian River project.

Although preparing for and sponsoring the informal meetings required a significant commitment of time and resources, Sea World believes the meetings were quite productive as they provided a forum for interested parties to exchange ideas and information freely in an informal setting. Sea World has committed many resources to ensure that the public is well-informed about its project. While the taking is very similar to the previous permitted taking of Tursiops, Sea World

recognizes that, in light of the public interest in killer whales, it is important that information be disseminated to interested parties so that the public can recognize that the project complies with the mandate of Congress and is consistent with previous permitted takings. Sea World believes that this goal was aided by conducting informal meetings in San Diego, Washington, D.C. and Alaska.

Public Hearing

A public hearing was held on Aug. 16-17, 1983 in Seattle, Washington. Testimony was presented both in support of and in opposition to the proposal. While participants raised many issues, it is important to note that no new significant issues were identified during the hearing, and that the most significant issues raised had already been addressed by Sea World in its original application and subsequent written submissions to the National Marine Fisheries Service and during its informal meetings. Nevertheless, Sea World appreciates the opportunities now and then to improve the public's understanding of the authorized programs that will be conducted under its permit.

Activities Authorized

The summary of authorized activities listed below reflects various requirements and restrictions, as described:

- 1) The collection over a five-year period of an average of two animals per year (for a total of 10 animals) for public educational display and captive propagation.
- 2) The authority to conduct important, nonharmful scientific research on up to 90 additional animals encircled in the nets coincidentally during the five-year collection effort. A specific number of animals for each research activity is defined. Some studies require further review and authorization from the Assistant Administrator of the National Marine Fisheries Service in consultation with the Marine Mammal Commission.
- 3) Animals incidentally encircled for research might be examined up to two times, but not more than once in each calendar year. Previously studied animals may be restrained, measured, blood-sampled, remarked if necessary and may have radiotelemetric packs removed or changed if necessary.
- 4) The permit requires suspension of all activities in the event of any mortality. Any animal that dies will be considered taken under the 10 authorized for public educational display and captive propagation.
- 5) The permit must be reviewed and reauthorized by the

Assistant Administrator for Fisheries in consultation with the Marine Mammal Commissioner annually.

6) The permit prohibits the taking of any pregnant, nursing or unweaned animals.

7) Detailed status, annual and thorough research activity reports will be submitted.

All activities authorized under this permit will be conducted in consultation with the Alaska Department of Fish and Game.

INTERNATIONAL WHALING COMMISSION



A. Research Recommendations

In 1981 an international workshop convened in Cambridge, England by the International Whaling Commission reviewed information available on identity, structure and vital rates of populations of killer whales, Orcinus orca, world-wide (IWC 1982: 617-694). Among other things, the workshop noted the importance of observational and photographic studies of killer whales, of the sort conducted during the past decade in inland marine waters of British Columbia and Washington State; noted discrepancies in estimates of vital parameters obtained from such observational studies and those obtained from specimens taken in whaling activities; encouraged that observational studies be extended to other areas for comparative purposes; and detailed other important research needs.

For example, the workshop put forth the following specific recommendations:

"5.6: Noting that teeth for age determination have not been consistently collected for all killer whales taken commercially or found stranded, the meeting recommends that in the future every effort be made to collect and examine such materials, as well as gonads, stomach contents, morphometric and meristic data and other biological materials whenever possible."

"5.8: Noting that chromosomal and biochemical studies may yield information concerning stocks and populations of killer whales, the meeting recommends that such studies be undertaken for all killer whales currently in captivity, and, whenever opportunity exists, to conduct such studies on stranded and harvested whales and whales in the wild."

"5.9: Noting that field studies of killer whales in waters around Vancouver Island and in Greater Puget Sound have produced significant new information concerning vital parameters, as well as precise assessments of the local populations, the meeting recommends that such studies be continued in order to accurately determine: (1) at what age killer whales become adult, (2) age-specific birth and mortality rates, and (3) immigration/emigration rates for the local population, especially as they may correlate with changes in the habitat. It is further recommended that similar studies be encouraged in other areas of the world for comparative purposes."

B. Collection

The International Whaling Commission does not consider live captures as its responsibility. It has not in the past, reviewed or commented upon any capture permits or capture operations, nor is there any indication that the IWC intends to broaden its purview to include such activities. The two IWC forums in which

live captures have been considered at all (the 1981 workshop on killer whales and the 1983 meeting of the Small Cetacean Subcommittee) have restricted discussions to rates of removal and effects of those removals on populations involved. No nation has been criticized or challenged because of its endorsement of controlled, carefully managed and limited live captures.

It was in this context that the Small Cetacean Subcommittee of the IWC at its 1983 annual meeting, discussed live captures of killer whales and (a) noted that considering the relatively low levels at which killer whales have been exploited world-wide, the species cannot be considered endangered or threatened, (b) noted that little is known of the status of killer whale populations affected by live-capture operations, (c) recommended that because of the possible low rate of reproduction in at least some populations of this species, if a guideline for rate of removals is adopted pending stock assessment, as has been done by the U.S. for bottlenose dolphins, it should probably be lower than the 2% that has been used for Tursiops (this recommendation was based on the 1.8% annual growth rate reported for Puget Sound/Vancouver Island populations by Balcomb and Bigg (1983) and (d) recommended that, given the probability that populations in a given geographical area consist of localized stocks, any planned live-capture be preceded by an assessment of size and composition of populations to be affected (IWC 1983: Annex H - 42 p. and 4 appendices).

Specifically relevant to the proposed Alaskan captures, the subcommittee received and accepted a "minimum" estimate of population size of killer whales in Shelikof Strait, Prince William Sound, and Southeast Alaska as 293 individuals (Leatherwood et al. 1983; IWC 1983: Annex H, p.38). Under the management regime proposed, these minimum estimates support authorization of takes, at present of no more than 5 animals per year from these three populations combined, pending further analysis. (It is important to note that Sea World requested and received authorization to remove only two animals per year and there is no expectation that other permits for killer whale capture will be requested or granted during this time.)

Mindful of the IWC recommendations and aware that success of a captive breeding program depends on a firm basis of biological knowledge, in 1982 Sea World publicly committed to a future five-year, multi-disciplinary research program on killer whales of southern Alaska.



KILLER WHALE FACILITIES

Sea World is ranked among the world's finest zoological institutions. Facilities at Sea World for captive killer whales far exceed federal standards. Sea World research and experience with captive whales has been instrumental in assisting the federal government and animal protection groups in determining the standards by which all zoological parks must abide.

Sea World currently maintains the three largest killer whale husbandry and display facilities in the world. In Florida, construction is underway for the replacement of the current 1,000,000 gallon whale facility. Estimated to cost \$15 million and to be completed in May of 1984, this new facility will allow for the continuation of quality educational display shows and exhibits while providing a breeding research center for large killer whales. Water capacity will be in excess of five million gallons.

A similar facility is on the drawing board for our San Diego park where our whales are currently maintained in a 1.25 million gallon complex, designed and constructed in 1970. The Ohio killer whale pool has recently undergone a \$1.5 million expansion.

It should also be noted that in San Diego, Sea World has just completed the \$800,000 construction of off-exhibit facilities, providing additional capabilities for conduct of non-harmful research projects with marine mammals.

Sea World spends millions of dollars annually on facilities, not because of government rules or complaints by citizens, but because by doing so it can assure the lives and safety of the animals in its care. Sea World is a model institution for captive display and maintenance of killer whales and other marine mammals.



KILLER WHALE LONGEVITY

The average lifespan of killer whales has yet to be determined. It does appear, however, that 30-35 years is a reasonably accurate figure. Estimates of longevity in captivity of 3-7 years, presented without support by those opposing the permit are apparently based on various interpretations of data presented in Hoyt's report (1981) and differ in the extent to which they include stranded animals and earliest captures. We continue to encourage strongest reliance on analyses of data on killer whales survival published in referenced scientific journals such as the International Zoological Yearbook in 1976 and 1979.

The average longevity of killer whales reported in 1979 was 7.2 years. The animals cited in that study are still alive today, extending average longevity to 11.4 years. Furthermore, individual killer whales in at least six North American institutions including the Vancouver Public Aquarium, Miami Seaquarium, Marineland of the Pacific, Marine World-Africa USA and Sea World, have been maintained in a controlled environment since before 1970.

It is important to note that it has only been during the last 20 years that anyone has kept killer whales in a zoological environment. A continuing trend towards increased captive longevity is apparent in the record.

Sea World's mortality rates with all species range from 3.0-6.0 percent in all its parks. This is at least as good and possibly better than wild mortality rates. Sea World fully expects its killer whales to live a healthy and normal life span in captivity.



COLLECTION TECHNIQUES

Killer whales are collected using small (50-75 ft.) and medium-sized (75-100 ft.) purse seiners. The techniques are well-documented in scientific literature. They are either encircled in open water or confined in a small bay by netting off the mouth. In addition, individual animals may present themselves and be collected by hoopnet without the encirclement of a group or pod when it is obvious that that particular animal lends itself as a recruit to the project.

A number of smaller vessels of various sizes may aid the collection and restraint of the whales. The larger boat is used as the primary collecting and initial transport vessel and the smaller boats, when utilized, will aid in the laying of nets, protecting the net openings and making any necessary adjustments to the nets.

Aircraft may be used as an aid to the operation. Aircraft usually are flown no less than 50 to 100 feet from the surface of the water unless landing or taking off from the water. The purpose of the aircraft is to aid in locating and censusing animals that cannot be seen from the boats, to identify groups and help determine age and sex composition of the pods prior to a collecting attempt, thus eliminating the potential of disrupting the behavioral patterns of some groups.

During the period of encirclement as well as during the period of temporary holding, observers, both on boats and/or divers in the water, are on hand as needed to insure the animals' safety.

After animals are encircled in a net, at appropriate times the space around the animal selected for handling is gradually reduced to a manageable size. The enclosed animal is transferred to a specially designed stretcher, lifted from the net, and placed in a transport unit onboard the vessel. Proposed research procedures may be conducted in the reduced net or onboard the capture vessel. As specified in Sea World's application and permit, once procedures are completed, whales will either be released to rejoin their pod or transported to Sea World.

It is important to note that no killer whales were collected by Sea World prior to 1976. Further, collection by Sea World has never resulted in the loss or injury of a killer whale.

Alaska State Legislature

BETTYE FAHRENKAMP, Chairman
ROBERT D. ZIEGLER, SR., Vice Chairman
DICK ELIASON
PAUL FISCHER
VIC FISCHER
BOB MULCAHY
ARLISS STURGULEWSKI



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Senate

Committee on Resources

MINUTES

March 5, 1984
3:11 pm

Beltz Room
Room 211, Capitol

MEMBERS PRESENT

Senator Fahrenkamp, Chairman
Senator Ziegler, Vice Chair
Senator Eliason
Senator Mulcahy
Senator Sturgulewski

CALENDAR

SB 278, An Act establishing a waterfowl conservation stamp.
SB 366, An Act relating to protection of forested land.
SJR 31, Relating to the capture of orcas in Alaska waters.

SB 278

Senator Rodey, sponsor of the bill, explained that proceeds from the sale of stamps would be used for the conservation and enhancement of waterfowl and said the bill has the support of conservation and sport hunting groups. He supported the Committee Substitute, as it clears up any questions over dedication of funds.

Dan Timm, Regional Management Coordinator, Game Division, and Tom Rothe, Waterfowl Coordinator, Game Division, Alaska Department of Fish and Game, testified in support of the Committee Substitute, which would make the purchase of the stamps mandatory and specify that the stamp would not be required of hunters until September 1, 1985. They answered questions from members of the committee regarding the Department's administrative costs, the process of requesting proposals for design and publishing of stamps, and how the Department plans to use the revenues generated.

Jay Nelson, Executive Director, Alaska Environmental Lobby, spoke in support of the Committee Substitute, and urged the state to become more actively involved in waterfowl management.

Ron Sommerville, Alaska Outdoor Council, testified in support of the Committee Substitute.

Jim King spoke in support of the bill, urging the state to take more control over the management of its waterfowl.

Senator Sturgulewski moved to adopt the Committee Substitute. There was no objection.

Senator Mulcahy moved CS SB 278 with individual recommendations. There was no objection.

SB 366

John Sturgeon, State Forester, Department of Natural Resources, testified in support of the bill, explaining that transferring responsibility for firefighting to local service areas would remove the duplication of effort by the state and municipalities.

Ginny Chitwood, Alaska Municipal League, testified in opposition to those sections of the bill that would give municipalities primary responsibility for fire suppression within service areas, expressing concern over municipalities' capabilities and the costs they would incur.

Senator Fahrenkamp asked that Sturgeon and Chitwood work with Committee staff to prepare a Committee Substitute that would address the needs and concerns of both the state and the municipalities.

SJR 31

Senator Vic Fischer spoke in support of the Committee Substitute and moved it be adopted and moved from Committee with individual recommendations. There was no objection.

The meeting adjourned at 4:27 pm.

Rep. Michael Szymanski,
Alaska State Legislature,
Juneau,
Alaska.



ORCALAB

Re: HJR # 58

Rep. Szymanski, Committeemenbers:

Thank you for the opportunity to make these remarks concerning HJR#58. My name is Paul Spong. I am the director of ORCALAB, a 13 year-old whale research station located on Hanson Island in the Johnstone Straits region of British Columbia, Canada.

To summarize my view, may I state simply that Sea World, despite its existence as a worthy institution, is severely out of step with the times in its plan to capture Alaskan orcas. At this stage in the sorry story of human relations with the cetaceans, what is needed is enlightened state and national legislation, and world leadership in the struggle to correct the mistakes of the past, not the furtherance of a dastardly trade in bodies and lives.

Let me be quite blunt about this: the Sea World plan will kill Alaskan orcas, it will severely disrupt the social fabric of the Alaskan orca populations, and it will severely compromise the U.S. position in defense of the whales at the International Whaling Commission.

I should like to table, for your consideration, the report of a workshop on the Sea World proposal which I convened during August 1983 in order to provide input to the NMFS at its public hearing in Seattle. Those involved wish it known that they participated as individuals, not as representatives of the universities, government or private organisations to which they belong. Collectively, the group effort represents the insight of more than 80 years of scientific and other observation of *Orcinus orca*, in captivity and in the ocean. With your permission, I shall read into the record some of the principle components and conclusions of this report.

To preface with the conclusion, the Alaskan *Orcinus orca* population, being unexploited and available, represents a unique scientific opportunity which should be grasped before uninformed exploitation occurs. The Sea World breeding plan might be feasible in the future but is unlikely to succeed given the present state of knowledge.

Furthermore, the IWC has adopted a mandate to regulate the take of *Orcinus orca*; under its evolving rules a previously unexploited population should be subject to numerical determination before exploitation. Though it has been started, this has not been concluded for the Alaskan *Orcinus orca* population. Obviously, it should reach a point of scientific and statistical satisfaction before exploitation is permitted.

The permit to take 10 animals exceeds the number required for public display by Sea World (it already holds sufficient numbers of Icelandic orcas for its immediate and short term needs). Establishment of a breeding

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programme is the only justification for a large take. But:

- * Orcinus orca need experience to successfully rear calves.
- * Experienced animals will be very difficult to maintain.
- * Distantly related Orcinus orca may not be able to breed due to chromosomal incompatibility.
- * Closely related Orcinus orca may have inbreeding problems.

In British Columbia, an appropriate pair could be determined within two years. If it is politically acceptable, they could then be taken for a breeding programme. However, in Alaska, several years of study will be needed before a pair of animals could be taken that would have a reasonable chance of breeding.

The following are detailed comments concerning the proposed breeding programme:

1. Given the present state of knowledge, selection of animals will be difficult. It is not even possible to say whether they should be from the same or different pods or dialect groups. For example, Marineland's Orky and Corky, the only captive pair to produce offspring to date (4, all failed to survive infancy), are from the same dialect group. However, another pair from a single capture, Marineworld's Yaka and Nepo, did not breed or even attempt copulation.

2. Of all the combinations of haphazard captive pairings that have occurred over the past 15 years, none has resulted in successful breeding and rearing. This indicates the dimension of the problem.

3. Experiential, as well as genetic factors, seem likely to be critical. In the Marineland case, the parents do not seem to have sufficient knowledge about rearing to conduct it successfully. Although this factor might be countered by placement of mature animals in the captive group, this presents another problem: mature Orcinus orca do not survive very long in captivity.

4. Possibly the best experience/age compromise would be to take 4-5 year old animals that have younger siblings. These might have learned something about rearing and still be young enough to survive.

5. Given sufficient field effort, it would probably be possible to make selections with a fair chance of success. Once the breeding units are sorted out, this could be done. Skin and blood samples would enable determination of parents and offspring. However, this would require invasive procedures. Moreover, it is first necessary to determine pod membership, a task that requires at least two years of intensive effort.

6. Cytogenetic studies might be useful in determining blood lines. For example, saddle patch consistency between individuals very likely results from close genetic association. In Alaska, this study could possibly be done in 2-3 years.

7. If haphazard selection procedures are used, which would be the

case if the project proceeds in the absence of the required knowledge, removals could be detrimental to pod survival. For example, in B.C.'s "B" pod, there is a single female; if she were to be taken the pod would eventually terminate.

8. If transient animals are selected first, they are very unlikely to breed with other individuals from resident pods. Would this mean the breeding programme would have to rely entirely on transients? It may not be immediately apparent which pods are transient and which are resident.

9. The proposal covers a size range from birth to sexual maturity. As indicated above, mature animals may have very little chance of captive survival. Furthermore, the taking of mature reproducing members of a pod would likely diminish the reproductive potential of the pod, and as well disrupt the close-knit social structure of the pod by removing key members. Mature animals should not be taken.

10. Determination of genetic associations, using acoustics, cytogenetics, behavioural observation and other methods, is one of the most exciting aspects of current field investigations of *Orcinus orca* in British Columbia and Puget Sound. Yet, in both populations the genetic situation is clouded by the fact that these are already exploited stocks. The Alaskan population, being unexploited, therefore represents a great scientific opportunity and challenge. It would be most unfortunate if the scientific opportunity is not fully exploited before physical interference with the pods occurs.

11. To conclude, not enough is presently known about the key factors involved in *Orcinus orca* reproduction for the Sea World breeding proposal to have any real chance of success at this time. However, if the needed scientific effort is made, perhaps within a few years enough will be known to justify the attempt.

Sea World should show why their breeding programme will succeed where they and others have failed. Considerable field research needs to be done before it is seriously considered. Once the research is done, a large take might be approved, provided the population is numerically sufficient to sustain it, and once Sea World has demonstrated that they have a reasonable chance to obtain a successful breeding result.

It would be foolish to proceed with a breeding programme in the present climate of knowledge about reproduction in *Orcinus orca*. In a few years more will be known, perhaps enough to do it successfully. To proceed now would be against Sea World's own best interest. If the programme is attempted now, and fails as it almost certainly will, NMFS might be heavily constrained to refuse any further application.

I trust that this scientific summation is sufficient to convince yourselves and your fellow Legislators that the Sea World plan for the Alaskan orcas is flawed at the core. At the very most, permission should be given for only a prerequisite phase of benign field research of perhaps 2-3 years duration. However, I wish to end by making two geopolitical points. For the science is just one aspect of the question at issue here.

First is the question of jurisdiction. Whales, large and small, are increasingly becoming subject to international regulation. This is

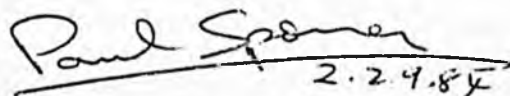
natural, as their paths often cross national boundaries, as is the case with the Alaskan orcas - obviously "Canadian" and perhaps "Russian" interests are involved here, as well as "American" or "Alaskan". Personally, I am all for any jurisdiction which adopts laws or regulations pertaining to cetaceans that set more stringent standards than those of other overlapping jurisdictions. So I urge your efforts, as Alaskans, in this direction.

But, is there not another question here? One of consciousness, and conscience. We begin to recognize the cetaceans as highly evolved social and sentient aquatic mammals. In the orcas, we see the fabric of a social order that is based, like our own, on the family unit. Beyond the families, the communities, and who's to say what social orders may lie beyond? Duration (generational continuity) and peaceful co-existence are key elements. Who knows, we may even learn something from leaving them alone that will help us in our troubles. In all the world, there is just one place where this magnificent creature can be studied and understood in its truly pristine state, and that is in the waters of the State of Alaska.

I urge you, please do whatever you can to ensure that the Alaskan human/orca relation emerges cleanly: please do not repeat the mistakes of the past.

Thank you for this opportunity to present my view.

Sincerely,


2.2.9.84

Paul Spong, Ph.D.
Director,
ORCALAB.

(604) 974-5484 (eve., w/weekend)

January 16, 1984

Mr. Robert E. Brumsted, Chief
Permits and Documentation Division
U.S. Department of Commerce
NOAA/NMFS
Washington, DC 20235

Dear Mr. Brumsted:

In our departmental letter to you, dated July 6, 1983, regarding application P2M by Sea World, Inc., we stated our concurrence with the issuance of that permit by your agency. However, we requested that as a condition of the permit, "approval of the State of Alaska must be obtained prior to any effort by Sea World, Inc. to take killer whales in state waters, under the broader authority of a Federal permit."

We have reviewed Mr. William G. Gordon's November 1, 1983, letter and your agency's permit (#439) to Sea World, Inc., which authorizes the taking of killer whales in Alaska waters. We did not find a permit condition which requires the permittee to obtain approval from the State of Alaska prior to conducting activities in state waters. Therefore, I request the following actions be initiated by your agency:

- (1) provide the permittee (Sea World, Inc.) with a written supplemental permit condition which requires State of Alaska approval prior to any efforts being undertaken to capture killer whales in state waters;
- (2) require that an observer from the National Marine Fisheries Service and/or the State be present during all capture operations in state waters; and
- (3) establish a procedure whereby the State of Alaska will receive copies of all reports and pertinent

Mr. Robert B. Brumsted

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January 16, 1984

information compiled by Sea World, Inc., to include mortality reports, capture reports, summaries of research results, and annual reports.

At your earliest convenience, please advise as to your intentions to fulfill the above requests. Should you consider these conditions unnecessary, the State may decide to oppose the Sea World, Inc. program in state waters.

Sincerely,



Don W. Collinsworth
Commissioner

cc: William G. Gordon

bcc: Game Headquarters
John Burns
Rep. Mike Szymanski

DWC:WLP:M²:h



SUBMISSION TO
THE U.S. NATIONAL MARINE FISHERIES SERVICE
COMMENTS CONCERNING SEA WORLD, INC'S
ORCA CAPTURE PERMIT APPLICATION UNDER
THE GUIDELINES OF THE U.S. MARINE
MAMMAL PROTECTION ACT

GREENPEACE,
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Greenpeace Northwest

Alan Reichman, Wildlife
Campaign Coordinator

June 6, 1983

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SUBMISSION TO THE U.S. NATIONAL MARINE FISHERIES SERVICE
COMMENTS CONCERNING SEA WORLD, INC.'S ORCA CAPTURE PERMIT
APPLICATION UNDER THE GUIDELINES OF THE U.S. MARINE MAMMAL
PROTECTION ACT

The Pacific Northwest regional office of Greenpeace—with approximately 20,000 members—is opposed to granting Sea World, Inc. a permit to capture killer whales (orcinus orca) from Alaska and California coastal waters under the guidelines of the U.S. Marine Mammal Protection Act.

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Greenpeace Northwest has experienced Sea World orca capture operations firsthand in the past as a result of our location. Therefore, we are submitting comments in addition to those submitted by Greenpeace U.S.A., emphasizing our experience with Sea World as well as other concerns.

There are four facets of our position opposing a potential Sea World orca capture permit:

1. The biological and ethical implications of capturing orcinus orca and holding them in captivity.
2. The clear lack of scientific justification for Sea World's proposed exploitation of Alaska and California orcinus orca populations; as well as an equally clear lack of scientific justification for the scientific research they propose to conduct.
3. Sea World's interest in procuring a source of display animals for its highly profitable marine circus operations—as well as potential sale to other aquaria worldwide. Sea World's proposed research appears to possibly represent an attempt to justify its desire to provide its facilities with a resource.
4. Sea World's pitiful capture operations in the State of Washington. As citizens of Washington State, we have experienced the negligence of Sea World firsthand. In 1976, the State of Washington successfully sued Sea World and their capture operation was subsequently shut down.



I. BIOLOGICAL AND ETHICAL IMPLICATIONS

The risks of mortality to orcas during capture operations, transport, and captivity are manifold. There is a bonafide risk of death for non-target as well as target animals during capture, and an exceptionally high risk of mortality to captive animals during transport as well as the first few months of captivity. Furthermore, the longevity of captive orcas is far below that of orcas in the wild (please see the attached table provided by Washington Secretary of State Ralph Munro concerning orcas captured in Washington State and British Columbia waters from 1961-1976). Also, no orcas have ever successfully bred in aquaria facilities anywhere in the world. Thus, captive orcas are denied an opportunity to contribute to the survival of their particular pod or the population as a whole.

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Ethical considerations must also be scrutinized. For instance, we must consider the importance of the pod as the intricate social unit which orcas live within. During capture operations, entire pods are harassed: often by "California seal devices" (which are better known as seal bombs), high speed boats, and sea planes. As a result, non-target animals are adversely affected by such operations. All orcas within an affected pod are disrupted and disturbed by the removal of individual members. A trauma factor for all the whales must be considered. Furthermore, the conditions of confinement in aquaria enclosures are not acceptable by modern zoo-keeping standards. Orcas can range up to one hundred miles per day in the wild. Enclosures which are not realistically much larger than backyard swimming pools simply are not adequate. Orcas have sophisticated sonar systems for communication, hunting and navigation and live in perpetual distress in a captive environment wherein their communications reverberate off concrete walls.

II. LACK OF SCIENTIFIC JUSTIFICATION FOR PERMIT

Sea World does not provide ample evidence supporting their estimate of a world orca population of 200,000 animals. Furthermore, Sea World does not provide sufficient information concerning the stocks in Alaska and California they wish to exploit. Greenpeace Northwest supports the reasons given by the Moclips Cetological Society of Friday Harbor, WA. in its opposition of a potential Sea World permit for these reasons as well as the others they cite.

We agree with Moclips' critique of Sea World's plan to develop a "sustained captive breeding population." Orcas have never successfully bred in captivity. Greenpeace Northwest recommends that Sea World demonstrate that it can provide a captive environment wherein orcas that are currently in captivity can successfully breed before they are permitted to capture more orcas for the explicit purpose of breeding orcas. Until Sea World can successfully demonstrate that captive orca breeding is possible, a permit should not be granted.

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Also, Sea World does not provide sufficient justification for the research that it wishes to conduct. They do not establish that such research could not be successfully conducted from orcas that are currently in captivity. There, especially is no justification for Sea World to transport orcas away from the capture site if they are going to be released. Sea World needs to clarify its intentions concerning the duration of time they intend to experiment on whales. They are requesting up to three weeks to conduct experimentation yet Lanny Cornell claims the whales will be held only twenty minutes to two hours in a Seattle Post-Intelligencer article of June 2, 1983 (which is enclosed). Sea World only concedes that it will "attempt" to release orcas near other orcas. Furthermore, they could never insure that orcas would be released at locations where they could reintegrate themselves into their pods. Given the intricacy and dynamacy of the relationship between an individual orca and its pod this could cause an inhumane level of pain and suffering.

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In summation, Greenpeace Northwest is in agreement with the Moclips Cetalogical Society's comments concerning Sea World's lack of evidence regarding orca population sizes; the lack of credibility for their proposed "sustained breeding population"; and the lack of justification for the validity as well as methodology of the research they propose to conduct.

III. SEA WORLD'S OVERRIDING INTEREST IN PROCURING DISPLAY ANIMALS

When one traces the history of the orca capture industry, one realizes that Sea World may be more interested in procuring a source of display animals for its highly profitable marine circuses than it hopes to increase scientific knowledge of orcinus orca.

As I will further explain in section IV of these comments, Sea World conducted its capture operations in Washington State waters until it was successfully sued by the State of Washington in 1976. As a result, Sea World's "orca capture expert" Donald Goldsberry travelled to Iceland where he helped start a similar capture operation based at the Saedryasafned Zoo (see accompanying portion of Erich Hoyt's The Whale Called Killer, New York, E.P. Dutton, 1971). Iceland has been Sea World's source of orcas since 1977.

Since the National Marine Fisheries Service has temporarily stopped issuing permits allowing the importation of orcas from Iceland, Sea World is wondering where its display animals will be obtained from. The National Marine Fisheries Service should consider the possibility that Sea World is submitting this application because its Icelandic source has dried up.



IV. SEA WORLD'S RECORD IN WASHINGTON STATE

Until March of 1976, Sea World regularly attempted—many times successfully—to capture orcas in Washington State coastal waters. Their capture operations raised considerable public concern. One such occasion is described by Sheldon Campbell in his Lifeboats to Ararat (New York: Times Books, 1978):

"A year before this time (Campbell has described a confrontation between Goldsberry and Don McGaffin, a columnist with Seattle's KING-TV which is an NBC affiliate, in the preceding paragraph) a tragedy had occurred which stirred many of the residents around Penn Cove to anger, for by 1970 killer whales were a welcome addition to the local scenery, coming as they did around the same time every year, generally in August, remaining awhile, and then departing on what happened to be an annual migration. In 1970 some of the visiting whales had been left behind dead, their corpses washing up along the shore. Several had their bellies slit and rocks, concrete, and old chunks of iron placed inside. Because whale collectors had been in the vicinity before the deaths, some residents blamed them. (Footnote at bottom of page: "Nothing was proved but accidents do occur in animal collecting, particularly in the earlier stages of developing capture techniques.").

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While it has never been proven that Sea World's orca capture operation under the direction of Donald Goldsberry killed the orcas, it has never been proven otherwise.

In early March of 1976, Sea World attempted its last ever capture attempt in Puget Sound waters. Sea World utilized seal bombs, high speed boats, and sea planes to herd whales from north of the Tacoma-Narrows Bridge to Budd Inlet, just outside of Olympia. A heated public outcry ensued. On Wednesday, March 10, Governor Dan Evans asked Attorney General Slade Gorton to file suit in District Court at Seattle to block the removal of orcas that were trapped at Budd Inlet.

The lawsuit questioned whether Sea World was authorized to use the seal bombs, etc. within the terms of the permit that had been issued by the U.S. National Marine Fisheries Service. I have enclosed some of the transcripts of Sea World's appeal that was dismissed by the U.S. District Court. Many of the transcripts from the successful suit are not included in the file that is held in archives in Seattle, WA.

Judge Morell Sharpe's verdict ruled that the defendants illegally pursued orcas in a prohibited zone north of the Tacoma-Narrows Bridge. Moreover, Sea World's permit stipulated that the allowed method of capture would be as follows:

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TAX-EXEMPT
ORGANIZATION



"Methods of capture will be allowing the animals to enter a bay or harbor and then closing off the mouth or entrance with a specially designed mesh net which keeps the animals inside the bay but allows the passage of fish back and forth. From this point another net is placed inside the original net to herd the animal into a working area and from there the animals are divided into smaller groups and put in floating pens large enough to accommodate two or three animals as necessary. Some animals which are to be taken are then separated, placed in floating pens, and the remaining animals are freed. The size of the pens would be adjusted so that individual animals accommodated would have at least twice their body length in depth within the pen. This method allows the collector to evaluate the animals and pick out the most likely specimens, while not placing undue stress on the animals."

GREENPEACE,
SEATTLE

GOOD SHEPHERD
CENTER
4649 SUNNYSIDE
AVENUE NORTH
SEATTLE, WA
98103

TELEPHONE
206/632-4326

Clearly, these terms do not permit the usage of explosives, high speed boats, and sea planes for herding. Sea World broke the terms of its agreement.

While Sea World is not asking for authority to capture orcas from Puget Sound waters in this application, we must consider that they have not followed National Marine Fisheries Service regulations in the past. I have enclosed a copy of the 1976 Washington State Senate Resolution that bans capture and harassment of orcas in Washington State coastal waters.

Interestingly enough, the text that Sea World cites as its description of the techniques it plans to utilize in proposed capture operations is co-authored by none other than Donald Goldsberry.

V. SUMMATION

Greenpeace Northwest agrees with the recommendations of the Moclips Cetological Society of Friday Harbor, WA. and further recommends that:

- 1) Sea World, Inc. conducts any scientific research it deems necessary on orcas that are currently in captivity at its facilities in San Diego, CA., Aurora, OH., and Orlando, FL., as well as other aquaria worldwide.
- 2) Sea World, Inc. demonstrate that it can successfully develop a captive environment where orcas that are currently in captivity can breed successfully. Orcas that are currently in captivity at their facilities as well as other aquaria could be transferred to the new enclosure system.
- 3) Public hearings be conducted to further scrutinize Sea World, Inc.'s application. Citizens should be invited to voice their opinions con-

A NON-PROFIT
TAX EXEMPT
ORGANIZATION



cerning this proposal. A hearing should be held in the Puget Sound region of Washington State as the citizens of Washington State have had experience with Sea World, Inc.'s capture operations in the past and should be allowed to participate in the decision-making process.

Yours Sincerely,

Alan Reichman

Alan Reichman
Wildlife Campaign Coordinator
Greenpeace Northwest

GREENPEACE,
ATTLE

ENCLOSURES

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JEER
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A Scientific Review of the SeaWorld Permit Application
of March 7, 1983 for Public Display and Scientific Research
Under the Marine Mammal Protection Act

16 - August - 1983

by Richard Ferraro and Dr. Merrill Spencer

Seattle, Washington

abstract:

On March 7, 1983 SeaWorld requested a five year permit to confine and capture Orca Orcinus (killer whale) for the reasons of public display and scientific experimentation.

This review addresses all scientific aspects of this permit request and is presented by two concerned research scientists. The SeaWorld permit request should not be approved. We request that this written review be entered into the record.

authors:

Richard Ferraro is a research scientist specializing in computer applications of medical electronics. He has a masters degree in Electrical Engineering, and acts as a consultant to electronics corporations, hospitals, Universities and the National Institutes of Health. He has focused his attention, in the past 18 months, to the Orca of the Puget Sound.

Dr. Merrill Spencer is a physiologist specializing in the field of Cardiovascular research. He has published over 160 scientific papers including comparative Physiology subjects, and 7 papers on Orca and Grey Whale physiology. He has served on many National panels reviewing scientific research proposals. He has participated in the capture of wild Orca in the San Juan Islands as well as Grey Whales of Laguna OjoDeLebrie Baja California and thus has first hand experience with the logistical and stress related problems involved in the capture and confinement process.

review and risk assessment:

The general criticisms we have of the SeaWorld permit request are that it is poorly organized, omits important information, and lacks consideration for scientific hypothesis and protocol. The consultants listed have no defined roles nor is the five year plan clearly outlined.

The risks to Orcus Orcinus, both individuals and pods, are not clearly identified in either the capture and handling techniques nor in the medical procedures. Subsequently the methods for minimizing obvious risks are missing.

For example the risk of infection due to the tooth extraction process is not dealt with. No mention is made to the use of antibiotics in minimizing this infection potential. Nor is it suggested that the Orca whose teeth are to be extracted could be the animals that SeaWorld currently holds or plans to keep. Their standard animal husbandry program would further minimize the risk of infection.

The specific criticisms of the SeaWorld permit application follow. We have reorganized each of the experiments and procedures into the following five categories:

1. Breeding

There is no hypothesis stated as to how SeaWorld plans to successfully breed Orca when they have been unsuccessful in the past. The procedural changes such as larger pools, hormone levels, Karyotyping, vaginal swabs, and increased numbers of whales proposed could be tested on the 8 existing captive SeaWorld Orca. If a larger population of captive whales or a larger tank are believed to be the solutions to the unsuccessful breeding problem then the 8 current captive Orca owned by SeaWorld could be put into one of SeaWorlds larger tanks to prove the hypothesis. It is also not proposed that the freshly captured animals will be held in the larger tanks.

No where is it mentioned in this proposal whether any or all of the proposed Orca to be kept by SeaWorld for breeding purposes will be required to perform and how this performance schedule would effect the whales ability to breed.

2. Animal Husbandry

Tests involving the health care of the captured Orca including blood chemistry, liver biopsy, hematology, and nasal swabs are important for animal husbandry to protect the dollar investment. This is health care of captured animals and therefore provide no scientific justification for this proposal any more than these procedures are considered scientific research projects when applied to human health care.

3. Gastric Lavage

The reviewers believe that the gastric lavage has scientific merit in the analysis of the stomach contents of free ranging Orca. Gastric lavage could provide valuable information comparing stomachs contents of the free ranging Orca with the sacrificed Orca data from Rice. The only comparisons discussed however relate to adult male/non adult males however, and no mention is made regarding stress related changes caused by the capture process preceding the stomach lavage.

4. Population Dynamics, Vocalizations, Body Dimension, and Growth Rates

Census data obtained in the population dynamics studies could be of scientific merit yet we feel the success others are having with visual and photographic techniques merit further consideration.

Certain data from vocalizations, radio telemetry, spaghetti streamers cryogenic marking, and tagging desired could be acquired using less invasive techniques currently being successfully employed with free ranging Orca. The highly invasive techniques proposed could damage the very data they are trying to obtain by capturing, tagging with various markers, releasing and recapturing the Orca.

The mensural data made available through the original capture could be of scientific value however the plan to recapture the same whales up to 3 times involves serious risk to the individual Orca and to the pod. It is unclear as to how SeaWorld plans on using this mensural data. Again we feel that more extensive use of less invasive techniques should be explored before resorting to the proposed invasive techniques.

5. Respiratory Gas Analysis, Hearing and Aging

Certain data related to respiratory gas analysis, hearing thresholds, and tooth extraction desired in this experiment could be obtained using already existing captive Orca. No justification is given for performing the hearing threshold tests or the respiratory gas analysis on Orca under captive conditions, what information is being looked for with these tests, or why they couldn't be performed on existing captive Orca.

conclusion:

In conclusion this 5 year massive invasion of Orca environment in the Alaskan waters is not justified on the basis of the scientific aspects of this proposal. The benefits proposed in this permit application are far outweighed by the risks of such an aggressive invasive disturbance of the free ranging Orca of the Alaskan and California waters.

98TH CONGRESS
1ST SESSION

H. R. 4457

To prohibit the taking and importation of killer whales for public display purposes.

IN THE HOUSE OF REPRESENTATIVES

NOVEMBER 17, 1983

Mr. CHANDLER (for himself, Mr. FOLEY, Mr. DICKS, Mr. MORRISON of Washington, Mr. LOWRY of Washington, and Mr. SWIFT) introduced the following bill; which was referred to the Committee on Merchant Marine and Fisheries

A BILL

To prohibit the taking and importation of killer whales for public display purposes.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*
3 That section 101(a)(1) of the Marine Mammal Protection Act
4 of 1972 (16 U.S.C. 1371(a)(1)) is amended by adding at the
5 end thereof the following new sentence: "After the effective
6 date of this sentence, no permit may be issued for the taking
7 and importation of killer whales (*Ornicus orca*) for public dis-
8 play purposes."

9 SEC. 2. The amendment made by the first section of this
10 Act shall take effect on the date of the enactment of this Act



Grand Camp
Alaska Native Brotherhood

71ST, ANNUAL ANB-ANS GRAND CAMP CONVENTION
JUNEAU, ALASKA
NOVEMBER 14-19, 1983

RESOLUTION NO. 92

WHEREAS, Sea World of San Diego, California has been issued a permit by the Federal government to capture 100 killer whales in a period of five years, and

WHEREAS, The state of Washington and the government of Canada have both opposed and stopped the capture of killer whales within their water boundaries in the past, and

WHEREAS, Sea World has promised safe capture of these mammals, but has caused many deaths in past captures because of their use of seal bombs, high speed boats, sea planes, and methods of capture, and

WHEREAS, These offenses during the capture of killer whales influenced the state of Washington to file a law suit against Sea World in 1976, putting an end to their operations and cancelling their permit, and

WHEREAS, The state of Alaska has no mammal protection laws to protect killer whales, or to prevent this type of operation within the water boundaries of Alaska, NOW

THEREFORE BE IT RESOLVED that the 71st Annual Grand Camp Convention of the Alaska Native Brotherhood and Sisterhood assembled in Juneau, Alaska strongly urge the State of Alaska to enact legislation banning the capture of killer whales within the boundaries of Alaska waters, and

BE IT FURTHER RESOLVED that an intense investigation be conducted by the Dept. of Fish and Game on the methods used by Sea World in their capturing methods in Puget Sound. Copies of this resolution to be sent to the Assistant Administrator for Fisheries, Washington, D.C., to Alaska Legislature, and the U. S. Delegation from Alaska.

ATTEST:

I certify that this resolution was adopted by the ANB ANS Grand Camp in Convention at Juneau during the week of Nov. 14-19, 1983.

Ronald Williams
Ronald Williams, Grand President

Albert Kookesh
Albert Kookesh, Grand Secretary

Past ANB Grand President
Roy Peratrovich
Alfred Wagoner
Cecil Paul

Frank Peratrovich
Patrick J. Paul
Thomas Jackson
John Hore

Frank See
Walter Scholoff
Richard Stitt
Steven V. Hatch

Nelson D. Frank
Frank O. Williams
Herbert Hore
Robert B. Martin



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FEB 28 1984

NRN

UNIVERSITY OF ALASKA, FAIRBANKS
Fairbanks, Alaska 99701

24 February 1984

Representative John Ringstad
Chairman, House Resources Committee
Alaska State Legislature
Pouch V (MS 3100)
Juneau, AK 99811

Dear Representative Ringstad:

I understand that the House Resources Committee will conduct a hearing on 29 February 1984 on the issue of capture of killer whales in Alaskan near-shore seas. I gave testimony concerning this matter before the Senate Resources Committee on 31 January, but I will be unable to attend the meeting of your committee next week. The purpose of this letter is to enter my written testimony into the record, and I should be very grateful if it can be accepted in this manner.

My comments are directed to two parts of this issue: my experience of collaborative work with Sea World and the related autonomous Hubbs-Sea World Research Institute in San Diego and my knowledge of the background and prospects for the research program which is planned in conjunction with the killer whale capture. It is my opinion that much of the discussion of these issues has resulted in exaggeration and inflammation of the purposes and likely outcome of these activities.

From 1961 until 1970 I was a member of the research staff and from 1970 to 1973 a faculty member at Scripps Institution of Oceanography. Stimulated by earlier Alaskan experience, I had embarked on a program of study of marine mammal physiology expecting to explore the mechanisms whereby these animals can experience long and deep dives underwater and can protect themselves from the effects of life-long immersion in polar seas. The nearby Sea World oceanarium was just getting started in the early 1960's, and their activities naturally attracted the attention of persons involved in marine mammal studies. From the beginning, Sea World has shown an interest in providing opportunities for qualified scientists to study their captive animals in ways that would not harm them. Sea World management was and continues to be, of course, especially interested in new knowledge which contributes to the healthy condition of their marine mammals, but their enlightened attitude toward research has extended well beyond those concerns. It is fair to say that Sea World has supported investigations of physiology, behavior and animal welfare by many reputable scientists which would not otherwise be possible. That dedication to understanding these remarkable animals has steadily gained in strength and effectiveness as Sea World has grown and initiated new and improved technology for husbandry of marine mammals. That organization and its research arm - Hubbs-Sea World Research Institute - are today world leaders in this field.

Sea World research into the care of captive dolphins, for example, has progressed to such a level that it is no longer necessary for them to capture those animals in the wild. In recent years 27 live births of dolphins have taken place at Sea World. It is for a similar purpose, among others, that the presently debated killer whale capture is proposed. If any organization is to succeed in the captive breeding of killer whales, it is likely to be Sea World. I believe that we should applaud these efforts. Sea World proposes to take 10 killer whales into captivity over a period of 5 years. In that process more whales would be temporarily held for a few hours in order to evaluate which animals would be taken into captivity. For this reason Sea World has sought to "take" up to 100 killer whales. News reports sometimes fail to make this distinction clear, and the public then may be left with the inaccurate impression that a total of 100 Alaskan killer whales are destined for removal to California.

The proposed research program will provide an unprecedented opportunity to expand our knowledge of killer whales in the Alaskan environment. Seventeen scientists from several institutions will take part in more than a dozen research projects. These are not trivial activities, and they are not hobbies. They are part of the long-term, step-by-step process by which reliable and useful scientific information is acquired.

Since I joined the faculty of the University of Alaska in 1973 I have continued research investigations of marine mammals. I have also continued collaborative studies with colleagues in other places, including Sea World. Much of our research success depends upon team work to realize the most productive means for acquiring new information and understanding of marine mammals. As a result of such studies we know more about the biology of those animals and, incidentally, about our own physiological processes. Adaptations to long underwater diving, for instance, were originally identified in mammals and birds which live in aquatic habitats. We know today that those adaptations can also be traced in other species, including humans, as a defense against the threats of asphyxia. Studies of aquatic animals have led directly to new appreciation of the importance of these reactions in medical problems. The possible implications extend to protection of newborn infants against asphyxia, survival of victims of near-drowning and hypothermia, prevention of sudden infant death syndrome and new perspectives on heart disease.

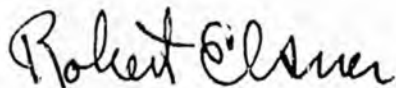
Quite apart from these examples of contributions to human health, there is a great need to learn more about marine mammal populations, distribution and ecology in these days when rapid and possibly irreversible changes are taking place in our marine environments. I cannot think of a location where such knowledge can be more usefully gained and put into practice than here in Alaska. In my view the State of Alaska can gain considerable benefits while making adequate safeguards for a rational and considered approach to this issue.

There is clearly a basis for difference of opinion regarding the ethics of keeping animals in captivity for purposes of public display. Many millions of Americans accept that premise as reasonable, and they have

gained enormously by the educational and aesthetic values which have been derived from appreciation of Nature gained through learning about animals in this way. Sea World, its profit motives notwithstanding, has made an essential and lasting contribution to that public knowledge and appreciation. There is also a basis for disagreement about the use of animals for scientific research. Certainly, every thoughtful and humane person would accept the idea that such animals should be well cared for and not subjected to unkind treatment. Such conditions are accepted as the responsibility of scientists and form the basis upon which new knowledge is founded. I have confidence that the proposed killer whale research will adhere strictly to these policies.

There have been recent news reports suggesting that the Greenpeace organization intends to use its ship to physically interfere with the killer whale captures if they are undertaken in Alaskan seas. In my opinion such an activity would constitute a most unfortunate and uninformed misplacement of that group's priorities. An otherwise well-meaning and sincere concern for animal welfare would be dissipated in an irrational effort. How much more useful a contribution to Alaskan interests and to our society could be made if we would join forces to make certain that the resources available to the State of Alaska could be brought to bear in such a way as to assure maximum sensible use and beneficial results from this unique opportunity.

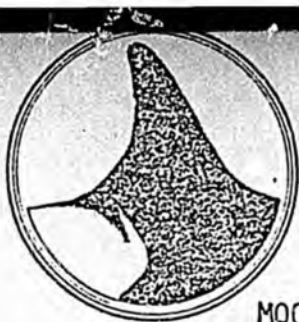
Respectfully,



Robert Elsner
Professor of Marine Science

RE/rmh

cc: Chancellor O'Rourke
Representative Mike Davis
Senator Vic Fischer
Senator Bettye Fahrenkamp ✓
Editor, Fairbanks Daily News-Miner
John Burns, ADF&G
National Marine Fisheries Service



MOCLIPS CETOLOGICAL SOCIETY
friday harbor, washington.

Natural Resources Committee
Alaska State Senate
Juneau, Alaska

RE: Recommendations Concerning U.S. Federal Permit # 439
Under the Marine Mammal Protection Act (1972)
To Allow SeaWorld Inc. of San Diego, CA. to Capture
Killer Whales (Orcinus orca) in Alaskan Waters.

FROM: Research Division, Moclips Cetological Society,
Friday Harbor, Washington 98250

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Appendix E	Example of Killer Whale ID Photos

* * *



Moclips Cetological Society

The Whale Museum · Orca Survey

P.O. Box 945 Friday Harbor, Washington 98250 (206) 378-4710

Natural Resources Committee
Alaska State Senate
Juneau, Alaska

30 January 1984

RE: Recommendations Concerning U.S. Federal Permit # 439
Under the Marine Mammal Protection Act (1972)
To Allow SeaWorld Inc. of San Diego, CA. to Capture
Killer Whales (*Orcinus orca*) in Alaskan Waters.

FROM: Research Division, Moclips Cetological Society,
Friday Harbor, Washington 98250

I. GENERAL COMMENTS:

We acknowledge that the people of the state of Alaska have the right to allow the killer whales (*Orcinus orca*) in their waters to be captured for research and public display. However, we do not feel the state of Alaska has had a chance to evaluate all the implications of allowing those captures,

A. because they have not been adequately consulted, and

B. because the Alaskan killer whale stocks have not been documented thoroughly enough to allow for an adequate management decision (Evans, 1983; Matkin and Leatherwood, 1984; Hall, 1984).

There are thoroughly proven methods for studying whales in the wild which do not require capture. These alternative methods employ photo-identification of natural markings, and only require photography from vessels, observation from shore stations, and aerial surveys (Whitehead and Payne, 1976; Darling, 1977; Wursig, 1977, Saayman and Tayler, 1979; Katona et al, 1979, 1980; Dorsy, 1982; Payne, 1983; Kelly, 1983). In the case of the killer whales of British Columbia and Washington State, the exact composition and distribution of wild stocks have been photo-documented for the last 10 years (Fig. 1; and Balcomb et al, 1980, 1982; Bigg, 1982; Kirkevold and Lockard, In press). In addition to documenting the number and composition of the Greater Puget Sound killer whale stocks, these long-term observations have allowed: 1) correlations of pod movements with fisheries data (Balcomb et al, 1980; Boran et al, 1981; J. Heimlich-Boran, 1984b), 2) documentation of

mortality, natality, emigration, and individual growth rates (Balcomb et al, 1980, 1982; Bigg, 1982; J. Heimlich-Boran, 1984a; Haenel, 1984), 3) documentation of social and reproductive interactions between pod communities (Ford, 1980; Ford and Fisher, 1982; Heimlich, 1981; Hoelzel and Osborne, 1984; Osborne, 1984, S. Heimlich-Boran, 1984) and, 4) the ability to distinguish differences between the way resident and transient pods exploit salmon, seals and sealions (Osborne, 1984). These findings are proof that the state of Alaska could make a management decision based on a detailed understanding of their killer whale resource without the expense or necessity of capture.

Figure 1: Greater Puget Sound Resident Pod Composition
(Moclips Cetological Society and M.A. Bigg data)

<u>Pod Composition from 1974 to 1983</u>											
	<u>1974</u>	<u>75</u>	<u>76</u>	<u>77</u>	<u>78</u>	<u>79</u>	<u>80</u>	<u>81</u>	<u>82</u>	<u>83</u>	
J adult females	8	8	8	8	8	8	8	8	8	8	
J adult males	3	3	3	3	3	3	3	3	3	3	
J immatures	3	4	5	6	7	8	7	7	8	8	
Total	14	15	16	17	18	19	18	18	19	19	
K adult females	5	5	5	5	5	5	5	5	5	5	
K adult males	3	2	2	2	2	2	2	2	2	2	
K immatures	2	2	2	3	3	3	3	3	3	3	
Total	10	9	9	10	10	10	10	10	10	10	
L adult females	22	22	22	22	22	22	22	22	21	21	
L adult males	7	7	7	8*	10**	10	9	9	8	8	
L immatures	16	18	17	20	21	21	23	22	21	21	
Total	45	47	46	50	53	53	54	53	50	50	
Combined females	35	35	35	35	35	35	35	35	34	34	
Combined males	13	12	12	12	15	15	14	14	13	13	
Combined immatures	21	24	24	30	31	32	33	32	32	32	
COMBINED TOTAL	69	71	71	77	81	82	82	81	79	79	

* one male matured

** three males matured

In Greater Puget Sound, which includes Washington State and the south end of Vancouver Island, the effects of captures are still being evaluated. Between 1962 and 1972 a minimum of 47 whales were either killed or removed from the resident pods as a result of captures, and a minimum of 8 transient whales were removed between 1968 and 1975 (Duffield and Cornell, 1979; Hoyt 1981). In 1974 there were only 69 whales left in the resident population (Fig. 1). By 1980 the resident population had increased to 82 individuals, but by 1982 it had dropped to

79 individuals, where it has remained. Prior to captures it is estimated that the original size of this population could have been anywhere from 90 - 110 individuals. The maximum reproductive rate for female Killer whales in this population is only 1 calf every 2.5 years, and sexual maturity does not occur until at least the age of 9 or 10 in females and even later in males. For these reasons it appears population recovery in this species is an extremely slow process. It is still too early to determine if the Greater Puget Sound resident population has already gone through recovery from the captures, or is simply following a very slow cycle of fluctuations that will continue to increase the population towards some higher level equilibrium.

The effects of captures on the much smaller transient pods has been more difficult to determine because of their sporadic occurrence, but in at least 1 case (M-Pod), capture resulted in the reduction of a pod to a single inbreeding pair. From correlations of call dialects between transient pods in B.C. and S.E. Alaska (Ford, personal comm.), and photo-documentation between Prince William Sound and S.E. Alaska (McSweeney, personal comm.), it appears that transient pods do occur in Alaskan waters and may represent a cosmopolitan population that covers huge distances throughout the Gulf of Alaska. If this were the case, it would make whale counting surveys in the absence of absolute identification, suspect of over estimating the population. It still remains to be proven whether there are any resident pods in southern Alaska, or whether the Alaska populations are arranged in some other fashion. Only through photo-identification of all Killer whales in Alaska can these problems be sorted out so that an accurate assessment of the stocks can be obtained.

Of further interest to the state of Alaska might be the fact that in Washington and British Columbia we have found significant differences in strategies of food resource exploitation between transient pods and resident pods, and between different age-classes within the pods (Balcomb et al, 1980; Boran et al, 1981; J. Heimlich-Boran, 1984; Osborne, 1984). Resident pods appear to be tied into exploiting local salmon and hering fisheries, and apparently do not eat very many marine mammals (no marine mammal remains have ever been found in a resident whales stomach contents, and they have only been observed to prey on porpoise on two occasions out of over 1000 hours of observation). On the other hand transient pods are regularly observed eating seals and sealions, and usually have some amount of marine mammal remains in adult stomach contents. Also, both resident and transient pods appear to secondarily exploit many varieties of rock fish and bottom fish.

It is unknown how much of the Alaskan Killer whale population is resident, transient, or neither of the above, and it is unknown which food resources different populations are exploiting. But it could be important to select pods for capture depending on the desired effect on the ecosystem.

For example, if the Killer whales in Alaska primarily eat salmon and other important commercial species, then maybe it would make financial sense to exploit Killer whale populations that are piscivorous. However,

in Greater Puget Sound we calculated the amount of salmon the resident Killer whale population would be taking if they ate nothing but salmon all year round, and we found the Killer whale share of the salmon was only 2 - 5% of the commercial fishery (Balcomb et al, 1980; J. Heimlich-Boran, 1980).

On the other hand, if certain populations of Killer whales in Alaska primarily eat seals and sealions, or if all populations do, then maybe it makes sense to maintain or even enhance the Killer whale population so that seal and sealion populations can be subsequently kept in check. These are the kinds of questions that should be answered before captures are begun, and they are questions that could be answered if a 2-5 year photo-identification study were undertaken first.

II. RECOMMENDATIONS TO THE STATE OF ALASKA (We also refer you to section III below, which are the recommendations we submitted to the U.S. federal government on August 15th 1983):

A. We recommend that the state of Alaska refuse to allow any killer whale captures before the Alaskan killer whale population has been adequately documented using individual photo-identification. Photo-identification research is relatively inexpensive, non-intrusive and could be safely carried out at a massive scale throughout the state with the help of widespread public participation.

B. We recommend that the state of Alaska become actively involved in conducting photo-ID research on its killer whales, by either implementing its own research project, or by joining forces with the excellent Photo-ID research team Hubbs-Seaworld Research Institute has assembled under Steve Leatherwood.

C. However, we recommend that Hubbs-Seaworld not be allowed to conduct captures or the intrusive research techniques of freeze-branding, spaghetti-tagging and radio-tagging, because photo-identification is all that is necessary to efficiently document all the killer whales in Alaska. In the 9 years that the over 350 killer whales in Washington and British Columbia have been photo-documented, there has never been a whale that couldn't be identified with a proper photograph.

D. We also recommend that the state of Alaska consider:

1. The recreational benefits of maintaining wild killer whales as a source of natural beauty.
2. The scientific benefits of closely monitoring a top level predator as a benign indicator of disturbances in the ecosystem that would directly affect humans.
3. The possibility that Seaworld is not the only aquarium in the U.S. that would like the federal government to give

them a permit to capture Alaskan killer whales.

3. The political implications of the U.S. domestically exploiting a cetacean resource, while at the same time calling for a world moratorium on the commercial exploitation of cetaceans.
4. The ethical implications of condemning a highly intelligent social predator to a severely reduced life span in a highly restricted environment, primarily for the purpose of commercial gain.
5. The fact that the state of Washington has successfully banned further captures of killer whales in their waters since 1976.

III. RECOMMENDATIONS SUBMITTED TO THE NATIONAL MARINE FISHERIES SERVICE, NOAA ON 15 August 1983:

A. We recommend that SeaWorld conduct or initiate field research to determine the exact stock size of the populations they want to exploit before they re-apply for a permit. Utilizing the field photographic techniques that have been thoroughly proven in British Columbia and Washington State (Bigg, 1982 and Balcomb et. al., 1980; 1982), two seasons of field data would be sufficient to determine the exact composition without the use of artificial marking techniques. A three month field effort the first year would give an initial inventory of all the whales, and an additional three month photo-inventory conducted the second season would confirm the stability of the pod compositions (confirmed as feasible by M.A. Bigg and J.R. Heimlich-Boran, pers. comm.). Then SeaWorld would be able to adequately evaluate the populations they want to exploit. Currently, SeaWorld is unable to adequately document the sizes and compositions of the killer whale populations they propose to capture.

B. We recommend that SeaWorld prove their ability to breed killer whales in captivity by breeding the six females and two males already under their care. In the June 15 letter all these animals were estimated to be over 7 years old. The males are estimated to be 20 and 7 years old; two of the females are estimated at 7 years, three at 8 years and one at 9 years old. However, it is not stated how these age estimates were determined, but it is certain they are not based on known birth dates. All the whales, except the 20 year old male, are North Atlantic whales, which average a foot smaller at birth than North Pacific killer whales (Jonsgaard and Lyshoel, 1970; Bigg, 1982). Therefore it is probably safe to say that at least one male and one female are currently at or very near breeding age, and that the other whales will all reach breeding age within the next 5 years. These animals are all as close to breeding age as the largest whales SeaWorld proposes to capture. It is our opinion that they should prove they can accomplish captive breeding with these whales before capturing whales that are even further from breeding age.

than the whales they already have.

C. We recommend that the permit application be denied:

1. Because the permit application of 7 March and the 15 June letter of revision are inconsistent in defining what SeaWorld is proposing.
2. Because the populations of killer whales they propose to exploit have not been adequately studied in order to evaluate the possible consequences of that exploitation.
3. Because the justification of setting up a successful breeding program as proposed by SeaWorld is not supported by the scientific evidence:
 - a. Killer whales have never successfully bred in captivity despite numerous attempts. The four calves that were born at Marineland of the Pacific all died within 46 days of birth.
 - b. The whales SeaWorld proposes to capture in the 15 June letter are between 11 and 17 feet (336 and 518 cm). According to measurement data on three captive male and five captive female North Pacific Killer whales, a size of 11 feet (336 cm) is attained between two and three years of age, a size of 14 feet (427 cm) is attained between three and one-half and four and one-half years of age, and a size of 17 feet (518 cm) is attained between five and six years of age (Bigg, 1982). Three year observations on 23 feral cow-calf associations in J, K and L pods indicate that calves are still dependent through their second year and still have their highest associations with their mother through their third year (S. Heimlich-Boran and M.A. Bigg, pers. comm.; N.J. Haenel, 1984; and MCS unpublished data). The precise age or size at sexual maturity in killer whales is unknown because no individuals, captive or feral, have ever been documented from birth to sexual maturity. However, in the resident pods of Greater Puget Sound, birth dates to within six months have been documented for 28 calves (Balcomb et. al., 1982; M.A. Bigg, pers. comm.; and MCS unpublished data). Two of these calves have died or disappeared and ten of these individuals are older than 7 years. Of the eight who are females, the two oldest are 11 years old now, yet none of them have given birth to their first calf. The oldest individual is a 12 year old male, and only during his 11th year did he show the beginnings of allometric growth of his dorsal fin. From photo-grammetric analysis of allometric growth of the dorsal fin in five males of unknown age in this population (Balcomb et. al., 1980; J. Heimlich-Boran, 1984a) it appears to take 4-5 years before adult proportions are reached, suggesting that physical maturity in males does not occur until the 14th to 16th year.

For these reasons we feel animals under 16.5 feet (500 cm) should not be considered for a breeding program because of their extreme immaturity and the danger that these animals will be naive of the proper techniques of parental care. Without question animals under 400 cm should not be considered for capture, let alone for breeding purposes, because of the likelihood that some of these individuals are still dependent calves. Even if we use optimistic calculations on the average lifespan for captive killer whales that do not count animals who lived less than one year (Cornell et al, 1981), we come up with an average life span of only 7.2 years. In the wild a conservative lifespan for killer whales is 48 years (Bigg, 1982; Matkin and Leatherwood, 1984). Thus, for animals less than 400cm (animals approx. 3 years old) it becomes statistically certain that some of the whales will not live to sexual maturity.

4. It is also our recommendation that the permit be denied because many of the proposed research techniques still have not been adequately justified in terms of their effectiveness or degree of impact on the wild whales. We wonder how much of the research is actually aimed at answering questions important to husbandry, rather than problems affecting the wild populations. Under section VI, part A, #2, of the Marine Mammal Protection Act Permit Application Guidelines it states that all research objectives must state how they will enhance or benefit the wild population.

For example:

- a. SeaWorld still proposes to use spaghetti tagging, ribbon tagging and freeze branding in order to identify individual whales in the wild. However, photo-identification has been thoroughly proven as an effective method of repeatedly identifying individual whales (Whitehead and Payne, 1976; Wursig and Wursig, 1977; Darling, 1977; Katona et. al., 1980; Dorsey, 1982), and especially with killer whales (Balcomb et. al., 1980, 1982; Bigg, 1982; Ford, 1980; Ford and Fisher, 1982; Kelly, 1983). There is absolutely no valid justification for the use of artificial marking techniques, they represent totally unnecessary harassment.
- b. SeaWorld still has not explained how liver biopsies will benefit wild whales. It is conceivable however that liver biopsy data would be useful to SeaWorld in allowing them to select the most healthy individuals from the wild pods. But how does a liver biopsy benefit the wild individuals with unhealthy samples? Are the least healthy individuals just going to be released with the hope that they won't develop infections from the procedure?
- c. Analysis of respiratory gases is a complicated procedure, if indeed SeaWorld uses the methods they cite in the 15 June letter (Olsen et al, 1969; Wabrenbrok et al, 1974).

We question the value of respiratory gas analysis on animals who are under the stress of capture.

This type of basic physiological study makes much more sense if it is conducted on whales already in captivity. What is the justification for collecting this data on freshly caught whales rather than whales already in captivity?

- d. Analysis of hearing thresholds using surface electrodes again represents a fairly elaborate procedure that makes much more sense to perform on an already captive whale. We question why a basic physiological variable like hearing threshold needs to be examined in so many animals and under the stress conditions of capture.
- e. The extraction of teeth from wild unidentified whales will do little to further an understanding of the significance of dentin layers as a way of aging whales, because none of the whales sampled will be of known age. The only thing SeaWorld's proposed tooth extractions will contribute to is an already very large data base on the lengths of whales and the number of dentin layers in their teeth, it does not reveal anything more about age than could be obtained by calculating the length of the individual. However, there are currently 26 calves of known age in the resident pods of Greater Puget Sound and British Columbia. These whales are being closely monitored so that as soon as one of them dies the body can be recovered and its teeth removed. When this happens, length data, age data and dentin layer data will finally all be correlatable, and ages can then be determined simply on the basis of making photographic measurements of the whales in the wild (Whitehead and Payne, 1976; Balcomb et al, 1980; J. Heimlich-Boran, 1984a).
- f. The degree of harassment necessary to carry out a stomach lavage does not appear to be justified by the type of data that will be generated. Stomach lavage is only a partial sampling of the stomach contents. Traditionally stomach contents are collected from dead individuals so that the entire contents are documented. Thus we question whether stomach lavage data will be comparable with data already in use and whether it is truly representative of the animals diet.

In addition to sampling stomachs alternative methods of determining the diet of killer whales are also available. These include:

1. Plotting the movements of identifiable pods with data on abundance of local food species (Balcomb et al, 1980; Boran et al, 1981; J. Heimlich-Boran, 1984b).
2. Telemetry plotting of identifiable individuals during feeding behavior so that spatial and temporal environmental

components can be correlated (J. Heimlich-Boran, in prep).

3. Hydro-acoustic (sonar) studies of killer whales and their prey during feeding behavior (F. Felleman, in prep).
- g. The collection of blood samples for genetic studies (Duffield, 1980 and 1984) would definitely benefit our scientific understanding of wild whales. However, all methods for gathering blood samples from wild whales have not been tested. It is quite possible that blood samples could be collected using biopsy darts, thus eliminating the need to capture whales. Genetic relatedness in whales might also be determined on the basis of photographs of the morphology of saddle patches or eye patches, thus eliminating the need to even collect blood samples. We feel these alternative methods should be explored further so that the detrimental effects of research are minimized for the whales.

In conclusion, it is the opinion of the Research Committee of Moclips Cetological Society, that there is very little justification for the majority of research SeaWorld has proposed. In fact some of the research proposed is completely without justification, as is their proposal to breed whales in captivity. It appears that SeaWorld has made a long list of research proposals primarily to justify capturing 10 more whales for their displays. We recommend that Seaworld re-submit their application after they have documented the composition of the pods they wish to exploit, and after they have proven they can breed killer whales in captivity. If what Seaworld really wants is just 10 more whales for their displays they should submit a permit for that alone. If they really want to conduct scientific research on wild killer whales, they should propose research techniques that have been proven effective and that result in the least interference to the whales.

As the application permit now stands, rather than just capturing 2-3 pods and permanently removing the whales they need for displays, they are proposing to capture many pods over and over again and are subjecting all the whales to multiple harassment, in addition to permanently removing the display animals they need.

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Moclips Cetological Society

The Whale Museum · Orca Survey

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APPENDIX A

DESCRIPTION OF MOCLIPS CETOLOGICAL SOCIETY

A non-profit research and educational corporation

INTRODUCTION AND HISTORICAL PERSPECTIVE

Moclips Cetological Society is a non-profit corporation founded in 1969 by free-lance cetologist Kenneth C. Balcomb III. Incorporated in 1976, M.C.S. is dedicated to scientific research and education concerning marine mammals, primarily cetaceans (whales, dolphins and porpoises). M.C.S. is almost wholly based on San Juan Island in the northern reaches of Puget Sound in the state of Washington. A fluctuating breeding population of approximately 80 killer whales (*Orcinus orca*) reside year-round in this inland sea, in three pods. These three socially interacting family groups, J, K and L-pods, are probably the most thoroughly studied wild cetacean population in the world, largely due to the non-intrusive field studies conducted by M.C.S. in cooperation with the pioneering studies of Canadian biologists working under Michael A. Bigg (Pacific Biological Station, Environ. Canada). Other marine mammal inhabitants include a minimum of 22 seasonally resident minke whales (*Balaenoptera acutorostrata*), resident harbor seals (*Phoca vitulina*) and river otters (*Lutra canadensis*), occasional gray whales (*Eschrichtius robustus*), humpback whales (*Megaptera novaeangliae*), elephant seals (*Mirounga angustirostris*), California sea lions (*Zalophus californianus*), Stellar's sea lions (*Eumetopias jubatus*), and an undetermined number of Dall's porpoise (*Phocoenoides dallii*) and harbor porpoise (*Phocoena phocoena*).

M.C.S. research operations are administered from the Whale Research Lab located at Lime Kiln Lighthouse on San Juan Island. The Research Division also maintains a remote field station at Turn Point Lighthouse, ten miles north east along Haro Strait on Stuart Island. Both facilities are under lease from the U.S. Coast Guard.

Orca Survey is the primary research project of the Research Division of M.C.S. It was begun in April 1976 as a photographic population survey of killer whales resident to Washington State waters. Since that time Orca Survey has logged over 10000 hours of research time in the presence of the pods. For over seven years continual year-round observations have been maintained, documenting changes in seasonal habitat exploitation, behavioral-activity patterns, individual associations, call dialects, sub-adult maturation rates and fluctuations in population structure. Orca Survey findings have been presented at five international symposia and in numerous publications, including seven chapters in a forthcoming book on the biology and behavior of killer whales (Kirkevold and Lockard, in press). The research findings of Orca Survey played a major role in determining the new policy of the International Whaling Commission at its 1981 Killer Whale Workshop (Balcomb et al. 1982), and recently has been instrumental in providing data for management decisions concerning domestic exploitation of killer whales for commercial display. It is the objective of M.C.S. to continue to support this research and build on the already expansive data base.

Other research efforts include continuation of a harbor porpoise study initiated by the American Cetacean Society in 1980 (Flaherty and Stark, 1980), a Dall's porpoise survey begun in 1982, and a photo-ID catalog of gray whales. M.C.S. is also contributing to a New York Zoological Society study of minke whales, and has helped initiate cetacean field studies in Hawaii and New Zealand.

In conjunction with these studies, since 1976 M.C.S. has operated the 24-hour Whale Hotline, which receives up-to-the-minute sightings of cetaceans and marine mammal strandings by anyone in the Puget Sound area. The hotline collects an average of 41.2 sightings a month, and has accumulated a valuable data base on local marine mammal occurrence and distribution which has on numerous occasions proven invaluable to local, state and federal decision makers. Also as part of the Whale Hotline, M.C.S. is a member of of the Northwest Marine Mammal Stranding Network which is sponsored by the National Oceanic and Atmospheric Administration.

These research results, and the results of other studies of cetaceans from throughout the world are presented in CETUS, the semi-annual scientific journal of M.C.S. A copy of this journal as well as the quarterly news letter, MCS NEWS, are benefits of membership in M.C.S., along with free admission to The Whale Museum and a discount on Museum Gallery items.

Begun in 1979, The Whale Museum is the primary educational medium of M.C.S., but as a major part of its efforts in exhibit preparation, The Whale Museum also conducts scientific research in marine mammal anatomy and taxonomy, and maintains a comprehensive marine mammal library. Museum exhibits consist of artistic and scientific displays of living marine mammal natural history, ranging from complete skeletal displays of two spinner dolphins, a gray whale and killer whale, to a fossil dolphin brain, three odontocete fetal series and 12 species of cetacean parasites. Such topics as cetacean evolution, migration, feeding habits, brain anatomy, acoustics and the natural history of local marine mammals are comprehensively presented, and the library and video viewing room are accessible to visitors. The Children's Room is devoted to young whale enthusiasts. Whale related items are available for sale in the museum's gallery. The Whale Museum is open from 10am to 5pm, 7 days a week in summer, closed Tuesdays from October through May. A small admission charge, \$2 for adults is asked, and special tours are regularly given to schools and citizens groups.

Several other endeavors fulfill the educational purposes of M.C.S. GENTLE GIANTS OF THE SEA, a teaching package on cetaceans for use in kindergarten through 6th grade classrooms, was produced by The Whale Museum for nationwide distribution. During the summer months M.C.S. operates a college accredited field course called Whale School. The one week intensive program is offered in conjunction with the Dept. of Biology at Western Washington University, and includes both field and laboratory experience in addition to a comprehensive lecture series in cetacean biology and ethology. In addition M.C.S. contributes to radio, video and print media educational projects, and personnel often provide lectures and slide shows for schools and citizens groups.

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APPENDIX B

RESEARCH CONTRACTS

MOCLIPS CETOLOGICAL SOCIETY RESEARCH CONTRACTS
(\$500.00 and above)

Title: Huatabampo Whale Stranding
Contractor: U.S. Marine Mammal Commission
Grant Recipient: MCS
Contract Number: MM 6AD-045
Contract Amount: \$1,884.00
Contract Duration: 1 February 1976 - 6 March 1976
(Report on file U.S. M.M.C., Wash. D.C.: K.C. Balcomb, C.A. Goebel and R.D. Chandler)

Title: Killer Whale Survey in Puget Sound
(Orca Survey 1976)
Contractor: National Marine Mammal Lab. (NMFS, NOAA)
Grant Recipient: MCS
Contract Number: NASO-0-35330
Contract Amount: \$31,069.22
Contract Duration: 1 April 1976 - 31 October 1976
Project Duration: 1 April 1976 - 11 December 1976
(Report on file Nat. Mar. Mammal Lab., NMFS, NOAA, Seattle, WA.: K.C. Balcomb and C.A. Goebel)

Title: Orca Survey 1977
Contractor: National Marine Mammal Lab. (NMFS, NOAA)
Grant Recipient: MCS
Contract Number: 01-7-208-14657
Contract Amount: \$500.00/ (supplimentary funds and facilities from MCS)
Contract Duration: 19 August 1977 - 19 October 1977
Project Duration: 1 January 1977 - 31 December 1977
(Reports on file Nat. Mar. Mammal Lab., NMFS, NOAA, Seattle, WA.: K.C. Balcomb, J.R. Boran and R.W. Osborne)

Title: Behavior Budgeting in Greater Puget Sound
Killer Whales.
Contractor: MCS
Grant Recipient: Orca Survey (MCS)
Contract Number: 77-001
Contract Amount: Lab Facilities and expendables
Project Duration: 1 October 1977 - Present
(Reports on file MCS, Friday Harbor, WA.: R.W. Osborne)

Title: Humpback Whale Survey
 Contractor: MCS
 Grant Recipient: Humpback Whale Survey, Holualoa, Hi.
 Contract Number: 77-002
 Contract Amount: Advertising Costs and Research Assts.
 Project Duration: 1 November 1977 - 30 April 1980
 (Reports on file, Center for Long-Term Research, Lincoln, Mass: D. McSweeney and R.D. Chandler)

Title: Whale Survey in Puget Sound 1978
 Contractor: National Marine Mammal Lab. (NMFS, NOAA)
 Grant Recipient: MCS
 Contract Number: 01-78-M02-01198
 Contract Amount: \$3,500.00
 Contract Duration: 10 February 1978 - 30 September 1978
 Project Duration: 1 January 1978 - 31 December 1978
 (Report on file Nat. Mar. Mamml. Lab., NMFS, NOAA, Seattle Wa.: J.R. Boran, N.J. Haenel and S.L. Heimlich)

Title: Orca Survey 1978
 Contractor: U.S. Marine Mammal Commission
 Grant Recipient: MCS
 Contract Number: MM 1300 731-7
 Contract Amount: \$7,920.00
 Contract Duration: 19 June 1978 - 31 October 1978
 Project Duration: 1 January 1978 - 31 December 1978
 (Report on file U.S. M.M.C., Wash. D.C.: K.C. Balcomb, J.R. Boran, R.W. Osborne and N.J. Haenel)

Title: Employing Fixed Hydrophone Arrays for
 Locating Underwater Whales
 Contractor: National Marine Mammal Lab. (NMFS, NOAA)
 Grant Recipient: MCS
 Contract Number: 01-78-M02-03702
 Contract Amount: \$4,790.52
 Contract Duration: 3 September 1978 - 30 September 1978
 Project Duration: 3 September 1978 - 10 December 1978
 (Report on file Nat. Mar. Mamml. Lab., NMFS, NOAA, Seattle, WA.: K.C. Balcomb and Lon Brocklehurst)

Title: Sound Production by Dall Porpoises in
 Greater Puget Sound
 Contractor: Naval Ocean Systems Center, USN
 Grant Recipient: MCS
 Contract Number: 5131 DD853-78
 Contract Amount: \$1,700.00
 Contract Duration: 27 July 1978 - 27 July 1979
 (Report on file Naval Ocean Systems Center, USN, San Diego, CA., K.C. Balcomb)

Title: Fishery Correlations with Occurrence of Killer Whales in Greater Puget Sound
 Contractor: MCS
 Grant Recipient: Orca Survey (MCS)
 Contract Number: 78-001
 Contract Amount: Lab Facilities and expendables
 Project Duration: 1 January 1978 - 1 November 1980
 (Report on file MCS, Friday Harbor, WA.: James R. Boran)

Title: Acoustic Communication in Greater Puget Sound Killer Whales.
 Contractor: MCS
 Grant Recipient: Orca Survey (MCS)
 Contract Number: 78-002
 Contract Amount: Lab facilities and expendables
 Project Duration: 1 October 1978 - 30 December 1983
 (Reports on file MCS, Friday Harbor, WA.: R.W. Osborne, A.R. Hoelzel and S.C. Healy)

Title: Photo-grammetric Analysis of Growth in Greater Puget Sound Killer whales.
 Contractor: MCS
 Grant Recipient: Orca Survey (MCS)
 Contract Number: 78-003
 Contract Amount: Lab Facilities and expendables
 Project Duration: 1 November 1978 - 1 November 1981
 (Reports on file MCS, Friday Harbor, WA.: James R. Boran)

Title: Whale Survey in Puget Sound 1979
 Contractor: National Marine Mammal Lab. (NMFS, NOAA)
 Grant Recipient: MCS
 Contract Number: 79-ABD-00013
 Contract Amount: \$3,000.00
 Contract Duration: 1 January 1979 - 30 September 1979
 (Report on file Nat. Mar. Mamml. Lab., NMFS, NOAA, Seattle, WA.: J.R. Boran, S.L. Heimlich, N. Quester)

Title: Behavioral Ontogeny of Greater Puget Sound Killer Whales.
 Contractor: MCS
 Grant Recipient: Orca Survey (MCS)
 Contract Number: 79-001
 Contract Amount: Lab facilities and expendables
 Project Duration: 1 January 1979 - 30 September 1980
 (Report on file MCS, Friday Harbor, WA.: N.J. Haenel)

facing Associations Among Greater Puget
and Killer Whales.

Orca Survey (MCS)
79-002
Lab facilities and expendables
January 1979 - 30 November 1981
Friday Harbor, WA.: S.L. Heimlich)

Population Biology of Greater Puget Sound
Killer Whales.

Contractor: Moclips Cetological Society
Grant Receiptient: Orca Survey (MCS)
Contract Number: 79-003
Contract Amount: Lab facilities and expendables
Project Duration: 1 January 1979 - Present
(Reports on file MCS, Friday Harbor, WA.: K.C. Balcomb, N.J. Haenel, J.R.
and S.L. Heimlich-Boran, and R.W. Osborne)

Title: Whale Hotline
Contractor: MCS
Grant Receiptient: The Whale Museum (MCS)
Contract Number: 79-004
Contract Amount: \$2,000.00/year
Project Duration: 1 October 1979 - Present
(Reports on file MCS, Friday Harbor, WA.: C.V. Flaherty)

Title: Energetics of Greater Puget Sound Killer Whales.
Contractor: MCS
Grant Receiptient: Orca Survey (MCS)
Contract Number: 80-001
Contract Amount: Lab facilities and expendables
Project Duration: 1 October 1980 - Present
(Preliminary report on file MCS, Friday Harbor, WA.: N.J. Haenel)

Title: Turn Point Wildlife Observatory
Contractor: U.S. Coast Gaurd
Grant Receiptient: MCS
Contract Amount: Lease of Turn Point Lighthouse, Stuart Is., WA.
Contract Duration: 11 May 1981 - 10 May 1987
(Contract can be renewed in 1987)

Title: Habitat Use By Greater Puget Sound Killer Whales.
Contractor: MCS
Grant Receiptient: James R. Boran (Orca Survey, MCS/Moss Landing
Marine Lab
Contract Number: 81-001-A
Contract Amount: MCS lab facilities and expendables.
Project Duration: 1 June 1981 - Present
(Preliminary reports on file MCS, Friday Harbor, WA.: James R.

Heimlich-Boran)

Title: Gray Whale Photo-ID in Greater Puget Sound
 Contractor: MCS
 Grant Recipient: Gray Whale Survey (MCS)/The Evergreen State College
 Contract Number: 82-001
 Contract Amount: Lab Facilities, expendables and advertising
 Project Duration: 15 March - 1 September 1982
 (Report on file MCS, Friday Harbor, WA.: Raymond Fowler)

Title: Occurrence, Photo-Identification and Ecology
 of Greater Puget Sound Porpoise
 Contractor: MCS
 Grant Recipient: Porpoise Ecology Project (MCS)
 Contract Number: 82-002
 Contract Amount: Lab facilities and expendables
 Project Duration: 15 May 1982 - Present
 (First report in preparation: C.V. Flaherty)

Title: Cohesive Relationships in Pods of Free-
 Ranging Killer Whales.
 Contractors: Lerner-Gray Fund, Amer. Museum of Natural
 History/Sigma Xi: The Scient. Resch. Comm./
 MCS
 Grant Recipient: Sara L. Heimlich (Orca Survey, MCS/Moss
 Landing Marine Lab)
 Contract Amount: \$1,000.00/MCS Lab facilities
 Contract Number: 82-003-A
 Contract Duration: 1 June 1982 - 20 August 1982
 Project Duration: 1 June - Present
 (Report in preparation: Sara L. Heimlich-Boran)

Title: Northwest Marine Mammal Stranding Network
 Contractor: National Marine Fisheries Service (NOAA)
 Grant Recipient: MCS
 Contract Duration: 1 June 1982 - Present
 (Reports on file National Marine Mammal Lab, Seattle, WA and MCS, Friday
 Harbor, WA.: C.V. Flaherty, R.W. Osborne, J.F. Heimlich-Boran and A.
 Shepard)

Title: Photo-Inventory of Puget Sound Killer
 Whales
 Contractor: National Marine Mammal Lab. (NMFS, NOAA)
 Grant Recipient: Kenneth C. Balcomb (Orca Survey, MCS/Ocean
 Research and Education Society)
 Contract Number:
 Contract Amount: \$2,400.00 / MCS field data, lab facilities and
 expendables.
 Contract Duration: 1 - 31 October 1982 (Report on file National Marine
 Mammal Lab, NMFS (NOAA), Seattle, WA.: K.C. Balcomb)

Title: Preliminary New Zealand Sperm Whale Study
 Contractor: MCS
 Grant Recipient: Prentice Bloedel and Barbara Todd (MCS)
 Contract Number: 82-004
 Contract Amount: Lab facilities
 Project Duration: 1 November 1982 - 30 January 1983
 (Report in preparation; Prentice Bloedel and Barbara Todd)

Title: Acoustic Development and Behavior in Killer Whale Calves.
 Contractors: MCS/Packard Foundation/Sigma Xi, The Scient. Resch. Comm.
 Grant Recipient: Suzanne C. Healy (Orca Survey, MCS/Moss Landing Marine Lab)
 Contract Number: 83-001-A
 Contract Amount: \$1,000.00 / MCS Lab facilities
 Contract Duration: 1 July - 30 September 1983
 Project Duration: 1 July 1983 - present
 (Preliminary report in preparation; Suzanne C. Healy)

Title: Feeding Ecology of Orcinus orca
 Contractor: MCS/Seaspace Inc./Nat. Marine Mammal. Lab (NMFS)
 Grant Recipient: Frederic L. Felleman (Orca Survey, MCS/Univ. Wash., Coll. Ocean and Fish. Sci.)
 Contract Number: 83-002-A
 Contract Amount: \$500.00 / MCS Lab facilities / NMFS Resch. Vessel
 Contract Duration: 1 June 1983 - 15 September 1983
 Project Duration: 15 June 1983 - Present
 (Preliminary report on file; Frederic L. Felleman)

Title: Cohesive Relationships in Pods of Free-Ranging Killer Whales.
 Contractor: Packard Foundation/MCS
 Grant Recipient: Sara L. Heimlich-Boran (Orca Survey, MCS/Moss Landing Marine Lab)
 Contract Number: 82-003-B
 Contract Amount: \$500.00/MCS Lab facilities
 Contract Duration: 1 June 1983 - 30 September 1983
 Project Duration: 1 June 1982 - Present
 (Preliminary reports on file MCS, Friday Harbor, WA.: S.L. Heimlich-Boran)

Title: Habitat Use by Greater Puget Sound Killer Whales.
 Contractor: Packard Foundation/MCS
 Grant Recipient: James R. Heimlich-Boran (Orca Survey, MCS/Moss Landing Marine Lab)
 Contract Number: 81-001-B
 Contract Amount: \$500.00/MCS Lab facilities
 Contract Duration: 1 June 1983 - 30 September 1983

Project Duration: 1 June 1981 - Present
(Preliminary reports on file MCS, Friday Harbor, WA.: James R. Heimlich-Boran)

Title: Whale Research Lab
Contractor: U.S. Coast Gaurd
Grant Receiptient: MCS
Contract Amount: Lease of Limekiln Light House, San Juan Is., WA.
Contract Duration: 1 December 1983 - 30 September 1984
(Renewal on a yearly basis for first 5 years, or untill a longer lease is implemented)

Title: Cetacnan Sightings and Strandings in Puget Sound
Contractor: Cascadia Research Cooperative
Grant Receiptient: MCS
Contract Number:
Contract Amount:
Contract Duration:
(First report in preparation: C.V. Flaherty)

Title: Orca Communications Project
Contractor:
Grant Receiptient: MCS / Institute of Applied Physiology and Medicine
Contract Number:
Contract Amount:
Contract Duration:
(Feasibility report and proposals in preparation, R.W. Osborne, A.R. Hoelzel and R. Feraro)

* * *



Moclips Cetological Society

The Whale Museum · Orca Survey

P.O. Box 945 Friday Harbor, Washington 98250 (206) 378-4710

APPENDIX C

SELECTED LIST OF PUBLICATIONS

Page 1

MOCLIPS CETOLOGICAL SOCIETY
RESEARCH PUBLICATIONS AND SYMPOSIA PAPERS

PUBLICATIONS:

Balcomb, Kenneth C., 1980.

The Killer Whale (*Orcinus orca*) in Puget Sound. *CETUS*,
2(5):6-7.

Balcomb, K.C., J.R. Boran, R.W. Osborne and N.J. Haenel, 1980.

Observations of Killer Whales (*Orcinus orca*) in Greater Puget
Sound, State of Washington. NTIS PB80-224728. U.S. Dept. of
Comm., Springfield, Va. 27p.

Balcomb, K.C., J.R. Boran and S.L. Heimlich, (N.J. Haenel and
R.W. Osborne) 1982.

Killer Whales in Greater Puget Sound: A Population Ideally Suited
for Statistical Modelling. Paper SC/JN81/KW9, International
Whaling Commission, Cambridge, England. 19p.

Balcomb, K.C., and M.A. Bigg, 1984.

Population Biology of the Three Resident Pods of Killer
Whales in Puget Sound and Southern Vancouver Island.
In: B.C. Kirkevoold and J.S. Lockard (eds.), *BEHAVIORAL BIOLOGY
OF KILLER WHALES*, New York, Plenum Press.

Boran, James R., 1980.

The Whale Hotline. *CETUS* 2(2):4-5.

Chandler, Richard D., Camile Goebel and K.C. Balcomb, 1976.

Who Is That Killer Whale?. *PACIFIC SEARCH* 11:26-35.

Flaherty, Chuck V., 1983.

Observations of Gray Whales in Washington Waters. *CETUS*,
5(1),16-18.

Haenel, Nancy J., 1984.

Behavioral Ontogeny of Puget Sound Killer Whales With
Notes on the Occurance of Allomaternal Behavior. In:
B.C. Kirkevoold and J.S. Lockard (eds.), *BEHAVIORAL BIOLOGY
OF KILLER WHALES*, New York, Plenum Press.

Heimlich-Boran, Sara L., 1984.

Cohesive Relationships Among Puget Sound Killer Whales.
In: B.C. Kirkevoold and J.S. Lockard (eds.), *BEHAVIORAL
BIOLOGY OF KILLER WHALES*, New York, Plenum Press.

Heimlich-Boran, James R., 1984a.

Fishery Correlations with the Occurance of Killer Whales
in Greater Puget Sound. In: B.C. Kirkevoold and J.S.
Lockard (eds.), *BEHAVIORAL BIOLOGY OF KILLER WHALES*,
New York, Plenum Press.

Heimlich-Boran, James R., 1984b.

Photogrammetric Analysis of Growth in Puget Sound *Orcinus orca*. In: B.C. Kirkevold and J.S. Lockard (eds.), BEHAVIORAL BIOLOGY OF KILLER WHALES, New York, Plenum Press.

Hoelzel, Alan R., and R.W. Osborne, 1984.

Killer Whale Call Characteristics With Implications For Their Role in Cooperative Foraging Strategies. In: B. C. Kirkevold and J.S. Lockard (eds.), BEHAVIORAL BIOLOGY OF KILLER WHALES, New York, Plenum Press.

Moclips Cetological Society, 1978.

A MINI-GUIDE TO THE WHALES AND DOLPHINS OF WASHINGTON STATE. Friday Harbor, Moclips Cetological Society.

Osborne, Richard W., and S.L. Heimlich, 1981.

Deciphering the Behavioral/Acoustical Patterns of Puget Sound Orca. CETUS 3(1):8-9.

Osborne, Richard W., and J.W. Sundsten, 1981.

Preliminary Observations on 13 Killer Whale Cranial Volumes. CETUS 3: (5)12-13.

Osborne, Richard W., 1984.

A Behavioral Budget of Puget Sound Killer Whales. In: B.C. Kirkevold and J.S. Lockard (eds.), BEHAVIORAL BIOLOGY OF KILLER WHALES, New York, Plenum Press.

Shepard, Albert, 1983.

CETACEANS SIGHTING REPORT 1980-1983. Friday Harbor, Moclips Cetological Society.

Sugarman, Peter, R.W. Osborne, E.M. Dorsey and A. Shepard, 1984.

A FIELDGUIDE TO THE CETACEANS OF GREATER PUGET SOUND AND SOUTHERN VANCOUVER ISLAND. Friday Harbor, Moclips Cetological Society

Todd, Barbara, 1981.

Sick Orca and Unusual Group Behaviors Seen During Orca Survey Encounter. CETUS, 3(4):8.

DELIVERED SYMPOSIA PAPERS:

*Balcomb, Kenneth C., J.R. Boran, and R.W. Osborne, 1979.

Killer Whales (*Orcinus orca*) in Greater Puget Sound. Abstract of a paper given at the 'HIRD BIENNIAL CONF. ON THE BIOL. OF MAR. MAMML., Seattle, Wa.

*Balcomb, Kenneth C., 1980.

Techniques in Whale Research. Abstract of a paper given at the ORCA SYMPOSIUM: BIOL. BEH. KILLER WHALE, Seattle Wa.

- *Boran, James R., and K.C. Balcomb, 1980.
Photogrammetric Analysis of Growth of Puget Sound *Orcinus orca*.
Abstract of a paper given at the ORCA SYMPOSIUM: BIOL.
BEH. KILLER WHALE, Seattle, Wa.
- *Boran, James R., K.C. Balcomb, N.J. Haenel, S.L. Heimlich,
and R.W. Osborne, 1980.
Fishery Correlations with the Occurance of *Orcinus orca*
in Puget Sound. Abstract of a paper given at the ORCA
SYMPOSIUM: BIOL. BEH. KILLER WHALE, Seattle, Wa.
- *Boran, James R., 1981.
Photogrammetric Analysis of Growth in Puget Sound
Orcinus orca. Abstract of a paper given at the FOURTH
BIENNL. CONF. BIOL. MAR. MAMML., San Francisco, CA.
- *Boran, James R., *F.L. Felleman, S.L. Heimlich and
R. W. Osborne, 1981.
Habitat Use of Puget Sound Killer Whales. Abstract of a paper
given at the FOURTH BIENNIAL CONF. ON THE BIOL. MAR.
MAMML., San Francisco, Ca.
- *Haenel, N.J., K.C. Balcomb, J.R. Boran, S.L. Heimlich
and R.W. Osborne, 1980.
Observations of Nurturant Behavior of Puget Sound Killer
Whales. Abstract of a paper given at the ORCA SYMPOSIUM:
BIOL. BEH. KILLER WHALE, Seattle, WA.
- Healy, Suzanne C., *R.W. Osborne and A.R. Hoelzel, 1983.
Comparison of Call Use Among Three Socially Interacting Pods
of Killer Whales (*Orcinus orca*). FIFTH BIENNIAL CONF. ON
THE BIOL. MAR. MAMML., Boston, Mass.
- *Heimlich, Sara L., J.R. Boran, K.C. Balcomb, N.J. Haenel,
and R.W. Osborne, 1980.
Surfacing Associations of *Orcinus orca*. Abstract of a
paper given at the ORCA SYMPOSIUM: BIOL. BEH. KILLER
WHALE, Seattle, WA.
- *Heimlich, Sara L., 1981.
Social Organization of Puget Sound Killer Whales.
Abstract of a paper given at the FOURTH BIENNL. CONF.
BIOL. MAR. MAMML., San Francisco, CA.
- *Hoelzel, Alan R., and R.W. Osborne, 1981.
Correlations and Classifications of Calls from Puget Sound,
Wa. *Orcinus orca*. Abstract of a paper given at the
FOURTH BIENNL. CONF. MAR. MAMML., San Francisco, CA.
- *Osborne, Richard W., K.C. Balcomb, J.R. Boran, N.J. Haenel
and S.L. Heimlich, 1980.
A Behavior Budget of Puget Sound Killer Whales (*Orcinus
orca*). Abstract of a paper given at the ORCA SYMPOSIUM:
BIOL. BEH. KILLER WHALE, Seattle, WA.

*Osborne, Richard W., 1980.

Calls of Puget Sound Killer Whales (*Orcinus orca*).

Abstract of a paper given at the ORCA SYMPOSIUM: BIOL.
BEH. KILLER WHALE, Seattle, WA.

*Osborne, Richard W., 1981.

Social Behavior of Puget Sound Killer Whales: Budgetting and

Circadian Independence. Abstract of a paper given at the FOURTH
BIENNIAL CONF. ON THE BIOL. MAR. MAMML., San Francisco, Ca.

* * *



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APPENDIX D

COOPERATING INSTITUTIONS

A non-profit research and educational corporation

COOPERATING INSTITUTIONS

Institution	Form of Cooperation
A. Universities:	
1. University of Washington	
a. Dept. of Zoology	4 undergrad. internships
b. College of Fisheries and Ocean Sciences	facilities 1 grad. thesis project (2 more in the works)
c. Friday Harbor Labs.	facilities
2. Western Washington Univ.	7 undergrad. internships co-sponsor summer courses facilities
3. The Evergreen State College	16 undergrad. internships facilities
4. Central Washington Univ.	1 undergrad. internship
5. University of California	
a. U.C. Santa Cruz	3 undergrad. internships 2 graduate stud. projects
b. U.C. Davis	2 accredited summer courses
6. San Jose State University	2 graduate thesis projects
7. San Francisco State Univ. ...	2 undergrad. internships 2 grad. student projects
8. Humboldt State University ..	1 undergrad. internship
9. Orange Coast College	4 accredited summer courses
10. Oregon State University	1 undergrad. internship
11. Reed College (Portland Or.)	1 undergrad. thesis project
12. Boston University	1 undergrad. internship
13. University of Michigan	1 undergrad. internship
14. University of Florida	1 undergrad. internship
15. Washington Univ. (St. Louis)	1 undergrad. internship
16. Northern Iowa State Univ.	1 undergrad. internship.

B. Research Institutions:

1. Moss Landing Marine Lab facilities
student sponsorship
2. Institute of Applied
Physiology and Medicine facilities and consulting
3. Prism Computer Corp. facilities and consulting
4. Cascadia Research Co-op. grants and consulting
5. Marine Animal Resource Ctr. consulting

C. Government Institutions

1. U.S. Marine Mammal Commission grants
2. National Marine Mammal Lab
NMFS, NOAA facilities and grants
3. National Parks Service grants
4. U.S. Coast Guard grants
5. U.S. Naval Ocean Syst. Ctr. grants
6. Pacific Biological Station
Canadian Dept. of Fisheries
and Oceans consulting, data sharing

D. Non-Profit Corporations:

1. Oceanic Society co-sponsorship of programs
2. Ocean Research and Ed. Soc. facilities
3. American Cetacean Society ... co-sponsorship of programs
4. International Cetacean Watch facilities co-sponsorship
of programs
5. Connecticut Cetcean Society .. grants, co-sponsorship of
programs
6. Greenpeace grants, co-sponsorship of
programs
7. Center for Long-Term
Research consulting, data sharing



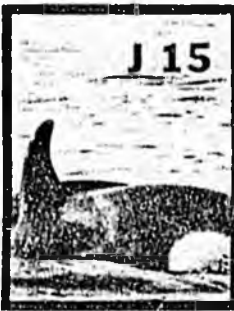
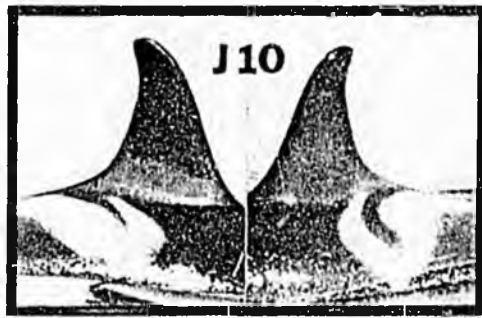
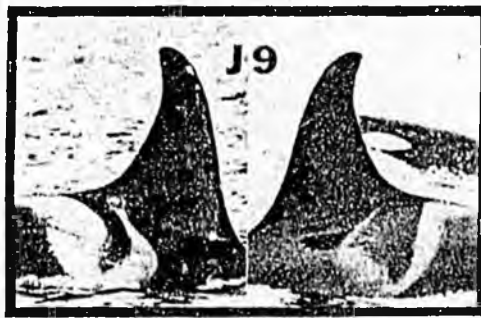
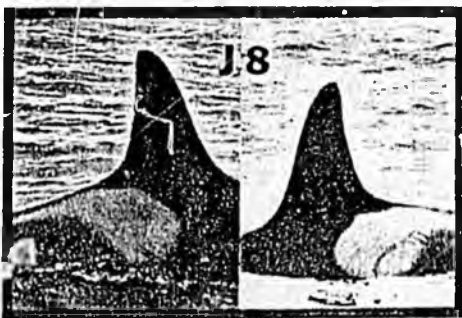
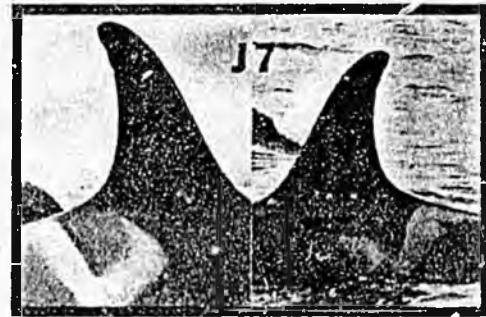
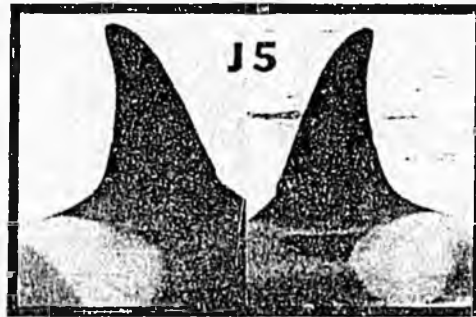
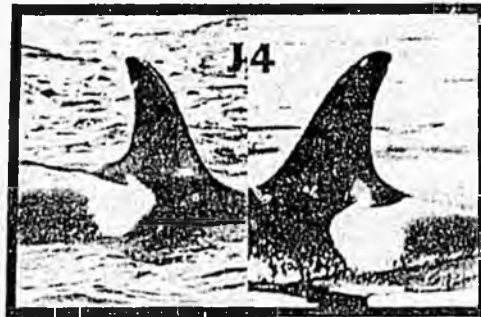
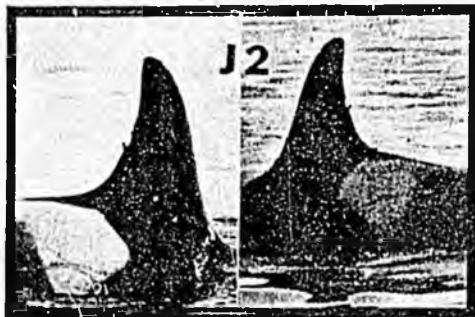
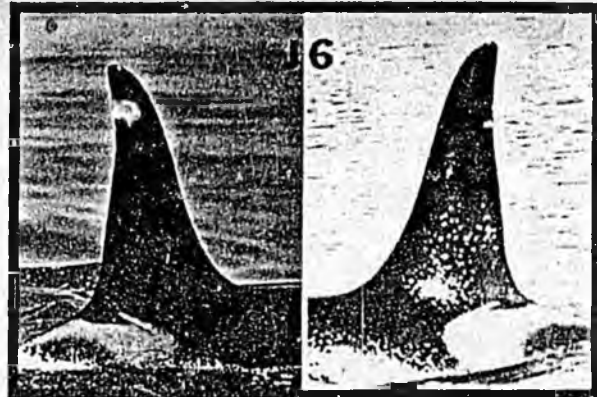
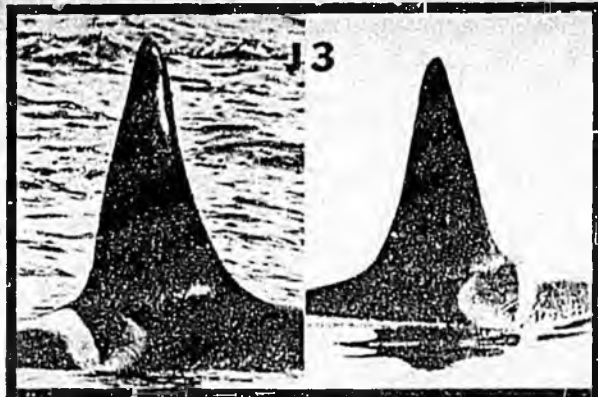
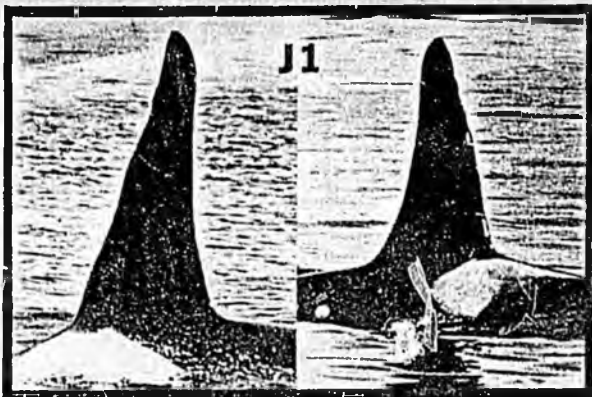
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APPENDIX E

EXAMPLE OF KILLER WHALE
ID PHOTOS



J-POD

This 'family' group is the only pod that resides permanently in the inland waters of lower British Columbia and Washington. It is the most frequently seen group of whales in U.S. waters.

**TOP ROW — ADULT MALES
MIDDLE ROWS — FEMALES
BOTTOM — CALVES/IMM.**

ORCA SURVEY

ORCA SURVEY is a scientific study of KILLER WHALES in the Pacific Northwest.

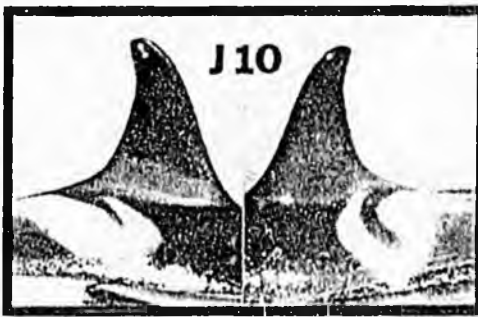
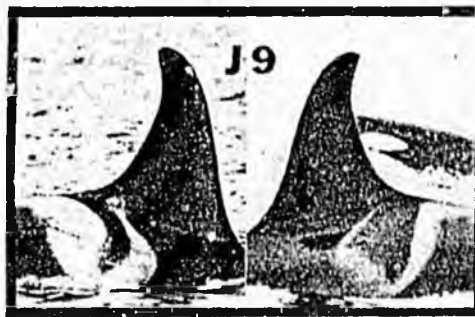
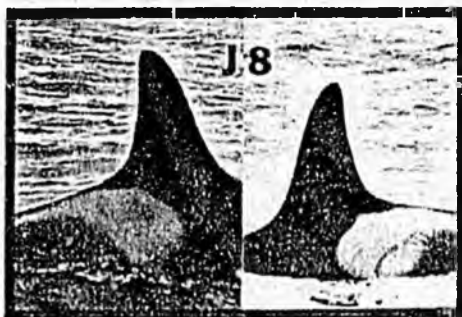
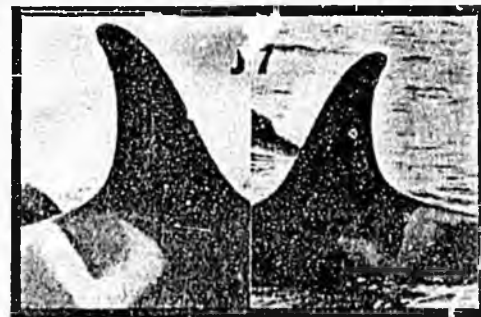
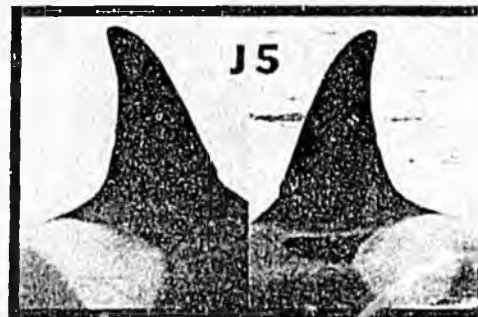
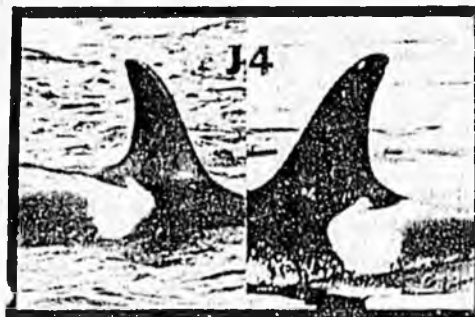
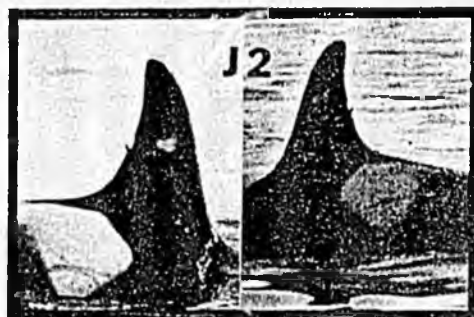
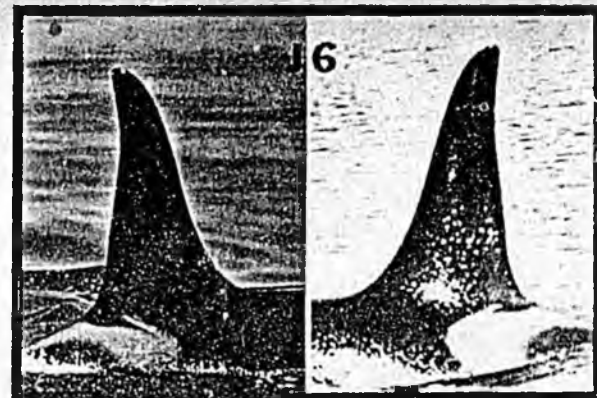
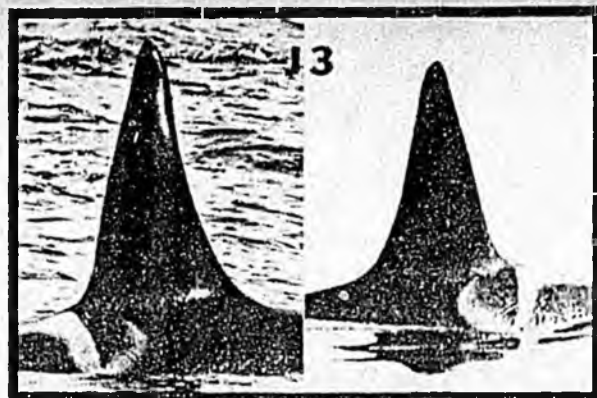
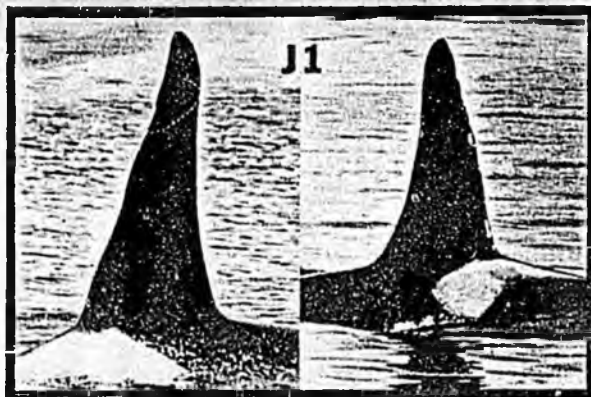
Information gathered will give a clearer understanding of the natural biology, social behavior, and population dynamics of these animals.

PUBLIC PARTICIPATION is vital to the success of the study.

IF YOU SEE KILLER WHALES PLEASE CALL IN YOUR SIGHTING

National Marine Fisheries Service contact or direct

442-4737



J-POD

This 'family' group is the only pod that resides permanently in the inland waters of lower British Columbia and Washington. It is the most frequently seen group of whales in U.S. waters.

**TOP ROW — ADULT MALES
MIDDLE ROWS — FEMALES
BOTTOM — CALVES/IMM.**

ORCA SURVEY

ORCA SURVEY is a scientific study of killer whales in the Pacific Northwest.

Information gathered will give a clearer understanding of the natural biology, social behavior, and population dynamics of these animals.

PUBLIC PARTICIPATION is vital to the success of the study.

IF YOU SEE KILLER WHALES PLEASE CALL IN YOUR SIGHTING

National Marine Fisheries Service
collect or direct

442-4737



Celia M. Hunter
Backwoods Trail
Star Rt. 20972
Fairbanks, Alaska 99701

January 24, 1984

Senator Vic Fischer
Alaska State Legislature
Pouch V (MS 3100)
Juneau, Alaska 99811

Dear Vic:

RE: ORCAS - the Killer Whales

Thank you very much for slowing down the process of automatically granting permits to Sea World to take 100 Orcas in Alaskan waters. The killer whales are an amazing species, with very strong familial ties, so any wholesale disruption of their pods by indiscriminate captures is a major offense.

I have land on San Juan Island, in Washington State, and am a member of the "Moclips Society" which operates the Whale Museum in Friday Harbor, and which sponsors 'whale watches' by almost everyone on the island. I will enclose clippings I have taken from the Friday Harbor newspapers concerning public viewings of the Orca pods which operate around and among the various San Juan Islands. These pods are so well identified that even the social structure, and such things as the greeting ceremony when the pods reunite after separations, has been observed and understood.

I will also send you copies of other material I have concerning orcas. The State of Alaska certainly needs to defend them within our state waters, and I would hope they would consider Alaskan waters as they do the fisheries, extending out 200 miles from our shores.

Sea World has a very bad reputation for handling orcas in the capture and retention of the whales. It is also significant that orcas die so quickly after capture when they live to such ripe old age in the wild. What Sea World does is not education but exploitation. Their real purpose is to make money, and their pretext for obtaining permits to capture the orcas is fraudulent.

I want to testify during the teleconference mentioned on "Alaska News Nightly" last night. I was most pleased with statements attributed to you and to Rep. Mike Szymanski in defending Alaska's orcas. Could you share this material with him, and with as many other legislators as possible. I don't have the funds to copy it to each of them.

Sincerely,

Celia

Celia M. Hunter



Congratulations on your new offspring!



479-2754 Fairbanks

ALASKA'S KILLER WHALES

To: Prince William Sound Boaters and other Concerned Persons

From: Jim and Nancy Lethcoe, Alaskan Wilderness Sailing Safaris (Whittier); Stan Stephens, Stan Stephens Yacht Charters (Valdez), Tim Jones, PWS charter boat skipper; Gail Somerville, Anchorage Friend of the Killer Whales. Beth Buchanan, Alaska Marine Charter Service; Carol Clause, Resurrection Bay Sails (Seward), Bev and Carroll Griffith, Adventure Cruises (Seward), Jeep Reed, Pilot Rock Sailing Charters (Whittier), Joan Gidlund, Prince William Sound Glacier Cruises (Whittier); Bob Scott, Mt. McKinley Alaska Glacier Tours (Anchorage); Anita Stewart, Anchor Tours and Charters (Homer); Katy Case, Case Alaska with Katy (booking agent, Anchorage). Natural History Ventures, (Whittier); Paul and Priscilla Steer, Arctic Tern II Leasing, (Whittier); John Sheety, Mariah Charters (Seward). Background materials prepared by Nancy Lethcoe.

Topic: BACKGROUND SHEET ON KILLER WHALES AND CAPTURE PROGRAMS

Killer whales, *orcinus orca*, are the largest toothed whales utilizing Prince William Sound. Although Killer whales may be seen any time during the year, it is not known whether individual pods, which are permanent family groups, are year round residents or migrants who use the Sound as an important part of their yearly cycle. Larger than normal concentrations of killer whales are often seen in November and early December. Unlike other U.S. coastal areas, virtually no base-line research exists on Alaska's killer whale pods including their size, composition, range, territories and behavior.

In Sept. 1983, the National Marine Fisheries granted Sea World a permit to capture 100 killer whales. The permit authorizes capture of 100 killer whales with an average of 2 killer whales being kept each year for 5 years for public display and breeding purposes. Not more than 30 whales are to be captured each year in Alaska. Prince William Sound's Knight Island pod is a specific target. Sea World's operations are expected to begin in July, 1984.

Among other things, the permit states that:

1. Authorization from the Assistant Administrator for Fisheries (William G. Gordon) is required prior to conducting any capture activities.
2. A local population census study (minimal) must be made.
3. No more than two animals may be removed from any distinct pod and no more than 1/2 of any sex/age class (immature, mature) may be removed for any distinct pod during a 5-year period.
4. The animals shall be taken by the means, in the areas, and for the purposes set forth in the application unless otherwise specified in this Permit.
5. The captured animals can only be held for as long as "the associated animals remain in the area," until authorized by the Assistant Adm. for Fisheries. Authorization to hold them longer is pending on the results of a pilot study to determine how long killer whales can be kept and still return to their original pod.
6. Animals previously captured may be recaptured up to 2 times but not more than once in any calendar year.
7. Animals encircled by net in the course of any authorized activity shall be considered captured.

The permit requires only that the Assist. Admin. for Fisheries be notified that a capture is about to occur, it does not require that an observer be aboard any or all Sea World associated boats from the beginning to the end of the capture effort or that Sea World make available its records so that outside observers can know whether Sea World is abiding by the terms of its permit in capturing the right number of whales the specified number of times.

FEB 21 1984

REVIEW OF SOME PAST CAPTURE EFFORTS AND POTENTIAL PROBLEM AREAS:

1. The permit does not sufficiently stipulate the capture techniques and any restrictions on such techniques.

To capture killer whales, the hunters must be able to track a pod. Tracking procedures have not been specified in the application or the permit. In the Puget Sound area, there were considerable problems with inhumane tracking procedures, such as harpooning the dominant whale and following the brightly colored float attached to the harpoon for days and weeks at a time. This was banned by the Marine Mammal Protection Act.

Techniques used in the capture need to be analyzed for their safety to the killer whales and their humaneness. "The ethics of killer whale hunting became a nationwide topic of discussion after a hunter (Don Goldsberry, Chief Collector for Sea World) captured six whales near Olympia, Wash. . . . He used two motorboats, a spotter airplane, and small explosive depth charges to frighten the animals into a net. In an atmosphere of strong public feeling, the State of Washington brought suit against the hunter and the aquarium corporation for which he was acting. Soon the federal government was drawn into the action. By then, three of the captives had escaped and one had been released because it was too large to keep. The corporation abruptly released the remaining two and agreed never again to hunt whales in Puget Sound (voluntarily signed by Dr. Lanny Cornell, Sea World)." (Scheffer, p. 125-126).

The permit states that "the collection techniques and procedures referenced in the applications are acceptable and shall be the manner in which the animals are taken." Sea World's application requests that Donald Goldsberry be allowed maximum flexibility in the use of any techniques described in the two-page paper "A Live Capture Technique for the Killer Whale," by Goldsberry and Asper, 1978 (ironically, this is the year that another 2 of their captured whales died). The paper recommends using explosives, speedboats, and low-flying aircraft within 50 feet of the water -- or less when landing. This leaves open the use of very low flying and taxing float planes being used to drive the whales.

2. Observers are needed to see that the terms of the permit are followed. The observers must have access to Sea World Scientific data to know whether whales are being recaptured or taken from the same pods.

In the past, hunters in Puget Sound have attempted to avoid adverse publicity by concealing the deaths of killer whales during capture. "For example, in 1970, the bodies of four baby killer whales, trussed and weighted like Chicago gangsters, washed ashore . . . at the scene of a previous hunt." (Scheffer, p. 125). Observers should be placed aboard all Sea World chase and capture boats to avoid this type of tragedy.

3. Captured killer whales need to be kept either temporarily or permanently. The permit makes no mention of how and where captured killer whales are to be held. Lanny Cornell has stated that they will be kept in nets or on deck for 4-5 days (presumably after they have satisfied the NMFS's concern that killer whales will be able to return to their pods when released.) Sea World's application mentions "allowing" the killer whales to swim into a bay, then closing the bay off with large mesh nets until the killer whales are moved into water once their length in depth. They will be penned in enclosures twice their body length.

4. Some scientists and boat operators claim that persistent hunting 'spooks' killer whales. Some collectors, such as Sea World's Don Goldsberry, deny this. However, others report that killer whales learned to recognize the motor of capture boats and avoided going to places where they had been harassed or captured. (Scheffer, p. 127 and personal communication with Bill Boyd, former Skipper of Killer Whale capture boat for Sealand of the Pacific Ltd. Victoria, B.C.). Charter boat operators and recreational boaters in Puget Sound felt that killer whale hunting made the killer whales more wary of boats in general and that fewer migrant pods of killer whales visited Puget Sound waters. At the time, inadequate baseline information was available to ascertain this. No killer whale pod identification, territory, and behavioral studies have been done in Prince William Sound, so Sea World will again be able to argue that their hunting has no demonstrable effect on killer whale population shifts or behavior.

5. In the past, many killer whales have died during the capture process or from illnesses probably resulting from stresses related to capture. In the wild killer whales are believed to live 25 to 50

years. Of the 86 whales kept for exhibition or research between 1961 and 1980, 54 have died; 23 died within the first year. Stress related illnesses, such as pneumonia, ulcers, heart-attacks, and fungus are the major causes of death. Based on statistics in B. Hoyt, *The Whale Called Killer*, pp. 186-192. Of the 223 whales captured in Puget Sound, 10 died during capture, 31 were kept and 182 were released or escaped. These figures are low because accurate records were not kept of any category except whales kept. Hoyt, pp. 182-184. According to Hoyt's statistics, Sea World had kept 18 whales by 1980 of which 9 had died and 7 (from Iceland) had been in captivity for less than 3 years. At the time of the permit, Sea World had 8 whales.

6. Sea World and their chief collector, Donald Goldsberry, have a dubious past record. In 1970, Canada banned the collection of killer whales by non-Canadians partly as a result of abuses associated with Don Goldsberry's activities. In 1976, Sea World voluntarily signed the out-of-court settlement never to hunt in Washington State again as a direct result of lawsuit against them and Donald Goldsberry over their chase and capture procedures. After leaving Washington, Don Goldsberry went to Iceland. In the first two years, he captured 18 whales. Five suffered frostbite through neglect while in the holding pens. Two died. The rest were subsequently released. No attempt was apparently made to follow up on their survival. The Icelandic zoo with which Don Goldsberry is associated is under serious threat of closure by Icelandic authorities for neglecting the animals and treating them inhumanely.

7. Sea World's breeding program: According to Sea World spokesman, Lanny Cornell, Sea World already has enough killer whales to carry on and eventually obtain their breeding objectives, but it would take less time if more whales could be captured and added to the program. However, some marine biologists question whether Sea World or any other aquarium can keep a sufficient number of killer whales alive long enough to carry on a successful breeding program. Female killer whales attain maturity at about 13 years.

8. Opening Pandora's Box: Issuance of a permit to Sea World has opened the possibility that numerous other aquariums and freelance hunters will seek permits. Sea World argues that once they obtain more whales to speed up their breeding program that wild killer whales will no longer need to be captured. In effect, either Sea World will have been given a monopoly on the killer whale market for amusement parks or potentially all other aquariums will now be able to argue that they should receive equal access to and use of the wild killer whale resource.

SUGGESTED ACTION:

STATE LEVEL: You may wish to write your State Senators and Representatives asking for their support on House Joint Resolution 58 (major sponsor, Rep. Mike Szymanski) and Senate Joint Resolution 31 (major sponsor: Senator Vic Fischer). These bills are currently in the Resources committee. Public opinion messages can be sent to all members of the resources committee by calling 278-3668.

Representative Mike Szymanski and Senator Vic Fischer have introduced joint resolutions that address many of the above concerns. For additional packets of information, including a copy of the permit, contact: Representative Mike Szymanski, Pouch V, Juneau, AK 99811, phone: 465-4978/4979 or Vic Fischer, Pouch V, Juneau, AK. 99811, phone, 465-4954/4955/4997.

FEDERAL LEVEL: Legislation has recently been introduced to the House of Representatives seeking a ban on capturing killer whales in all United States waters. You might wish to write Rep. Don Young asking him to support this. Similar letters could be sent to Senators Murkowski and Stevens asking them to co-sponsor this legislation in the Senate.

You might wish to include some of the following points:

1. Sea World maintains that they are confident no killer whales are going to die as a result of their chase and capture program. Sea World should be asked to make a public statement that if a killer whale does die as a result of their capture efforts, that they will voluntarily cease and desist from any

more efforts to capture killer whales in Alaskan waters.

2. Observers should be placed aboard all Sea World chase and capture boats to verify that Sea World follows the stipulations in its permit. National Marine Fisheries Service issued the permit and has enforcement responsibilities. However, they apparently have no boats or funding to enforce the stipulations in the permit. According to Jim Brooks of the NMFS (Juneau), Sea World will notify the NMFS when they intend to implement their permit and that the NMFS will then place an observer aboard the boat to watch the process from start to finish. The NMFS is pleased that the State of Alaska is considering placing Dept. of Fish and Game personnel aboard the boats. If this is done, then the NMFS will probably deputize the AK. Dept. of Fish and Game personnel. The State would then be expected to pick up the costs of having enforcement officers aboard the boats. According to Jim Brooks, Sea World is very aware of its public image. He is confident that they will not begin any capture operations (even if poor weather delays the arrival of an enforcement officer for several days) until the designated officer is aboard the boat.

3. Before any hunting is permitted in Alaskan waters, Sea World should be required to spend 3 to 5 years establishing base-line research on killer whale pods including their composition, productivity, territories and behavioral patterns. This is needed to obtain a better understanding of the short and long term effects of capturing killer whales on local killer whale populations and behavior. This is a standard professional procedure that for some inexplicable reason has apparently been waived by the National Marine Fisheries Service. Instead they are accepting population estimates which have little statistical reliability and which provide no information on pod size, distribution, behavior, etc.

4. Hunting, capture, and transportation procedures should be subject to periodic public review to guarantee the minimum amount of cruelty and inhumaneness to the animals directly involved and the least amount of harassment possible to those indirectly involved.

5. Some type of follow-up studies should be required on those killer whales that were captured and released to determine what effects if any capture had on the killer whale and if it returned successfully to its original pod or met with subsequent mishaps as a result of capture.

6. Killer whales should not be captured within Alaskan waters until the State of Alaska Dept. of Fish and Game gives its approval.

7. Public hearings should be held in Alaska. Sea World strongly opposes public hearings.

8. Many questions need to be answered on the validity of the research. Is this a responsible research plan or one that fits best with Sea World's own commercial interests? In the judgement of the scientific community is this the type of research that is really needed or are there more important research projects?

9. Sea World maintains that killer whales thrive in an aquarium environment. Sea World should be asked to provide evidence supporting this claim. High death statistics, the failure of killer whales to emit sounds in captivity, reproduction problems (Marineland has had a least 4 killer whales that were conceived in captivity either died prior to birth or within a short time after birth), and physical problems such as collapse of their dorsal fins would seem to indicate that captivity places considerable stress on the whales.

10. The strongest protection that could be given Alaska's killer whales is to ask the State Legislature and Dept. of Fish and Game to prohibit the taking of killer whales within the 3 mile limit.

For additional general information or to place your name on a mailing list to be kept informed of developments, contact the Alaska Wildlife Alliance, P.O. Box 6953, Anchorage, AK 99502. Phone: 277-0897.



Lanny H. Cornell, D.V.M.
Senior Vice President/
Zoological Director

June 21, 1983

Robert Brunsted
Acting Chief
Protected Species Division
National Marine Fisheries Service
U. S. Department of Commerce
Washington, D.C. 20235

Dear Mr. Brunsted:

You have now received our comments on the questions asked by the Marine Mammal Commission regarding Sea World's application (P2M) to collect killer whales over a 5-year period for captive propagation, research and public display.

In the early and mid-1960's, several of us recognized the need for controls on the collection of marine mammals for scientific research and public display. I first began ministering to marine mammals as an equine practitioner in 1964 consulting to Marineland of the Pacific and later at Marine World-Africa USA and other smaller aquariums. I also was a consultant on occasion to Sea World during that same period. I was astounded to learn early on that marine mammals could be collected in United States waters without a permit.

Inasmuch as I was most familiar with public display, I concentrated my efforts at that area of the Act. I was pleased to see the final version which devotes an entire section to public display. To see that the Congress agreed with the 100 million annual zoological visitors who see marine mammals on display was gratifying. And to know the taking and care of these creatures would be regulated was a tremendous comfort personally.

Relatively few today realize or remember the contributions of responsible individuals and organizations to this regulatory process. Sea World was among the

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first to recognize such a responsibility, and today the staff and management of Sea World continue this recognition and are dedicated to it. One need only visit a Sea World park to realize the tremendous dedication of the staff, and the management as expressed in the investment in fine exhibits and off-public areas.

Sea World maintains a clinical laboratory in each park devoted to investigating continued preventive medicine, environmental control and disease discovery. This staff is dedicated, paramedically trained and diligent. To see members of the animal care and behavioral staffs risk their lives crawling down cliffs to rescue beached and stranded marine animals, or stay with these creatures all night in freezing water to help ensure their survival is to perceive that dedication firsthand.

To suggest that killer whales live only two years in captivity is to ignore that the killer whales currently at Sea World have been with us for from 5½ years to 14½ years, and all are doing well. Let's not forget that it has only been during the last 19 years that anyone has tried to keep killer whales in a zoological environment as a result of planned capture attempts or expeditions.

It was, in fact, the National Marine Fisheries Service in Seattle that called for Sea World's assistance in 1972 to save from a Puget Sound beach a large (18-ft.) female killer whale. "Sandy", as she came to be called, was saved and lived a bonus 5½ years more in our facilities at our expense, not used for shows but for children's education classes.

"Sandy", at the time she beached, suffered from a 2,000-lb. weight loss, a severe bone infection (jaw) and was nearly deaf as a result of her illness. Our Seattle team worked all night to dig under the whale, stretcher her and lift her to safety aboard a truck to be taken to the then Seattle Marine Aquarium at Pier 56. That vintage aquarium was later closed by Sea World so as not to compete with the new Seattle city aquarium.

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But it served "Sandy" quite nicely, as it was there her infected teeth were removed and she was nursed back to health and full weight. Later that year she was airlifted to our San Diego park. She lived at Sea World the rest of her years.

Other debilitated whales, too, have come from Puget Sound. I have, unfortunately, witnessed several necropsies on killer whales from that area. Some of these had bullets insidiously lodged in their bodies and heads, and one in particular was doomed from the outset as a result of a large caliber rifle bullet and an associated abscess in the chest. Only two years ago, nearly a thousand killer whales were slaughtered in Antarctica with almost no protest.

Sea World's corporate mortality rates with all species range from 3.0-6.0% in all our parks - at least as good and possibly better than wild mortality rates.

Certainly animals have died at zoos all over the world as practitioners, curators and animal care staff have learned to cope with their special needs. Many lost in the past would not die today as a result of the tremendous increase in knowledge in the last ten years. To assume only environmentalists and well-meaning but ill-informed citizens care about these animals is both unfair and dangerous.

For it was only in the mid-sixties and early seventies that these same people began to know enough about sea animals to begin to care. Only after killer whales were included in educational displays was the public awakened to their beauty, intelligence and educational value. Only then did their protection become an issue. The State of Washington and its citizens were enthralled by the saga of Namu, the first killer whale exhibited in Seattle. Two ordinary fishermen became heroes and later villains as the press first acclaimed their ingenuity and politicians later made hay with their public relations awkwardness.

Dangerous explosives have never been used by Sea World! Large firecrackers, yes - and thousands are still used today by commercial fishermen in Puget Sound and all over the world in lieu of bullets to

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keep marine mammals out of their fishing gear. In-sensitive? No, I think not - not when the alternative is death.

To condemn the use of seal controls, as they are called, is fine if you buy your food at the supermarket. But to commercial fishermen, who must pay for their gear and nets and make their living from the sea, seal controls seem a small price to pay to help sustain themselves. Although Sea World no longer utilizes these devices, we cannot condemn the salmon, herring and squid fishermen who still do use them to keep killer whales from their nets.

Sea World spends millions of dollars annually on facilities, not because of government rules or complaints by citizens, but because by doing so we can assure the lives and safety of the animals in our care to a better degree. Even if viewed only for the financial impact, such a program makes far more sense than a wasteful and sacrificial approach. Add that to the caring attitude of the staff, and a picture emerges of the empathy and love our shows and displays portray - and which the public, including thousands from Washington State, (over 7 million in 1982) perceives and appreciates.

Sea World's attendance has grown steadily since our inception in 1963-64 when we had only 400,000 visitors. Projected attendance in the late 1980's is 10 million per year. Since our beginning, over 70 million guests have learned about whales at Sea World. Currently over 7.0% of the 100 million zoological visitors attend Sea World parks. More people visit oceanaria and zoos than attend all athletic events in the United States. Nearly half the population of the United States attends zoological parks each year - a huge and overwhelming vote of approval and confidence by the American public.

Sea World has not been nor will we ever be a part of the animal trade in killer whales or dolphins. All funds received so far for animals provided to qualified zoos from our beached and stranded animal program or our captive breeding program are paid directly to the

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nonprofit Hubbs-Sea World Research Institute. The marine and aquatic research conducted worldwide by this group directly benefits the marine mammals themselves since the more we learn about marine mammals the better position we are in to protect and preserve them for future generations.

We would join those who would put a stop to the unregulated international trade in killer whales by the inexperienced from Iceland. We have objected to it from the outset. We have never been part of, nor condoned, trade. Sea World has always espoused that only qualified and experienced personnel collect marine animals. Icelandic officials early on were notified by Sea World personnel of the technological expertise needed to properly collect and care for marine mammals. Sea World personnel warned these same people of the danger and problems they would encounter in the care of newly collected animals in Iceland, including the recommendation not to build the pool in Reykjavik and the problems with the weather which they soon did encounter. We also warned their European veterinary staff, who were aware and informed as to the danger well in advance of the occurrence of the problems.

No animals have been lost in killer whale collecting activities during any Sea World collecting attempts since the implementation of our professional collecting team concept in 1972. No killer whales have been collected and removed in Washington waters since implementation of the Marine Mammal Protection Act of 1972. All killer whales removed from Washington waters were collected under Washington State law by Washington State fishermen. Sea World is not responsible for any mortalities or distribution of whales from those waters. The State of Washington controlled all activities in those waters until late 1972 when the Marine Mammal Protection Act became law.

Yes, animals died in the early collecting attempts by the Namu, Inc. Seattle fishermen. Those animals were offered to Washington State officials, museums and the University of Washington. None accepted. The animals were then weighted and sunk in Puget Sound,

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not to hide them, but to avoid the navigational and health hazards associated with decaying whales on the beach. It was a sad waste of data and lives, we agree.

Sea World has always volunteered that any animals lost during collection, or later, would be utilized to the fullest extent possible by interested and qualified scientists. We have followed that policy to date, as a search of marine mammal literature will show.

In 1976 in Budd Inlet, Sea World collectors had no plans to remove animals after discovering their size. They were voluntarily, and at Sea World's expense, removed and held in a bay until University of Washington scientists could attach radiotags, etc. A prominent Seattle TV newscaster called the handling and transport procedure from Budd Inlet an amazing example of American technology in action on the news that night. We withdrew from Washington voluntarily, and under agreement, as it was evident no whales would be taken there again.

Sea World personnel have never denied that our goals are profit motivated. In fact we are proud that because of profits we have been able to establish one of the finest overall marine zoological complexes ever imagined. Profits have provided millions of dollars worth of improvements, exhibits, facilities and displays both for the public to enjoy and for the animals to live in. We, like the Boeing Company of Seattle, are prominent, community minded, successful employers in our communities. And like Boeing, we produce quality. There were those who said the 747 would never fly.

The permit application, when approved, will provide Sea World with the tools for future stability, better animal care and reproductive assurance with killer whales. As you recall, only a few years ago bottlenose dolphins were never expected to reproduce in captivity in significant numbers. Today, captive bred dolphin calves are commonplace. These negative arguments are not based on reality. A negative approach, if thus promoted and if allowed to prevail, would cripple the very ingenuity this country thrives

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upon. Killer whales can be bred in captivity - they will be. Our plan only assures that will occur. Up to 1956, no gorillas had been bred in any zoo. If progressive thinking had not occurred, no gorillas would be in zoos today. Over 35% of all gorillas currently in zoos are captive bred.

Since 1976, over 86% of the whales collected for public display are still living, and the percentage improves annually. Technological advances and improvements are inevitable. Just as farmers improve crops and NASA improves rockets, we, too - the zoological community - continue to improve our knowledge and understanding and thus help ensure the future of species all over the world.

As we have previously stated, one of our male killer whales is currently of breeding size and age. Several others (females) are approaching maturity. Hopefully these animals will be the first to conceive and reproduce successfully. During the time these begin to reproduce, obviously, others will be needed for educational display purposes. It is these whales we hope to collect under this new permit.

Two years of acclimation and training time will be required and later, as they also grow, they too can be rotated with the successful breeders. Thus not only will Sea World be able to maintain show schedules and our commitment to the public and our guests, but also our responsibility to the species reproduction in captivity. The program is designed to be self-sustaining as are our current bottlenose dolphin, California sea lion and harbor seal populations.

Our new killer whale facilities will ensure space and space age technological skills for our future killer whales - the new breed of domesticated whale for generations to come.

Hundreds of killer whales will not be involved in this process. Up to 100 might be encircled and researched at the capture site in Alaska and California. Very few, if any, will be removed from the site, and those few only for logistical reasons as the researchers

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involved require for their programs. As far as Sea World is concerned, only the two animals per year - for a take of ten - need be removed, and those will quickly be transported to our killer whale facilities in San Diego, Florida and Ohio.

Although, as some point out, there are hundreds of killer whales which could be involved, our plan is to research only those animals actually involved in the collecting process for public display. The title of the application should probably read: To take 10 animals for public display and research the biology on up to 90 more animals and then release them on site.

With reference to my letter of June 15, 1983, public hearings should not be deemed appropriate for the issuance of this application. The activities of collection are to be offshore San Diego, California and Juneau, Kodiak and Cordova, Alaska. It is these areas whose populace has a direct interest in the collection activities and whose best interests would be served by such hearings.

Sea World has followed to the letter the requirements for application to take these animals. The populations of killer whales in the waters indicated meet all the requirements for take as established for both scientific research and public display under the Marine Mammal Protection Act of 1972. The issuance of such permit would be in direct correlation with the wishes of Congress written into the Act.

This application is among the most detailed ever submitted to the National Marine Fisheries Service. Subsequent information provided to the Marine Mammal Commission on June 16 and this letter represents more detail than has ever been prepared for National Marine Fisheries Service for such permit issuance. All questions have been answered fully. All inquiries have been addressed to date. All parties wishing to do so have had the opportunity to meet with us in private as individuals and in several meetings in Washington, D.C., San Diego, California and Anchorage, Kodiak and Cordova, Alaska.

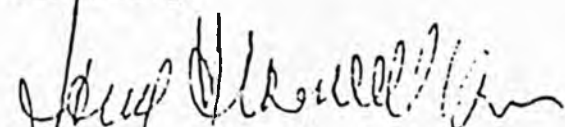
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It is our opinion that there is no need to further delay the permit process.

We respectfully submit this letter. Should you have any questions regarding the letter or our application, please feel free to contact me at any time.

Sincerely,



Lenny H. Cornell, D.V.M.

LHC/ld



NEW WHALE STADIUM - FLORIDA

FROM: North Pacific Fishermen's Federation

SJR 31

TO: Senate Resources
House Resources

SUB: Sea World proposed capture of killer whales.

Madam Chairman
Mr. Chairman

As I am frequently around killer whales, I am intensely appreciative of and respect the magnificence of these mammals. It is hard to visualize these mammals in captivity.

I have met with representatives of Sea World and discussed their proposal to capture a few killer whales. After consideration of some important reasons for the whales capture, we would appreciate being put on record as supportive of Sea World's proposal.

The educational benefits to the public, the scientific benefits to the deeper and better understanding of the killer whales, the expression of seemingly ease of the whales to adapt to captivity, the quality personnel and facilities as expressed by many who have visited Sea World as well as representative documents and personnel, seem to give credibility to Sea World's proposal.

We believe the killer whales are going to

be studied to a great extent, anyway. We would definitely appreciate these types of projects done in the private sector rather than by governmental agencies. The results will be thorough, the care will be the best, and the costs and investment be protected. This, as past experience shows, is not the case with governmental involvement.

These capturing activities should, as can be worked out with Sea World representatives, be done in a manner as to not hinder fishing activities in Southeast Alaska.

Jerry Hurdle
Chairman NPFF

Box 3020

Juneau, AK, 99803

907-789-9923

COMMITTEE REPORT

SENATE

FURTHER:

RESOURCES

1/23/84

Date: _____

Mr. President:

The Committee on STATE AFFAIRS has had SJR 31

relating to the capture of orcas in Alaska waters.

under consideration and (a majority of the committee) (the committee) reports it back with the following recommendations:

- do pass do not pass
- do pass with attached amendments(s)
- replace with CS for _____ same title
 new title
- and recommends _____
- AND attaches a "Letter of Intent" New Fiscal Note
- reports it back without recommendation
- referred to the _____ Committee

MEMBERS SIGNING
DO PASS

MEMBERS HAVING
OTHER RECOMMENDATIONS:

CHAIRMAN



Jan. 16, 1984

Mr. Falkenberg:

Enclosed is a copy of Hubbs-Sea World Research Institute Technical Report No. 84-175: "KILLER WHALES (Orcinus orca) OF SOUTHERN ALASKA, Results of Field Research 1984, Preliminary Report," prepared under a grant from Sea World, Inc., and with the authority of National Marine Fisheries Permit No. 439.

The study reflected in this report was requested by the NMFS permit. This work, undertaken between April and September, 1984, in Southeast Alaska, Prince William Sound and the Kodiak Island area, represents the first comprehensive effort to scientifically photodocument and identify individual killer whales occurring in those areas.

This past year, biologists working in these areas actually photographed and positively identified 286 individual killer whales. With the addition of about a dozen other animals that were identified but not photographed, the minimum number of killer whales known for these regions now is 297-299 individuals. Prior to the initiation of this study, estimates for killer whale populations in these limited areas of Alaska were 239 to 293 individuals (Leatherwood et al, 1984). The photo identification techniques employed in this study also have been successful in the Washington/British Columbia areas.

Using data from those long-term studies on rates of encounters each year with new animals, the 1984 Alaska findings can be conservatively extrapolated to establish an estimate of a minimum population of 356-372 killer whales in these areas, an increase of about 100 animals over the earlier estimates. These numbers, based on a single year of study, are expected to be revised upward as the result of continuing work in 1985 and later years.

Sincerely,

Jackie O'Connor Hill
Public Relations Director



COPY

Sea World Enterprises, Inc.

1720 SOUTH SHORES ROAD, SAN DIEGO, CA 92109-9980

LANNY H. CORNELL, D.V.M.
Senior Vice President/
Zoological Director
(619) 226-3829

December 20, 1984

Mr. Robert Brumsted
Chief, Protected Species Division
National Marine Fisheries Service
U. S. Department of Commerce
Washington, D. C. 20235

Dear Mr. Brumsted:

National Marine Fisheries Service Permit No. 439, issued to Sea World, Inc. on November 1, 1983 for the acquisition of killer whales and the conduct of scientific studies, calls for field research on killer whale populations in Southern Alaska and requests a report on such research be submitted to National Marine Fisheries Service prior to the end of 1984. The report was to include a summary of activities conducted under the permit, results of surveys and monitoring efforts, and an outline of activities planned for the following year.

Leatherwood et al, (1984), using their own field observations and sightings from fishermen, reported to the International Whaling Commission a minimum population estimate of 239-293 killer whales in Southeast Alaska, Prince William Sound and Kodiak Island/Shelikof Strait area. In the summer of 1984, Sea World contracted with the Hubbs-Sea World Research Institute to conduct a photographic survey of killer whales in those areas. I enclose with this letter five copies of a preliminary report on the 1984 research under that contract.

This paper reports that in 1984 researchers conservatively identified 286 whales by individual markings. In addition they could visually identify approximately a dozen more animals but were not able to photograph them. Therefore, we know there are at least 297-299 naturally marked animals in the areas studied to date. By extrapolating the findings, using data from the long term studies in Washington/British Columbia, one would estimate a minimum population of 356-372 killer whales in these limited areas of Alaska examined so far. It is evident these numbers, based on only one year's study, will be revised as a result of studies in 1985 and in later years. We expect these conservative estimates to climb in future years.

A Harcourt Brace Jovanovich Company 

Sea World is an Accredited Institution of the American Association of Zoological Parks and Aquarium

Robert Brumsted
December 20, 1984
page two

The report also documents exchange of animals between Prince William Sound and both Southeast Alaska and Shelikof Strait. We are aware of reports and studies of killer whales in the Gulf of Alaska and the Unimak Pass area, which because of their timing lead us to believe the animals involved are not part of the reported population(s). We have elected, however, not to include those animals in our minimum population estimate at this time but will study them further in the coming years and report on them at the time of study.

We find the enclosed Technical Report from the Hubbs-Sea World Research Institute a quality product. Previous studies of killer whales have occurred in much smaller geographic locations in highly populated areas. The present study covered a vast area with few people and equipment. The results presented are a credit to the team involved.

As an adjunct to the study of killer whales, observers noted data on animals other than killer whales and photographed animals whenever possible. Reports on these activities, including data on species of special management interest to National Marine Fisheries Service, a catalogue of photo-identified humpback whales, and sightings of harbor and Dall's porpoise, are in press and will be distributed under different authorship.

In 1985 the Institute will continue to study Southeast Alaska and Prince William Sound, will increase efforts in the Kodiak Island/Shelikof Strait area and will extend some activities to the waters in and around Unimak Pass and, to the extent possible, the Gulf of Alaska. We are proud of the field work accomplished in 1985 and look forward to supporting it in future years.

In addition to the field studies reported in this paper and outlined for 1985, we will conduct the following studies on animals encircled but not removed from the study area: photographic-identification, morphologic analysis, blood sampling, hearing and respiratory studies and tooth-aging studies, as provided for in the permit. To date we have removed three teeth from captive killer whales; a fourth will be removed in early 1985. These teeth will be valuable in calibrating GLGs for killer whales. If you wish, we can forward photographs of the most recent procedure, showing the removal of a tooth using a periosteal elevation and forceps under local anesthesia. To date, no antibiotics have been utilized for the tooth removals. However, the Marine Mammal Commission has suggested that tetracycline be injected into the temporarily restrained whales

Mr. Robert Brumsted
December 10, 1984
page three

to mark the tooth structure for date identification at some later examination. If such marking is requested by you, the dosage will be the previously reported 50mg/kg of tetracycline hydrochloride (or similar drug) parentally injected.

For tooth removal, the whale's mouth is opened by gently inserting a finger or other object into the lip area. When thus stimulated, the whale's mouth will open (this is not a trained behavior but is a natural response), and a padded speculum is placed in the corner of the mouth. The speculum keeps the mouth open for the surgical procedure. Prior to conducting hearing and respiratory studies on wild animals, we will perform these tests on captive animals and report the results to you.

We have elected not to conduct liver biopsies on killer whales in 1985, as we believe newer serum chemistry analysis can give as complete a picture as is needed at this time. We will not conduct stomach lavage studies in 1985. These studies were originally suggested by National Marine Fisheries Service personnel and have not been further clarified at this time.

We do not anticipate tagging whales with spaghetti or streamer tags, as we feel most of the animals can be identified through photographic means. However, we will have cryogenic marking equipment on the scene and will use it in the event animals are observed which cannot be identified readily through photographic markings. In our experience cryogenic marks on killer whales have completely disappeared within 18 months to 2 years.

Should you have any questions regarding the report or the information in this letter, please feel free to contact me.

Sincerely,



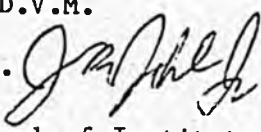
Lanny H. Cornell, D.V.M.

LHC/ld
enclosure

December 19, 1984

M E M O R A N D U M

TO: Lanny H. Cornell, D.V.M.

FROM: Joseph R. Jehl, Jr. 

Enclosed is the original of Institute Technical Report #84-175, "Killer Whales (Orcinus orca) of southern Alaska", summarizing results of research directed by Mr. Stephen Leatherwood and conducted in 1984 under contract to Sea World. Numbered copies of the report have been delivered to you for distribution. Although the report is self-explanatory, several points require emphasis.

1. This is a preliminary report, the field season having ended only 2 1/2 months ago. Although analysis continues, the general results will not be reversed by further study. Indeed, further review of the 1984 photographs, and new photographs taken in 1985 will likely allow the identification of additional whales as well as clarification of their status (age, sex) and pod affinities. Thus, this report is a conservative interpretation of the data, which we believe will stand critical scrutiny.
2. To place the results in perspective, please recall recent reviews of the size of the southern Alaskan population(s). In 1984, Leatherwood and co-authors estimated that there were 239 (same day counts) to 293 (estimates based on these counts) whales in three areas of southern Alaska (southeast Alaska, Prince William Sound and Shelikof Strait). In reviewing those data, the Alaskan Department of Fish and Game accepted the lower figure as conservative and expressed their view that removal of an average of 2 whales a year over a 5 year period would have no significant biological impact on the population. To date, from the 1984 photographic record, we have photo-identified 286 whales and have noted presence of 11 to 13 more which we know are different but for which we were unable to obtain useful photographs. Therefore, there are 297-299 naturally-marked animals known in the study areas.
3. To insure the conservative nature of this report, we have not extrapolated our findings to a population estimate in the body of the text but in Appendix I. By our reasoning, based on rates of encounters with new pods and whales by researchers in British Columbia and Washington during 11 years of study, the population in our study area can be estimated at 356 to 372 whales. Even though this figure seems conservative, for reasons spelled out in the Appendix, it is biologically reasonable and provides a valid estimate for further discussions with management agencies for 1985.

The photographic catalogue for 1984 is at the printers and will be delivered to you in January. It will be a useful companion to this report and an essential tool for researchers participating in the projected studies for 1985-1988.

We appreciate your support for this very important study.

JRJ/ar

ENCLOSURE

ERRATA

Please correct the following minor printing errors in your copy as they may affect the clarity or meaning intended:

<u>Page</u>	<u>Paragraph</u>	<u>Line</u>	
1	1	6	insert ")" after "(R="
		14	insert quotes around "preferred areas"
	2	12	insert comma between "Boran" and "Osborne"
2	1	11	replace "in" with "and"
11	2	7	insert comma after "(ATA)"
	4	9	insert comma after "Camp A"
14			under area 112 the correct April/May Subtotal is 11, the correct Total is 97
15	1	1	remove "a"
25	2	1	insert comma after "Alaska"
	4	4	"x 3.22" should read " $\bar{x}=3.22$ "; "(x =" should read " $(\bar{x} =$ "
42	2	5	following "Bigg et al." replace comma with "("
	5	8	"x=5.10" should read " $\bar{x}=5.10$ "
	5	9	"x=18.1" should read " $\bar{x}=18.1$ "
44			Figure 13 caption should continue "...Numbers correspond with encounter numbers, Table 9."
48	2	1	insert comma after "Nevertheless"
49	2	3	following "percent)" replace comma with period
		6	following "percent)" replace comma with period
49	3	3	should read "percent to 60.7 percent) and Prince William Sound (14.4 percent to ..."
55	1	6	insert comma after "Alaska"
	2	4	insert comma after "table"
	3	10	insert "and" after "logical"
57	1	14	insert comma after "1982"

KILLER WHALES (Orcinus orca) OF SOUTHERN ALASKA
Results of Field Research 1984
Preliminary Report

Prepared by
Stephen Leatherwood
Hubbs-Sea World Research Institute
San Diego, CA

Kenneth C. Balcomb, III
Center for Whale Research
Friday Harbor, WA

Craig O. Matkin
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and

Graeme Ellis
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Vancouver, B.C.

From Contributions By
(In Alphabetical Order)

K. C. Balcomb, III, K. M. Balcomb, L. H. Bloedel, G. Ellis, B. Goodwin,
J. D. Hall, C. O. Matkin, D. J. McSweeney, K. W. Miller, O. von Ziegesar,
J. K. Yamada and E. R. Yohe

HSWRI Technical Report No. 84-175

December 1984

ABSTRACT

A study was undertaken between mid-April and late September 1984 to photographically identify killer whales in Southeast Alaska and Prince William Sound. Similar activities were conducted in Shelikof Strait 27-30 August. A total of 256 whales was photo-identified and catalogued by pod (=clan). The minimum population documented from photographs in the three areas is 286, including 96 animals from Southeast (counting all 19 members of AR (= R pod known from British Columbia, though only three were photo-identified when the group was encountered in Southeast Alaska), 173 from Prince William Sound and 17 from Shelikof Strait. It is highly unlikely that all pods using these areas were encountered and it is known that not all animals encountered were photographed. Southeast Alaska appears to have few if any "preferred areas" (areas of concentration); the portion of its population known to date includes 39.3 percent transients, 60.7 percent "residents". Prince William Sound does appear to have preferred areas; the portion of its population known to date includes 14.4 percent "transients" and 85.6 percent "residents". The 256 animals classified by age/sex class consist of 48 adult males (18.7%), 140 adult females or subadult males (54.7%) and 68 juveniles or calves (26.6%). One "resident" pod (AR) and one "transient" pod (AM) known from Washington/British Columbia were encountered in Southeast Alaska. One "resident" pod (AF) encountered most often in Southeast Alaska in 1984 was also photographed four times in August 1984 in Prince William Sound. It had been photographed in the Sound in 1983. Members of AD pod, a resident group known from Prince William Sound in 1984, were also photographed in Shelikof Strait in 1984. Foraging ranges of up to 1,445 km (780 nm) are documented. Historical encounters with known pods, 1977-1983, are presented. Work in 1985-1988 will refine estimates of population size and composition, estimate productivity and natural mortality, define other vital statistics and document feeding and other behaviors.

INTRODUCTION

In 1973, the Canadian government initiated studies of the population(s) of killer whales, Orcinus orca, in the inland marine waters of British Columbia (Bigg, MacAskie and Ellis, 1976). Researchers obtained high quality, high resolution close up photographs of the dorsal fin and "saddle" (the area of light pigmentation below and behind the dorsal fin) and used them to identify individuals and describe composition and behavior of the groups (pods or clans) into which they assembled. In 1976, the United States government initiated comparable studies of killer whales in adjacent inland marine waters of Washington state (Balcomb 1976; Chandler, Goebel and Balcomb, 1976). In both areas, research using photo-identification has continued through a variety of government and private organizations (for example, see Balcomb, 1978; Balcomb, Boran and Osborne, 1979; Balcomb, Boran Osborne and Haenel, 1980; Balcomb, Boran and Heimlich, 1982; Bigg, 1981, Bigg, MacAskie and Ellis, 1983; Contributors to Kirkevold and Lockhard, eds., (in press). Results of these research efforts have formed the basis of much of our current understanding of the population biology of killer whales and are often quoted as the authority for management models (Perrin, ed., 1982; Matkin and Leatherwood, in press).

In 1981 the Small Cetacean Sub-Committee of the International Whaling Commission convened a meeting of invited experts in Cambridge, England to review the status of knowledge on killer whales (Perrin, ed., 1982). The sub-committee noted the extensive amounts of new information derived from the observational/photographic studies in British Columbia and Washington but pointed out some important discrepancies between results of such studies and information available from more traditional examination of specimen materials. For example, Bigg (1982) reported birth rates of 6.94 to 9.77 percent off British Columbia, where observed calving intervals were as long as 12.47 years in uncropped pods. By contrast, Jonsgard and Lyshoel (1970) and Christensen (1978 and 1982) found pregnancy rates of 14.8 percent in 37.3-43.2 percent of mature females, respectively, in samples they examined from the whaling industry in Norway. These authors believed that there were shorter calving intervals in the Norwegian population(s). Anderson (1982) estimated pregnancy rate of 13.3-19.9 percent of mature females in samples from Antarctic whales taken in 1979/1980. Based largely on such disparate results the sub-committee recommended that (1) observational/photographic research be continued to document dynamics of killer whale populations in British Columbia and Washington, (2) comparable programs be undertaken in other geographical areas to determine whether the studied populations are representative of the species in general and (3) comparisons be made whenever possible between results from observational/photographic studies and those from more traditional biological studies of the same individuals and populations.

Most of the sub-committee's recommendations have been implemented. The research in British Columbia and Washington continues (Bigg, MacAskie and Ellis, 1983; Ellis, Balcomb, and Bigg, in prep.). Census work was conducted off Norway in 1982 and 1983 (Christensen, 1983) and off Iceland in 1982 (Sigurjonsson, 1982). A photo-identification pilot program was initiated off the Møre Coast, Norway (Balcomb, 1984, unpublished data; Lyrholm, 1984). A preliminary photographic catalogue of killer whales identified off southern California and Baja California was assembled (Kelly, 1984). And a research program was begun in southern Alaska[1] to compare characterizations of the killer whale population(s) from observational/photographic studies with similar characterizations from scientific examination of live animals captured and briefly restrained. The research reported in this paper is part of that Alaskan research program.

The killer whale is a genuinely cosmopolitan species, likely to be encountered virtually anywhere in marine waters, world-wide (Leatherwood and Dahlheim, 1978; Dahlheim, 1981; Perrin, ed., 1982; Matkin and Leatherwood, in press). In general, however, it is thought to be most abundant in colder waters of both hemispheres with centers of greatest abundance within about 800 km of continents (Mitchell, ed., 1975). In Alaska, killer whales have been reported from the Beaufort Sea (Richardson, ed., 1981) and can be found at least seasonally virtually anywhere in the Chukchi and Bering seas, Gulf of Alaska, North Pacific and inland marine waters of Southeast Alaska, Prince William Sound

1. Authorized by National Marine Fisheries Service (NMFS) Permit Number 439, dated 1 November 1983 (Federal Register, Vol. 48, #215, 1 November 1984, 4 November 1984: 50915).

and Cook Inlet (see Braham and Dahlheim, 1982; Lowry et al., 1982; Leatherwood, Bowles, and Reeves, 1983;). Although the Alaskan populations have been speculated to contain 3,000 or more individuals (Brooks, 1984)[2], there have, in fact, been only a few regional surveys from which authors have presented figures on population size, density or relative abundance in Alaskan waters (see Appendix I).

In 1983 a review was undertaken of information available on the population(s) of killer whales of southern Alaska (Figure 1) (Leatherwood et al., 1984). From sightings data it was estimated that a minimum of 239 (same day counts) to 293 (conservative estimates from these counts) killer whales frequent waters of Southeast Alaska, Prince William Sound and Shelikof Strait. At least the first two of those areas were judged suitable for observational/photographic research of the sort conducted off Washington and British Columbia. Based on that review, Hubbs-Sea World Research Institute (HSWRI) initiated in April 1984 a long-term observational/photographic study of killer whales in southern Alaska. The 1984 activities focused mostly on inland marine waters of Southeast Alaska and Prince William Sound; activities near Kodiak Island were limited to three days of aircraft and vessel surveys. The principal purpose of the first field season was to photograph as many killer whales as possible so that, as in other areas, identifiable marks on individuals could be used as natural tags in a study of population structure and behavior. This paper reports on progress of that research through the 1984 field season. It must be regarded as preliminary.

MATERIALS AND METHODS

Specific equipment and techniques for photo-identification studies of cetaceans have evolved over the last decade and are at present more or less standardized for each species under study. Those developed for killer whales are discussed in detail in Ellis et al. (in prep.); they are only summarized here.

The success of any photo-identification project depends upon locating animals of the species under study and approaching them closely so that high resolution photographs of each individual can be taken. These activities require a suitable research platform, familiarity with the animals and proper photographic equipment and techniques.

To locate killer whales we made active searches from a variety of platforms. Some permitted broad coverage; others focused on limited areas of known or suspected killer whale occurrence. Observers on each noted all observations of killer whales and, when weather, daylight and logistics permitted, followed the whales to photograph them and record their underwater phonations. In addition to making our own searches we solicited and noted reports of killer whale sightings by others and investigated such reports whenever feasible.

2. J. Brooks, Alaska Department of Fish and Game (ADFG), testimony to House Resources Standing Committee, Juneau, Alaska, 29 February 1984.

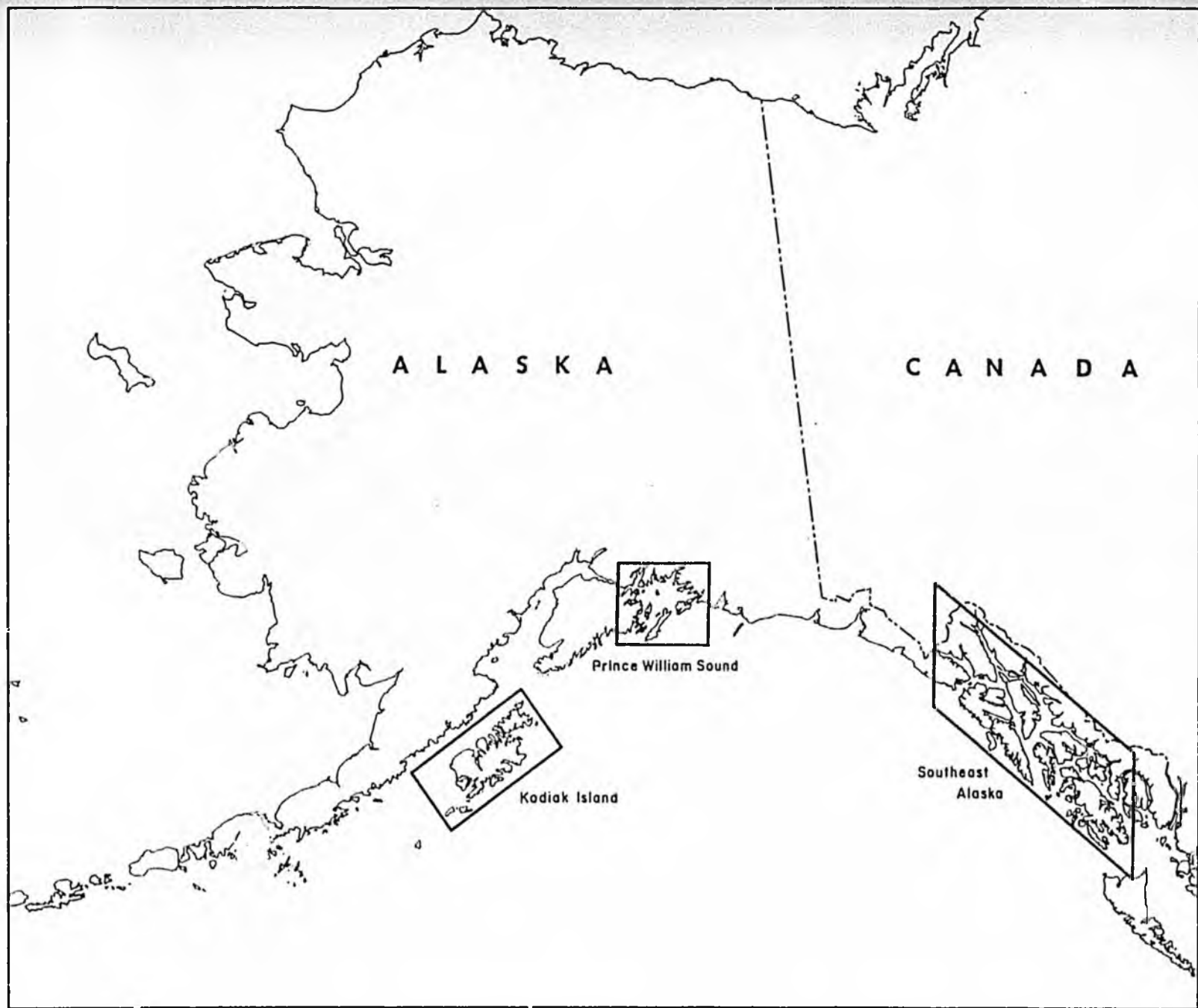


Figure 1. The three regions of Alaska where research on killer whales was conducted in 1984.

In this paper we refer to our own observations (direct visual observations or acoustic detections) of killer whales as "sightings" and to reliable and specific accounts of killer whales from others as "reports." We define an "encounter" as any situation in which killer whales, detected and located by any means, were approached to within 30 m (about 100 ft) or less and photographed. In most observations, number of animals in the group was counted or estimated. In all encounters, counts or estimates were supplemented by classification of individuals into age/sex class according to the following criteria, largely following Bigg (1982):

"Adult males" (Figure 2A) are markedly larger than other whales [about 5.8 to 9 m (19-29 ft) or more] and are characterized by a tall [about 1.1 to 1.7 m (3.5-5.5 ft)] triangular dorsal fin which reaches exaggerated proportions when the animal is sexually mature. Identification of most bulls is probably certain though the actual relationship between dorsal fin characteristics and the onset of sexual maturity is unquantified.

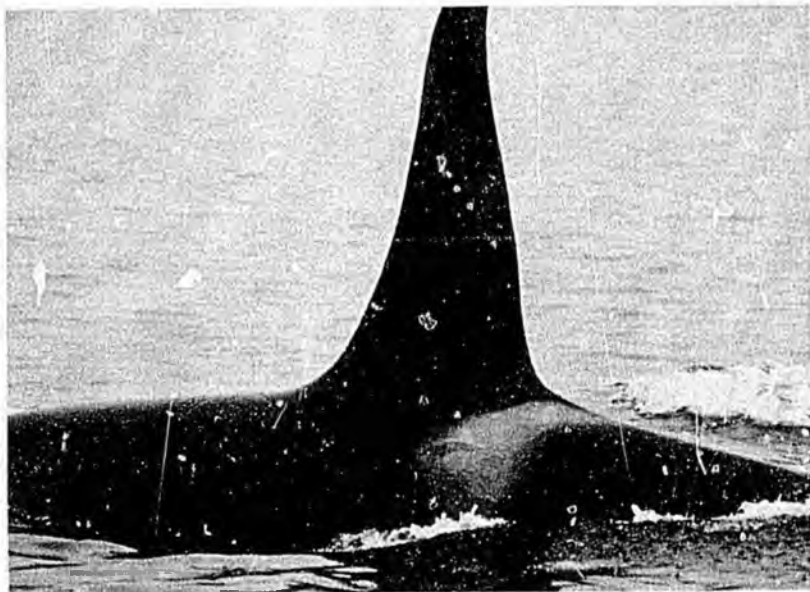
"Adult females" and "subadult males" (Figure 2B) are not always readily distinguishable from the shape of dorsal fin; so, they are grouped at present. This category includes whales about 4.6-7.3 m (15 to 24 ft) long and with a dorsal fin 0.5 to 0.8 m (1.5-2.5 ft) tall. The fin of an adult female does not change in size or shape over several years; that of a large subadult male does (Bigg, 1982). A photo-identified individual in this broad category can only be reliably classified in cases where it is observed over several years, is determined by constant presence of a calf or juvenile to be an adult female or is sexed by observation of the genital region.

Whales less than about 4.6 m (15 ft) long were classified as "juveniles or calves" (Figure 2C). Newborn are about 2.1 to 2.4 m (6.8-7.9 ft) long (Leatherwood et al., 1982). Very young calves consistently swim alongside or in close proximity to an animal classified as an adult female or subadult male, usually respire more frequently than larger animals in the group and often buck the head higher above the surface than other animals when they breathe. Though orange to yellow rather than white coloration in the eye patch is often indicative of a young animal, it is not reliable to distinguish a calf of the year as it may persist for two years or more. Although most animals we tentatively judged to be calves are likely one year old or younger, some may be in their second year; thus, the conservative classification.

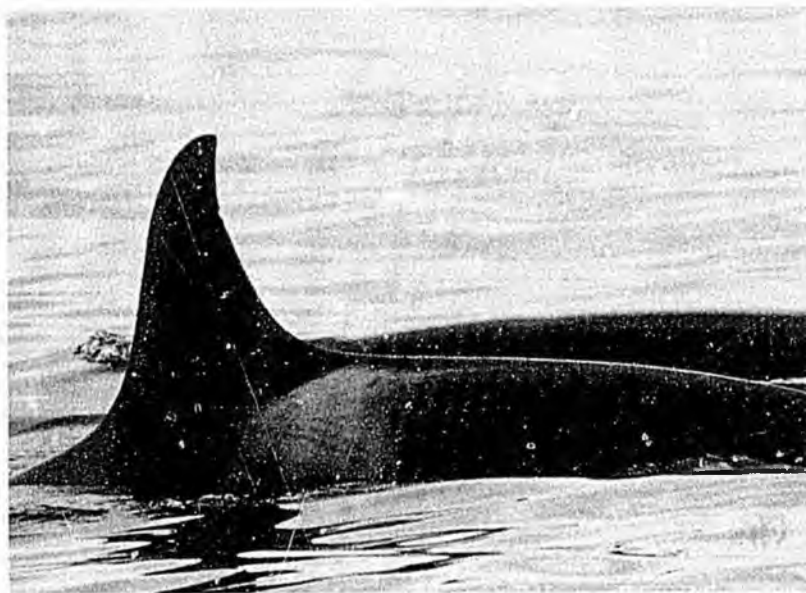
Markings on killer whales, both natural pigmentation and scarring patterns, often differ significantly from one side of an individual to the other (Figure 3). Therefore, in most previous photo-identification studies of killer whales researchers have agreed to use only left side views so that images from repeat encounters could be matched and results from all areas could be compared readily. Photographs used in the present investigations were taken from the left side, at right angles to the dorsal fin, using a motor-driven Nikon FM2 camera with a fixed focal length Nikor 300 mm f 4.5 lens and Kodak Tri-X film exposed at ASA 1600 (occasionally ASA 1000). [3]

3. Based on comparative results from our 1984 photographs we have decided in future years to follow strictly the procedures outlined in Ellis, et al. (in prep.). These include the recommendation that film be exposed only at ASA 1600 and a shutter speed of 1/1000 or faster.

Figure 2. The three age/sex classes identifiable during the first field season: Adult male, AG 1 (A), adult female or subadult male, AB 10 (B), and juvenile or calf AN 22 (C), in foreground. (Photos by K.W. Miller in Southeast Alaska 8 September 1984 (A) and C.O. Matkin in Prince William Sound 16 September 1984 (B) and 2 September 1984 (C).)



A



B



C

Figure 3. Animal AE 1, showing differences in pigmentation and scarring on the left (A) and right (B) sides. (Photos from Chenega Point, 4 June 1984 by C.O. Matkin.)

(A)



(B)



Exposed film was "push" processed using Edwal FG-7 fine grain developer with a 9% sodium sulphite solution (for ASA 1600) or Acufine developer (for ASA 1000). A proof sheet of each roll was prepared and filed with the negatives and associated data sheets. Developed negatives were examined under a Wild M5 stereomicroscope with 8 power eyepieces, affording 4.8 to 40.0 power magnification (9.6 power was used most commonly). When negatives were sharp and correctly exposed it was possible to detect detail adequate to clearly distinguish individuals (see Figure 4). For each frame containing images of killer whales a notation was made on the associated data sheet to indicate identifiable individuals it contained. Field notes accompanying film from a given encounter were used to help define the pod(s) involved.

Pods were designated alphabetically, using two letters (A to indicate Alaska, and A to Z to distinguish pods); individuals were designated numerically. In repeat encounters with a given pod, previous designations were continued and newly identified animals were simply assigned the next higher number available. A 12.5X17.5 cm (5X7 in) glossy print of each designated animal, made from the best negative containing an image of that animal, was placed in a working catalogue of known individuals. Whenever a better photograph of a particular individual was obtained the catalogue was updated with the improved print. The catalogue as it existed at season's end is being reproduced (Ellis, editor, in preparation) and will be available from HSWRI on request.

Each pod and its members were provisionally referred to as "residents" or "transients", following terminology and characteristics used routinely by investigators in British Columbia and Washington to distinguish animals which they report appear to differ consistently in various morphological and behavioral characteristics (see Table 1).

Photographs were also examined for information on associations among pods and among individuals within a pod. The association between a cow and her calf is the most obvious and can often be ascertained in a single encounter. Other associations may only become clear after longer monitoring of the population.

The main function of our vessel, base camp and aerial searches was to find killer whales for individual identification. For a variety of reasons, sightings data (and sightings records) are not considered appropriate for transect analysis to support independent estimates of density or population size. Therefore sightings and records are presented only to document distribution and relative abundance by area searched. Effort was logged as total number of days, hours, or miles searched in each "Statistical Reporting Area for Fisheries" defined by the Alaska Department of Fish and Game (ADFG).

The three study areas are geographically separate from one another. They were selected as distinct bodies of water somewhat in anticipation that any "resident" whales in each might be distinct from "residents" in the other. As approaches to coverage differed among the three areas, they are discussed separately.

Figure 4. Example of an animal (AB 25) identifiable by pigmentat'ion and scars on 5 June 1984 (A) and 20 September 1984 (B). (Photos from Prince William Sound by C.O. Matkin.)

(A)



(B)

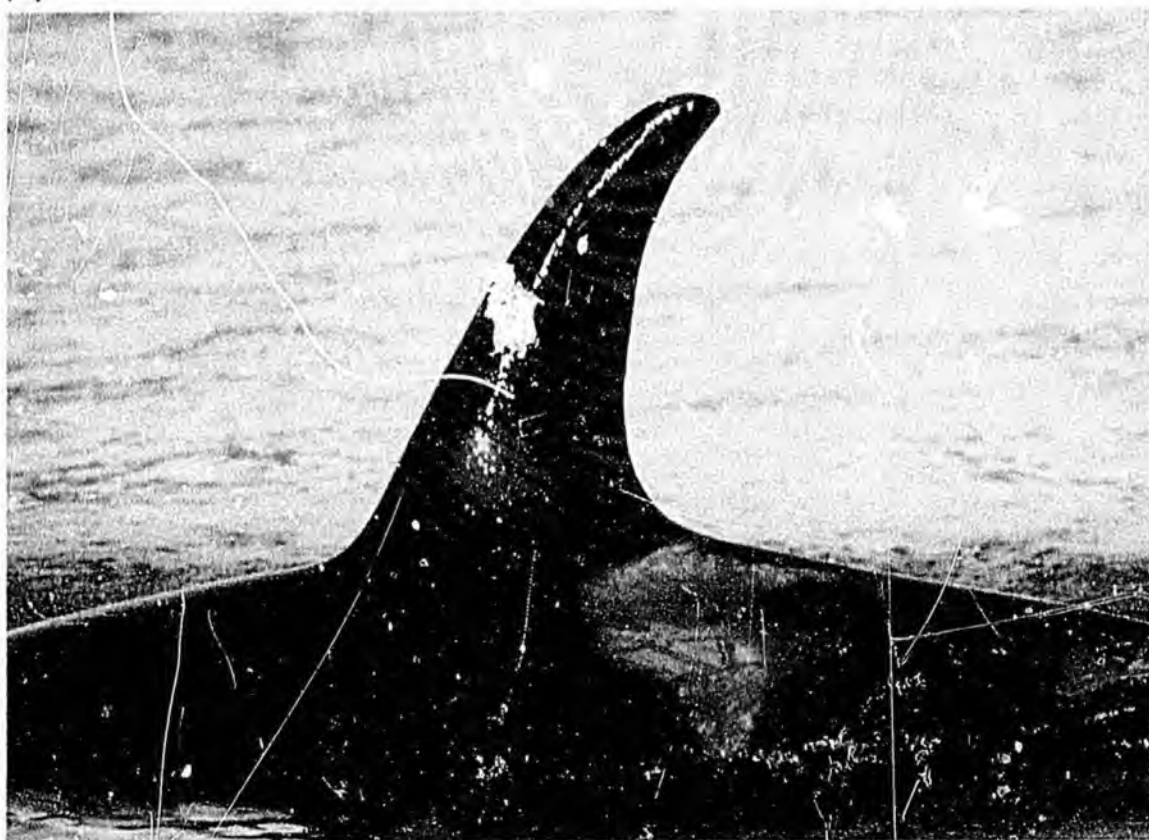


Table 1. A comparison of "typical" traits of postulated "resident" and "transient" forms of killer whales in British Columbia. *

	Residents	Transients
Pod Size	≥6	≤5
Form(a)	Dorsal fin rounded on tip, straight on front margin	Dorsal fin pointed on tip, bulged on front margin
Range	South Vancouver Island or North Vancouver Island & north coast, B.C.	All of British Columbia
Presence in British Columbia	Seen at least in summer, in some cases all year	Seen infrequently and during irregular times of year
Vocalizations(b)	Frequently vocal	Often quiet
Swimming behavior	Travel from headland to headland along coast in predictable manner; remain in open water; avoid inner bays	Tend to travel along shoreline in unpredictable manner with frequent changes of direction and dive times; often enter inner bays and narrow waterways
Associations with other pods	Found only with other resident pods, even when in close proximity	Found only with other transient pods, even when in close proximity
Food	Fish	Marine mammals and fish
Stability of pod composition	Membership in pods stable over long periods. Pod frequently solitary.	Membership in pods stable over time but several pods may combine for protracted periods.

* Prepared, with permission of the author, from Bigg, MacAskie and Ellis (1976, 1983), Bigg (1982) and a presentation 26 October 1984 to the University of Washington, Friday Harbor Marine Laboratory, Friday Harbor, Washington.

a) See description in Ellis (1978), based on pers. comm. from M.A. Bigg.

b) See Ford and Fisher (1982).

Southeast Alaska

The Southeast Alaska study area (Figures 1 and 5) includes coastal and inshore waters in the roughly 465 km (250 nm) strip from the Canadian border (ca 54°30'N) north to Cape Spencer (ca 58°30'N). Defined in this manner, Southeast Alaska is a large [approximately 51,400 km² (15,000 nm²)], complex system of rivers, fiords, bays, sounds and passages with widely varying submarine topography and oceanographic characteristics.

Information on killer whales of Southeast Alaska is contained in Consiglieri and Bouchet (1977), Braham and Dahlheim (1982) and Leatherwood et al. (1984). Sightings have been reported from all areas but have been most common along the seaward coasts of the barrier islands and in the major entrances, particularly in outer Clarence and Chatham straits and throughout Cross Sound/Icy Strait. Leatherwood et al. (1984) used same-day sightings data, mostly from the Alaska Trollers Association (ATA) as the basis for their estimate that a minimum of 93 killer whales regularly use waters of Southeast Alaska. Some individuals from the population have been identified in several years since 1979 (McSweeney et al., in prep.) but no further details on the population are published.

The enormous area of Southeast Alaska was impossible to survey comprehensively with the time and resources available. Therefore, we concentrated effort on the five entrances connecting inland waters to the adjacent Pacific Ocean - Dixon Entrance (including Clarence Strait and Behm Canal), Sumner Strait, Chatham Strait, Peril Strait and Cross Sound/Icy Strait - on the premise that killer whales must use one of them to enter or leave the study area. Coverage of the outer coast was very limited. Coverage of inland waters involved field camps and vessels (Table 2).

Three base camps were established to monitor whale movements through the major entrances (Table 2; Figure 5). Camp A afforded an excellent view west across southern Clarence Strait to Prince of Wales Island, approximately 9.7 km (6 nm) distant. Except in poor weather conditions observers at the lookout could probably have seen whales entering or leaving the Strait. Camp B, on the north end of Prince of Wales Island, provided ready access to Sumner Strait, which in that area is approximately 9.7 km (6 nm) wide. Camp C used a platform on a promontory from which there was an unobstructed view across Cross Sound, which is about 9.7 km (6 nm) wide in this area. As at Camp A observers at Camp C could probably have detected whales in all except poor weather.

Each camp was staffed by two to four personnel. Weather permitting, visual watches were maintained during daylight hours using 7 to 9 power binoculars and a 25 power spotting scope. All marine mammal sightings were noted. Camps B and C were equipped with a LabCor hydrophone, anchored offshore and connected by cable to a transistorized amplifier at the observation post, used to listen for whales. Some fishermen cooperated with camp observers by providing their reports of killer whales. When HSWRI vessels were associated with camps or operating nearby (Table 2) they responded to killer whale sightings or reports and attempted to photograph the whales.

Additional shore camps were based on Yasha Island and on the Brothers Islands. Watches were maintained from shore at Yasha from 18 to 20 August.

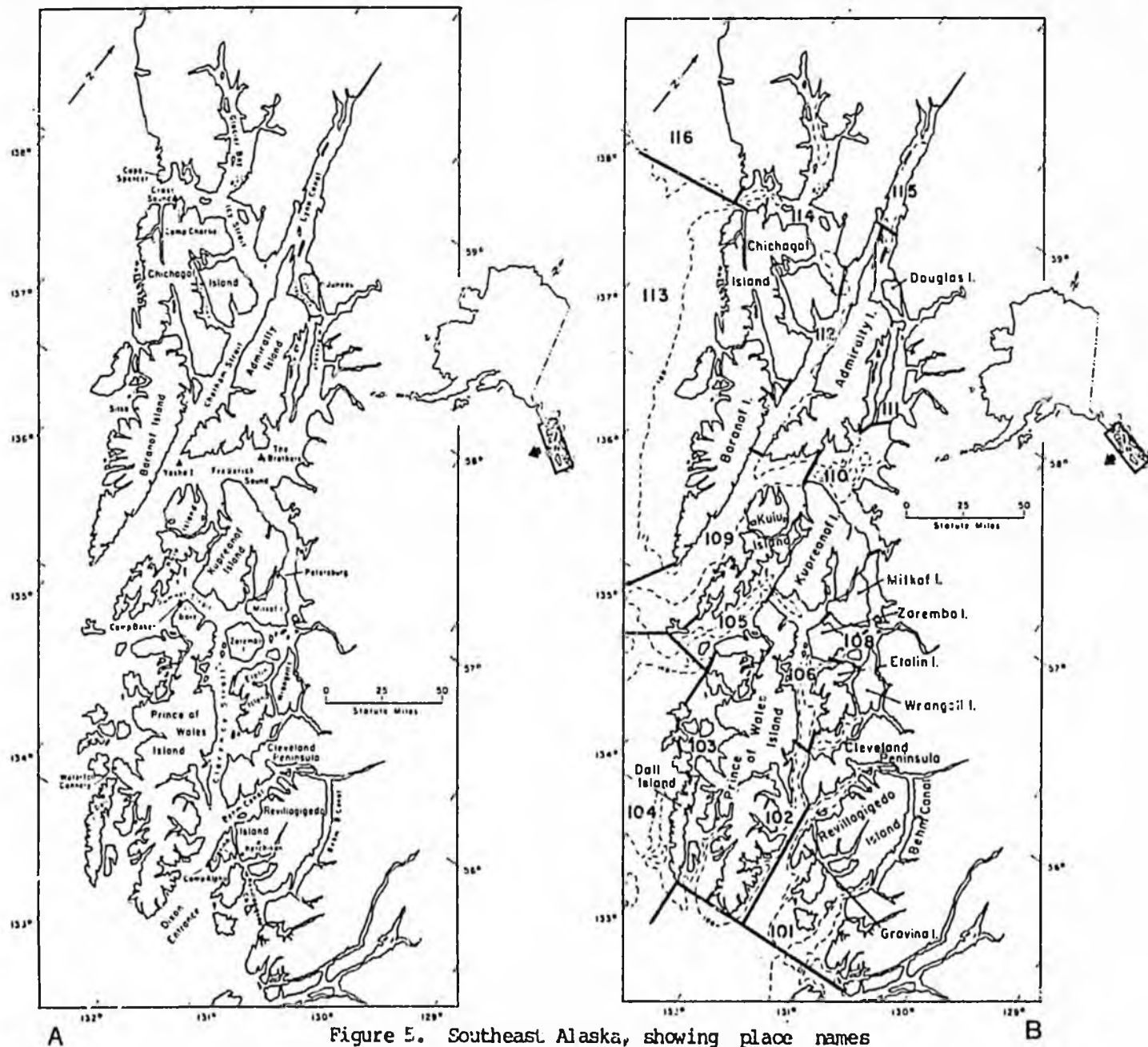


Figure 5. Southeast Alaska, showing place names referred to in the text (A) and ADFG statistical reporting areas (B).

Table 2 A. Vessels and shore camps used in Southeast Alaska, 1984: descriptions, general operating areas and levels of effort.

Platform	Dates of Operation	Areas of Operation	Description of Platform	Description of Activities	Average Speed (km/m;knots)	Eye Level (m;ft)	Total Distance Searched (km;nm)	Total Operating Days	Daylight Hours
S/R/V <u>Diamaresa</u>	20 Apr-15 Sept	Southeast Alaska	21m (68 ft) cutter-rigged motor sailer	supply shore camps; survey en route	13;7	2.75;9 to 18;60	10475;5966	148	1256.8
Zodiac	06 Aug-11 Sept	in association with Diamaresa	3.7m (12 ft) zodiac	support for Diamaresa	7;20	.9;3	696;375.5	11	53.4
R/V <u>Orca</u>	21 Apr-14 Sept	with Diamaresa, Camp C; outer coast, Cross Sound; Icy Strait; Glacier Bay; Lynn Canal	5.8m (19 ft) Boston Whaler; 165 OMG inboard-outdrive	survey	46;25	1.8;6	6362;3433	86	621.8
R/V <u>Orcinus</u>	28 Jun- 27 Aug	Camp A; Ketchikan; Revillagigedo Channel; Belm Canal; Clarence Strait	5.8m (19 ft) Boston Whaler; 165 OMG inboard-outdrive	survey	46;25	1.8;6	1400;755	19	107.1
R/V <u>Shachi</u>	20 Jun-22 Aug	Ketchikan to Icy Strait; outer coast Kupreanof	5.8m (19 ft) Boston Whaler; 165 OMG inboard-outdrive	survey	46;25	1.8;6	1368;738	12	107.7
R/V <u>Black Whale</u>	3 Aug-10 Sept	Frederick Sound, Stephens Passage	5.8m (19 ft) zodiac Grand Raid; 115 hp Mercury outboard	survey	46;25	1.8;6	2948;1591	28	283.8
SUBTOTAL							23827;12858.5	303	2430.6
Camp A	15 May-17 Aug	West Gravina Island (55°10'N, 131°48'W)	cabin; blind at lookout point	shore watch	N/A	9.1;30	N/A	25	260.2
Camp B	18 Jun-30 Jun	Pt. Baker (56°21'N 133°35'W)	mobile home on log floats	shore watch	N/A	2.4;8	N/A	13	52.9
Camp C	28 June-19 Aug	Big George Island (58°12'N, 136°23'W)	cabin; platform at gun emplacement	shore watch	N/A	12.2;40	N/A	36	428.3
Camp D1	08 Aug-20 Aug	Yasha Island (56°58'N, 134°33'W)	tent	base camp for Black Whale	N/A	5.5;18	N/A	7	30.0
Camp D2	29 Aug-10 Sept	Brother's Island (57°17'N, 133°52'W)	tent	basecamp for Black Whale	N/A	N/A	N/A	11	-
SUBTOTAL TOTALS							23827;12858.5	92 395	771.4 3202

Table 2 B. Vessels used in Southeast Alaska: levels of effort.

		Coverage by ADFG Statistical Reporting Area (a)															
Month	Platform	Periods of Operation	101	102	103	104	105	106	108	109	110	111	112	113	114	115	116
April/May	Dianaresa	20 Apr-31 May	23	13	15	3	4	12		1	1	3	9		16		
	Orca	21 Apr-31 May	28	11	5	2	6	6					2		13		
	Subtotal		51	24	20	5	10	18		1	1	3	9		29		
June/July	Dianaresa	1 June-31 July	55	11			5	20	6	10	10	31	42	33	18		2
	Orcinus	28 June-31 July	25														
	Orca	1 June-31 July	11							2			1	20	76	0	4
	Shachi	20 June-31 July	11										8	9	7		
	Subtotal		102	11			5	20	6	12	10	31	51	62	101		6
Aug/Sept	Dianaresa	1 Aug-15 Sept	28	16	16	2	3	16	6	2	24	35	23	18	11	9	
	Orcinus	1 Aug-27 Aug	58														
	Orca	1 Aug-15 Sept					2	2					2				9
	Shachi	1 Aug-22 Aug	2	1				6	1	3	3		7	6	3		
	Black Whale	3 Aug-10 Sept								11	50	15	3				
Subtotal		86	17	16	2	5	24	7	16	77	50	35	24	14	18		
TOTAL			239	52	26	7	20	62	13	28	88	84	95	86	144	18	6

(a) Numbers following periods of operation indicate the number of times vessels operated within some part of the indicated zone.

Otherwise these camps served only as a housing bases, providing ready access by skiff to Chatham Strait, Frederick Sound and Stephens Passage.

Five vessels were involved in field operations (Table 2). The principal survey platform was the SRV Diamaresa, a 21 m (68 ft) cutter-rigged motor sailer which supplied the shore camps and surveyed areas inaccessible to the camps. Coverage by the SRV Diamaresa consisted primarily of routes conveniently connecting shore camps with one another and with supply centers (Figure 6A). During 10,475 km (5,966 nm) of daylight transits one to six observers maintained watch from the wheelhouse, the deck outside, the top of the wheelhouse, or, weather permitting, the top spreaders, some 18.3 m (60 ft) off the water. Also, when weather permitted, a 3.7 m (12 ft) Zodiac and/or a 5.8 m (19 ft) Boston Whaler were deployed from the SRV Diamaresa to expand the search area.

Three 5.8 m (19 ft) Boston Whalers operated during the field season (Table 2; Figure 6B). The R/V Orcinus operated in the vicinity of Ketchikan and Camp A. The R/V Shachi ranged from Ketchikan to Icy Strait and the outer coast of Kupreanof Island, operating independently of the base camps and the SRV Diamaresa. The R/V Orca operated with the SRV Diamaresa for the first 35 days of the season, after which it was stationed at Camp C and Elfin Cove until early September. In early September it operated with the SRV Diamaresa during a survey of Lynn Canal.

The remaining survey vessel, the R/V Black Whale, a 5.8 m (19 ft) Zodiac Grand Raid, operated from Yasha and the Brothers Islands and searched primarily in Frederick Sound and Stephens Passage (Table 2; Figure 6B).

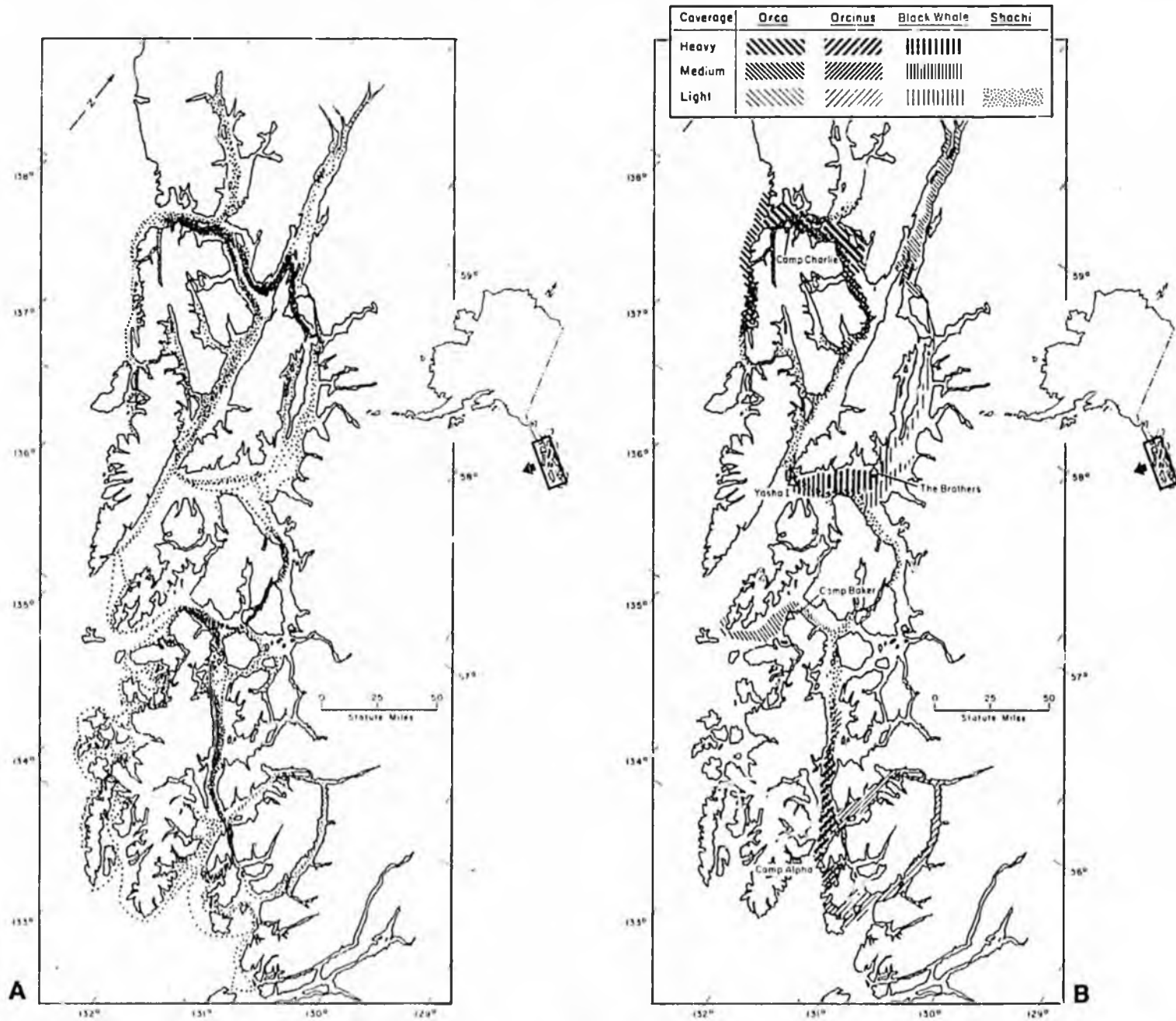
Prince William Sound

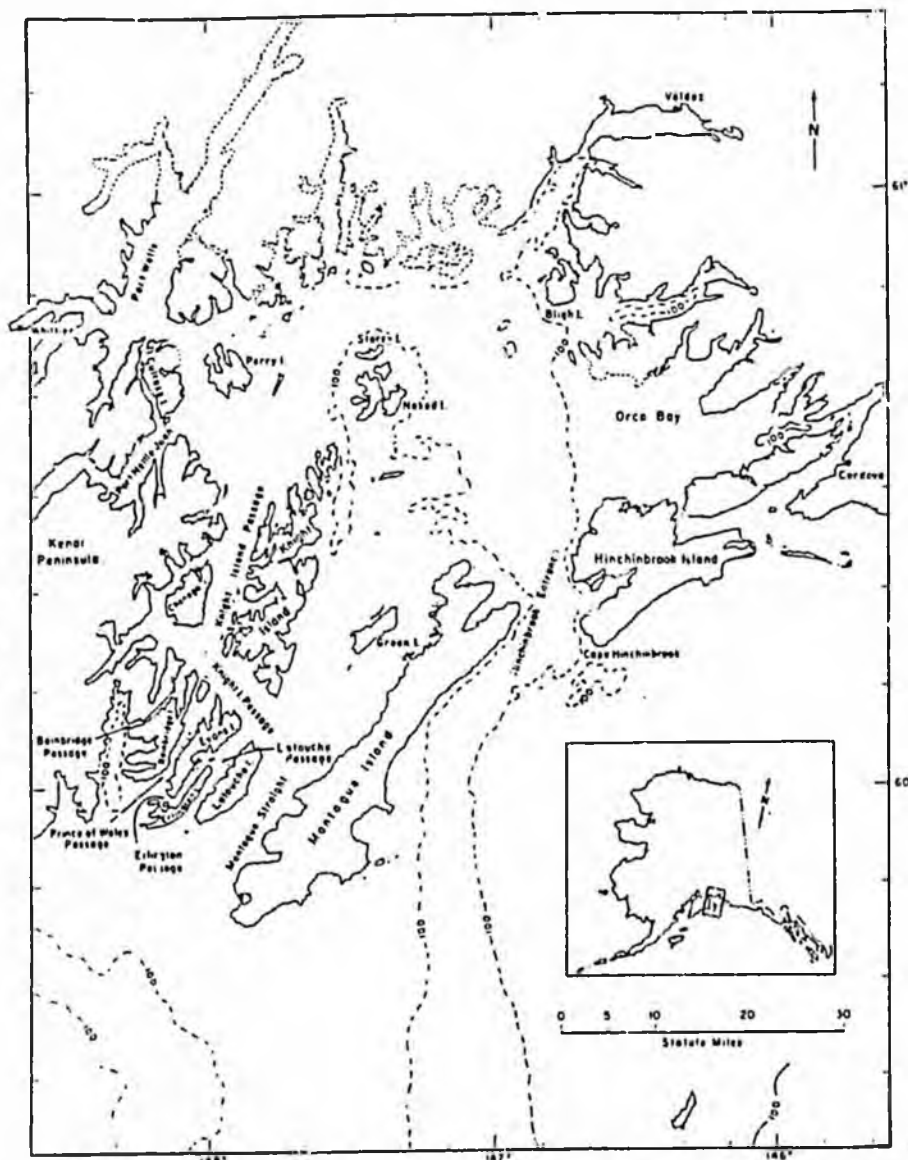
Prince William Sound, at the northern end of the Gulf of Alaska (Figures 1 and 7), is a deep, convoluted embayment extending from just below 60 N to just above 61 N between 145 30' W and 148 30' W. The Sound is connected to the adjacent Gulf by two major entrances, Hinchinbrook Entrance and Montague Strait, and by five smaller passages, four on the southwest, one on the southeast.

Information available on killer whales in Prince William Sound was reviewed by Leatherwood et al., (1984). Based principally on systematic surveys conducted between 1976 and 1983 (Hall 1979, 1981, in press; Matkin, 1980; Matkin and Matkin, 1981) and miscellaneous reports of incidental observations 1958-1981 (Braham and Dahlheim, 1982), the population appears to vary in abundance seasonally, to be distributed widely within the Sound part of the year but to concentrate seasonally in such areas as Knight Island Passage. It was determined by minimum count to contain 80+ whales and was estimated to contain conservatively 100+ whales (Leatherwood et al., 1984). Some individuals from the population have been identified in several years since 1976 (Hall, in press; von Ziegeler et al., in preparation), but no further details on the population are published.

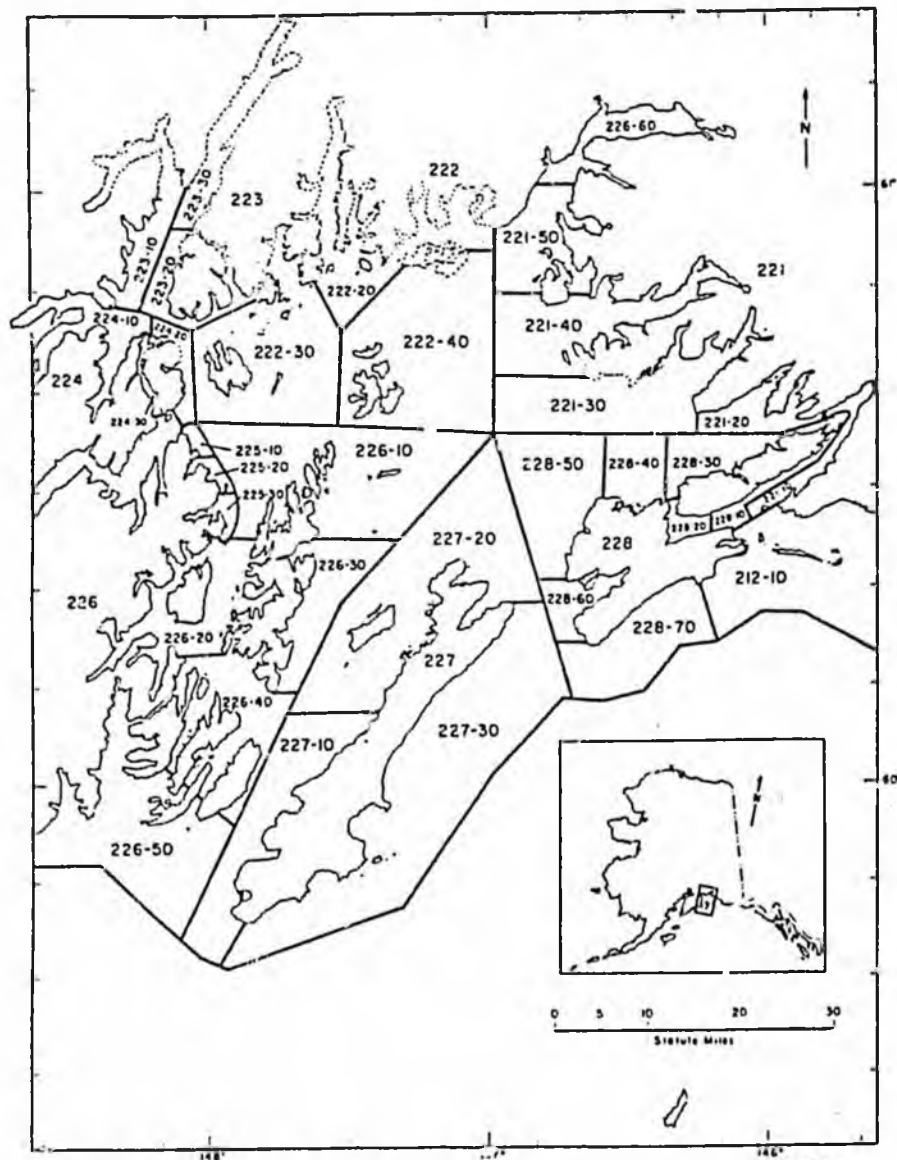
Fieldwork in the Sound began on 11 April and continued through 26 September. Two platforms were used, the R/V Pelican and the R/V Kestrel (Table 3).

Figure 6. Southeast Alaska, showing relative coverage by area by the SRV Diamaresa and associated skiff (A) and all other vessels (B). The relative density of dots in (A) indicates relative coverage.





A



B

Figure 7. Prince William Sound, showing place names referred to in the text (A) and ADFG statistical reporting areas (B).

Table 3. Areas and levels of coverage in Prince William Sound, 1984.

					Coverage, By ADFG Statistical Reporting area (a)														
PLATFORM	Periods of Operation	Search Effort			221		222		223	224		225	226			227	228		
		Days	Hrs./Mins.	Miles	10	20 30 40 50	10	20 30 40		10	20 30 40	10 20 30	10	20 30 40 50	10 20	10	20 30 40 50		
R/V Kestrel	4/10-5/12	28	279/05	1359	2	2 3 3	5 15						16	3 3 1	10	2	2 4 5 5		
R/V Pelican	4/29-5/2	4	40/00	253		1 1	2 2		2 1				2						
	5/11-5/13	3	22/40	185			1 2 1		2 1				4	1 1 1 1					
Subtotals		35	341/45	1797	2	2 4 4	1 9 18		4 2				22	4 4 2 1	10	2	2 4 5 5		
R/V Kestrel	5/18-6/28	33	382/54	1629	4	2 4	3		2 3 3	2 6 3		9	20 10 12	4		4 6 3			
R/V Pelican	5/24-5/28	5	41/30	243			3 2		2 2 1 1			3	1 3 1	1 1					
	6/7-6/10	4	27/30	215			2 2	1	2 1 1 1			4	1 3 1	1 1					
	6/18-6/22	5	38/05	279			1 2 2		2 2			3	1 1 4 1	2 1					
Subtotals		47	489/59	2366	4	2 4	1 7 9	1	8 8 2 5	2 6 3		19	23 11 22 3	4 7		4 6 3			
R/V Kestrel	7/5-8/31	55	515/55	1870	2	3 1	1 2					10	22 18 32 4	1 2					
R/V Pelican	7/5-7/8	4	27/30	217			2 5		4 6 1			4	1 2 3	1 1					
	7/17-7/20	4	28/00	270					2 2			2	2 2 3	1 1					
	7/27-7/30	4	34/00	216			2		2 1			3	2 5 1	1 1					
	8/2-8/9	8	23/00	152			1		2 2 1 1	1		3	2 2						
	8/16-8/19	4	39/00	108					2 3 2	2 1 2		1	2 2						
Subtotals		79	667/25	2833	2	3 1	6 7		12 11 4 4	3 1 2		23	31 22 47 5	4 5					
R/V Kestrel	9/1-9/26	19	192/5	702	2	1						3	3 8 2 6	1 3	1	1 1 2			
Subtotals		19	192/50	702	2	1						3	3 8 2 6	1 3	1	1 1 2			
Totals		180	1711/54	7698	10	5 5 4	2 22 34	1	24 21 6 11	5 7 8		67	66 39 77 9	8 22	2	2 9 12 10			

(a) Numbers following periods of operation indicate the number of days in which some part of the indicated zone was surveyed.

Table 3. Areas and levels of coverage in Prince William Sound, 1984.

				Coverage, By ADFG Statistical Reporting area (a)																	
PLATFORM	Periods of Operation	Search Effort			221		222		223	224		225		226			227		228		
		Days	Hrs./Mins.	Miles	10	20 30 40 50	10	20 30 40		10	20 30 40	10	20 30	10	20 30 40 50	10	20	10	20 30 40 50		
R/V Kestrel	4/10-5/12	28	279/05	1359	2	2 3 3		5 15						16	3 3 3		10		2 2 4 5 5		
R/V Pelican	4/29-5/2	4	40/00	253		1 1		2 2		2 1				2							
	5/11-5/13	3	22/40	185				1 2 1		2 1				4	1 1 1 1						
Subtotals		35	341/45	1797	2	2 4 4		1 9 18		4 2				22	4 4 2 1		10		2 2 4 5 5		
R/V Kestrel	5/18-6/28	33	382/54	1629	4	2 4		3		2 3 3		2 6 3		9	20 10 12		4		4 6 3		
R/V Pelican	5/24-5/28	5	41/30	243				3 2		2 2 1 1				3	1 3 1		1 1				
	6/7-6/10	4	27/30	215				2 2	1	2 1 1 1				4	1 3 1		1 1				
	6/18-6/22	5	38/05	279				1 2 2		2 2				3	1 1 4 1		2 1				
Subtotals		47	489/59	2366	4	2 4		1 7 9	1	8 8 2 5		2 6 3		19	23 11 22 3		4 7		4 6 3		
R/V Kestrel	7/5-8/31	55	515/55	1870	2	3 1		1 2						10	22 18 32 4		1 2				
R/V Pelican	7/5-7/8	4	27/30	217				2 5		4 6 1				4	1 2 3		1 1				
	7/17-7/20	4	28/00	270						2 2				2	2 2 3		1 1				
	7/27-7/30	4	34/00	276				2		2 1				3	2 5 1		1 1				
	8/2-8/5	8	23/00	152				1		2 2 1 1	1			3	2 2						
	8/16-8/19	4	39/00	108						2 3 2		2 1 2		1	2 2						
Subtotals		79	667/21	2833	2	3 1		6 7		12 11 4 4		3 1 2		23	31 22 47 5		4 5				
R/V Kestrel	9/1-9/26	19	192/50	702	2	1							3	3 8 2 6		1 3		1 1 1 2			
Subtotals		19	192/50	702	2	1							3	3 8 2 6		1 3		1 1 1 2			
Totals		180	1711/59	7698	10	5 7 5 4		2 22 34	1	24 21 6 11		5 7 8		67	66 39 77 9		8 22		2 2 9 12 10		

(a) Numbers following periods of operation indicate the number of days in which some part of the indicated zone was surveyed.

The R/V Pelican is a an 8.2m (27 ft) fiberglass "Ocean Dory" powered by a 160 hp Volvo diesel inboard-outboard. Operating speed was generally 22 km/hr (12 knots), top cruising speed 31.5 km/hr (17 knots). Observers searched from the wheelhouse [eye level about 2.1m (7 ft)] or the top of the wheelhouse [eye level about 3.7m (12 ft)]. The R/V Pelican was capable of accommodating three to four scientists or observers comfortably for up to a week without refueling or reprovisioning.

Between 29 April and 19 August the R/V Pelican made 10 surveys, three to five days each, principally of northwestern, central and southwestern Prince William Sound. Surveys covered a total of 4,295 km (2,318 nm), distributed by area as shown in Table 3 and Figures 8A and B. The principal purpose of the surveys was to search for killer whales in areas of the Sound not being covered extensively by other means.

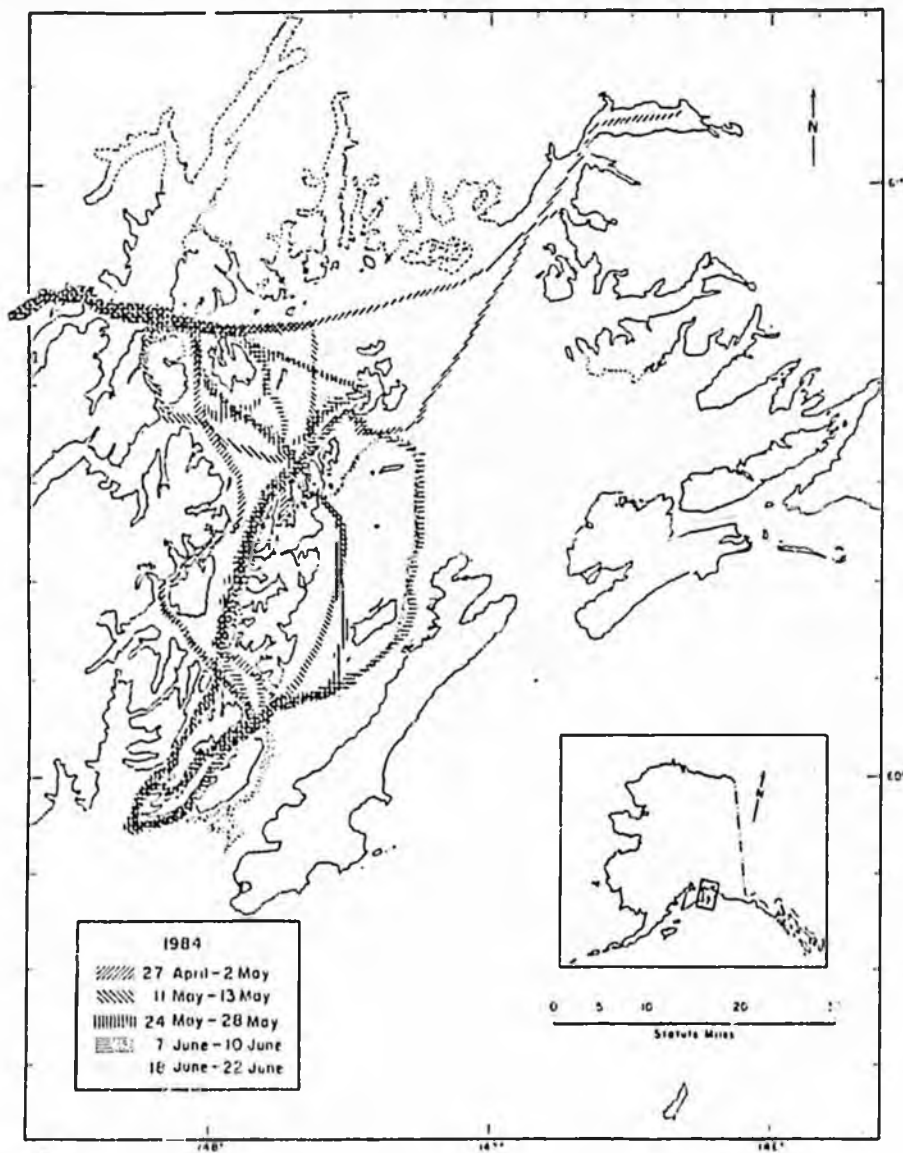
The R/V Kestrel is a 8.2m (27 ft) "bowpicker" design gillnetter powered by a 155 hp Volvo diesel inboard-outboard capable of speeds up to 27.8 km/hr (15 knots). The hydraulic reel and gillnet rollers were removed from the foredeck and bow, providing good visibility and a large, open area for observation and photography. In good sea conditions it was possible for one person to operate the vessel and simultaneously take photographs from the forward steering station. The research team (generally two scientists) was able to remain on board for extended periods. Fuel, which is generally unavailable in remote areas of the Sound, was purchased under special arrangement from Prince William Sound Aquaculture Corporation and from commercial fishing tenders. This enabled the R/V Kestrel to remain at sea for protracted periods.

The crew of the R/V Kestrel used the published information described above, their own previous research experience with whales in the Sound (Matkin, 1980; Matkin and Matkin, 1981; von Ziegesar and Goodwin, 1981; von Ziegesar et al., in prep.), and reports from vessel and aircraft operations, in 1984 and in previous years, to select focal areas for various parts of the 1984 field season.

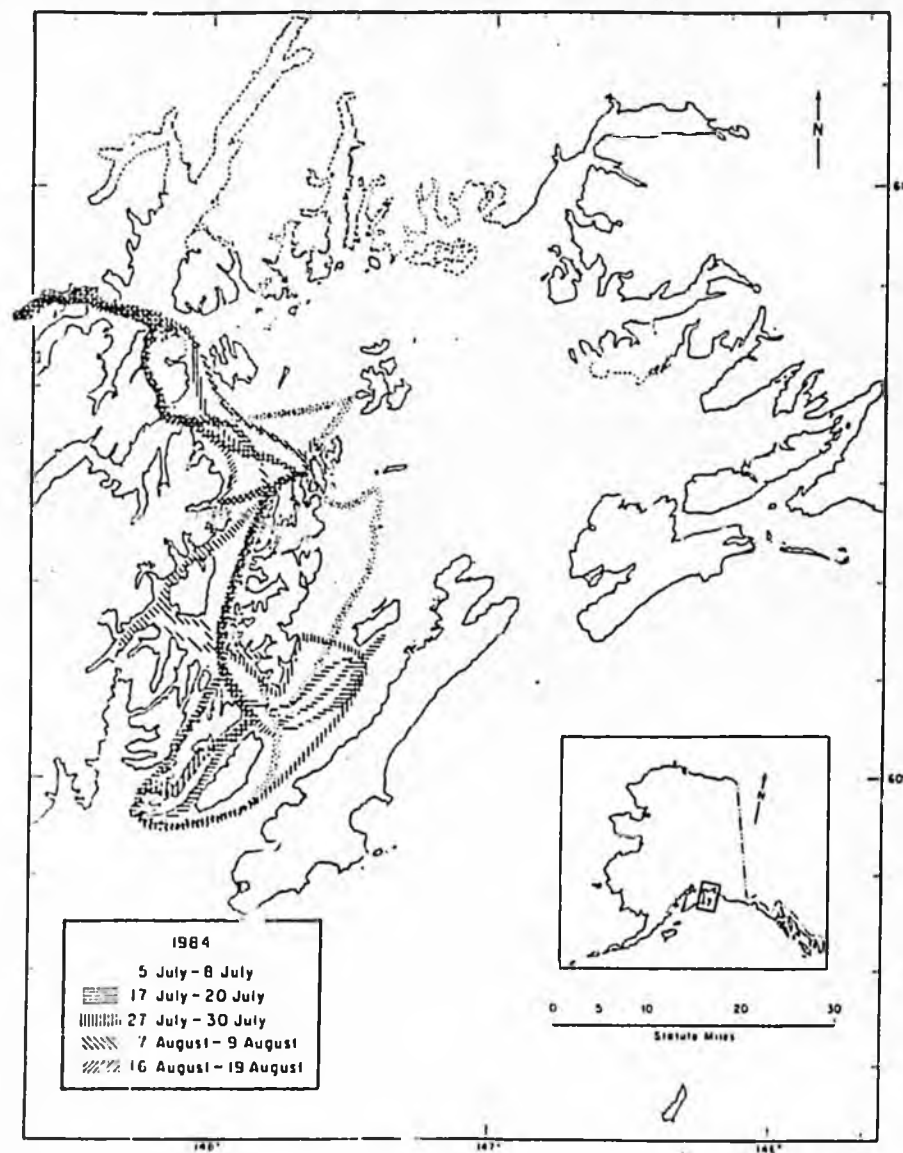
In the spring, the R/V Kestrel concentrated on the central Sound (Table 3; Figures 8C and D). Searches for killer whales were initiated on 10 April in the area of Smith and Naked islands, where herring spotter pilots were reporting repeated sightings of killer whales, and were continued there through 12 May (the end of the herring season). A total of 2,518 km (1,359 nm) of survey track was logged during 28 days of operation. In the summer and early fall, effort shifted to the southwestern Sound (Table 3, Figures 8C and D), principally waters of Knight Island Passage, Montague Strait and the four smaller southwestern passes.

Overall, the crew searched for or tracked killer whales a total of 10,303 km (5,560 nm) in 135 survey days, an average of 76.3 km (41.2 nm) per survey day. The vessel was weathered-in and unable to be used to search for whales on only five days.

Areas of coverage by the R/V Kestrel became more constricted in August and September, as most sightings during salmon season originated in portions of the Sound south and west of Knight Island (Figures 8C and D). During this period members of the salmon purse seine fleet and salmon spotter pilots provided

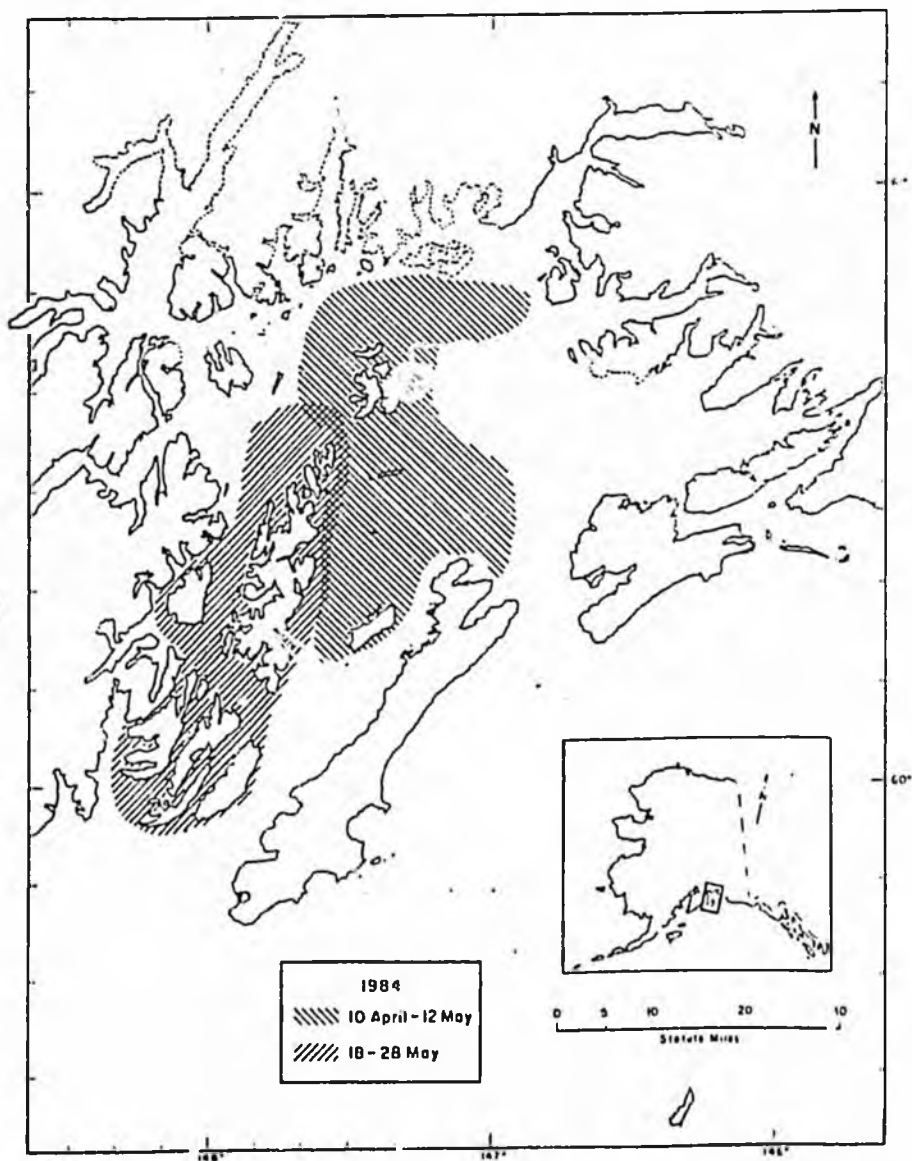


A

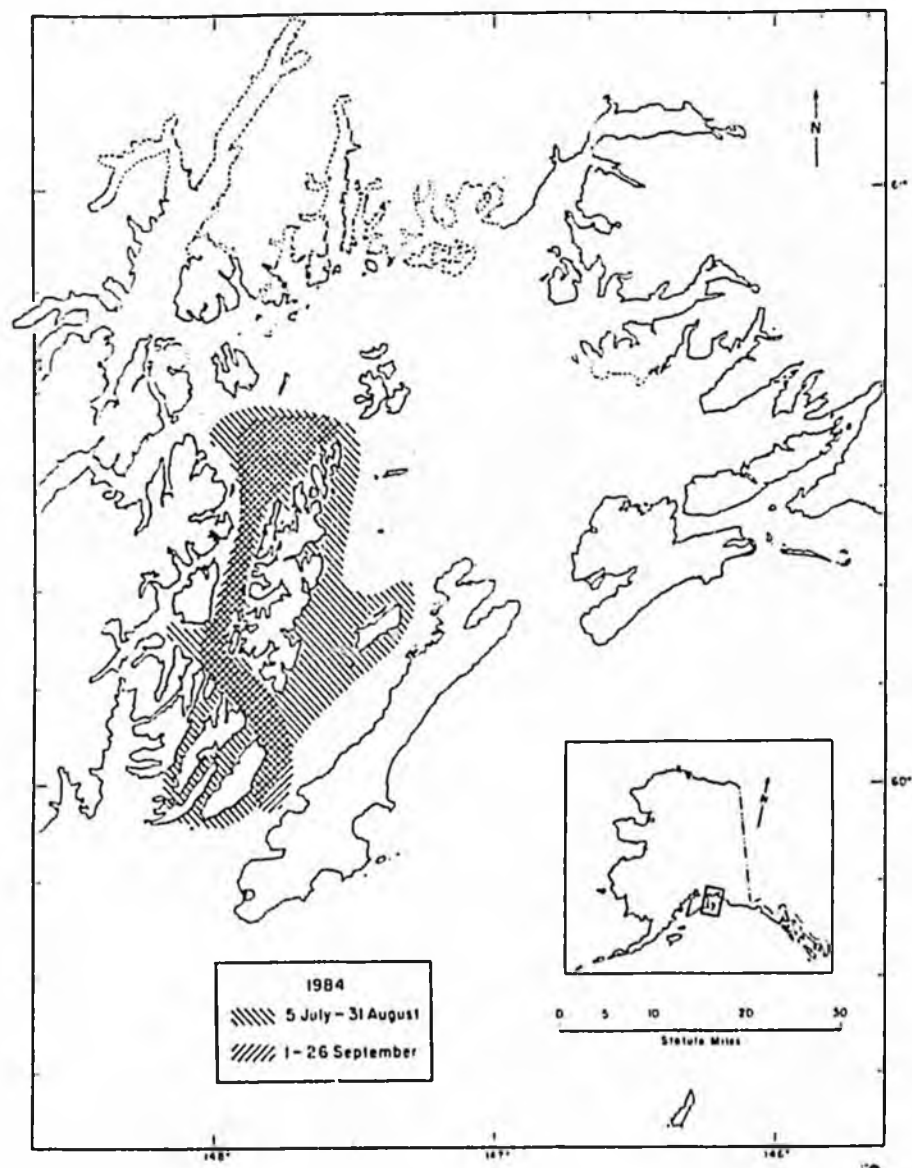


B

Figure 8. Prince William Sound, showing coverage by the R/V Pelican (A,B) and the R/V Kestrel (C,D).



C



D

valuable help by reporting their sightings of killer whales.

Shelikof Strait

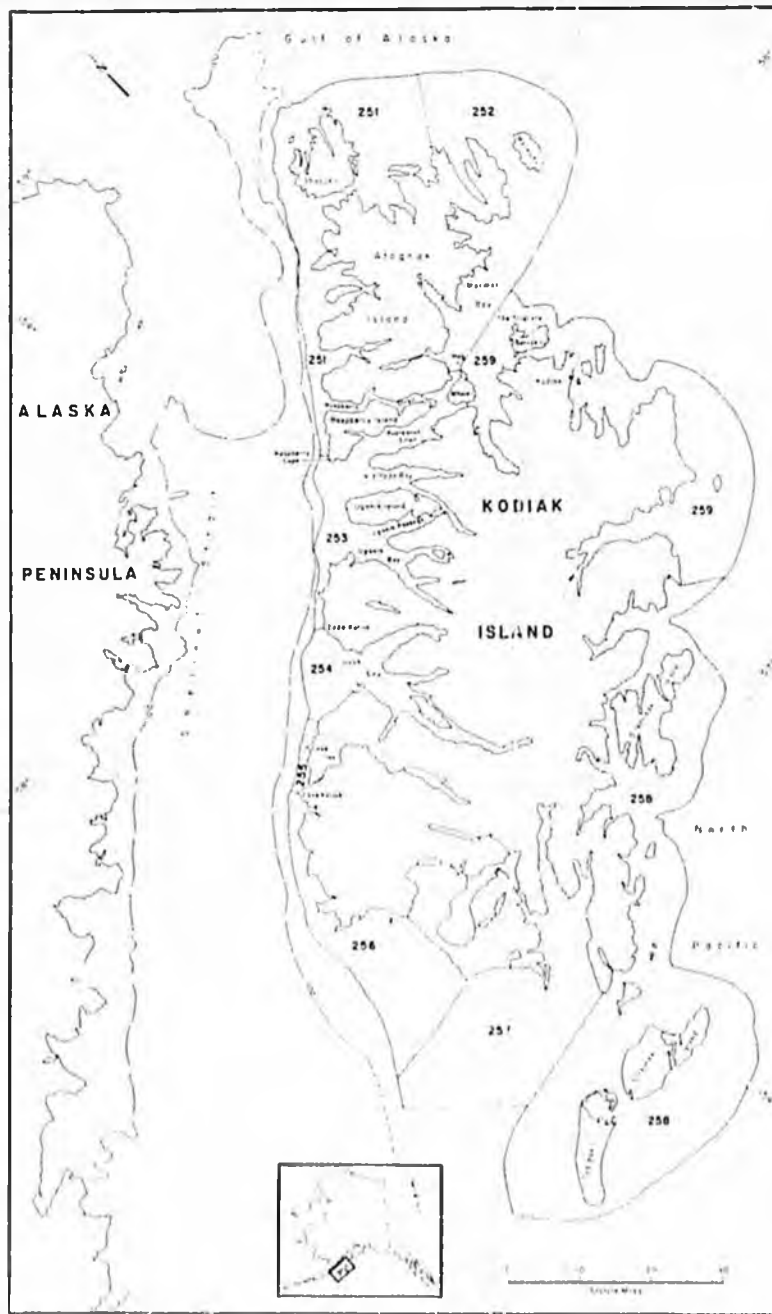
Shelikof Strait is the approximately 31,000 km² (9,000 nm²) body of water which separates Kodiak and Afognak islands, and their associated islets, from the nearby Alaskan Peninsula (Figures 1 and 9A). The Strait is 37-75 km (20-40 nm) wide and reaches oceanic depths 915-1,830m (500-1,000 fms) within a few kilometers of shore, particularly on its southwest end. The open Strait is well known for its bad weather, exacerbated by the dominant southwesterlies and the venturi effect they experience in the Strait, but the shores of the islands, and to a lesser extent the Alaskan Peninsula coast, are convoluted into large, deep and often quiet bays, inlets and fiords. The outer coasts of both islands are similarly configured.

Data available on killer whales of Shelikof Strait were reviewed by Leatherwood *et al.*, (1984). They reported a minimum count of 66 individuals, based on a single aerial sighting on 5 August 1982, and a minimum population estimate of 100. Killer whales have been seen in widespread localities in the Strait and adjacent Gulf of Alaska (Braham and Dahlheim, 1982; Leatherwood, *et al.* 1983; Leatherwood *et al.*, 1984). However, no data have been published on the identity of individual whales or pods using these areas.

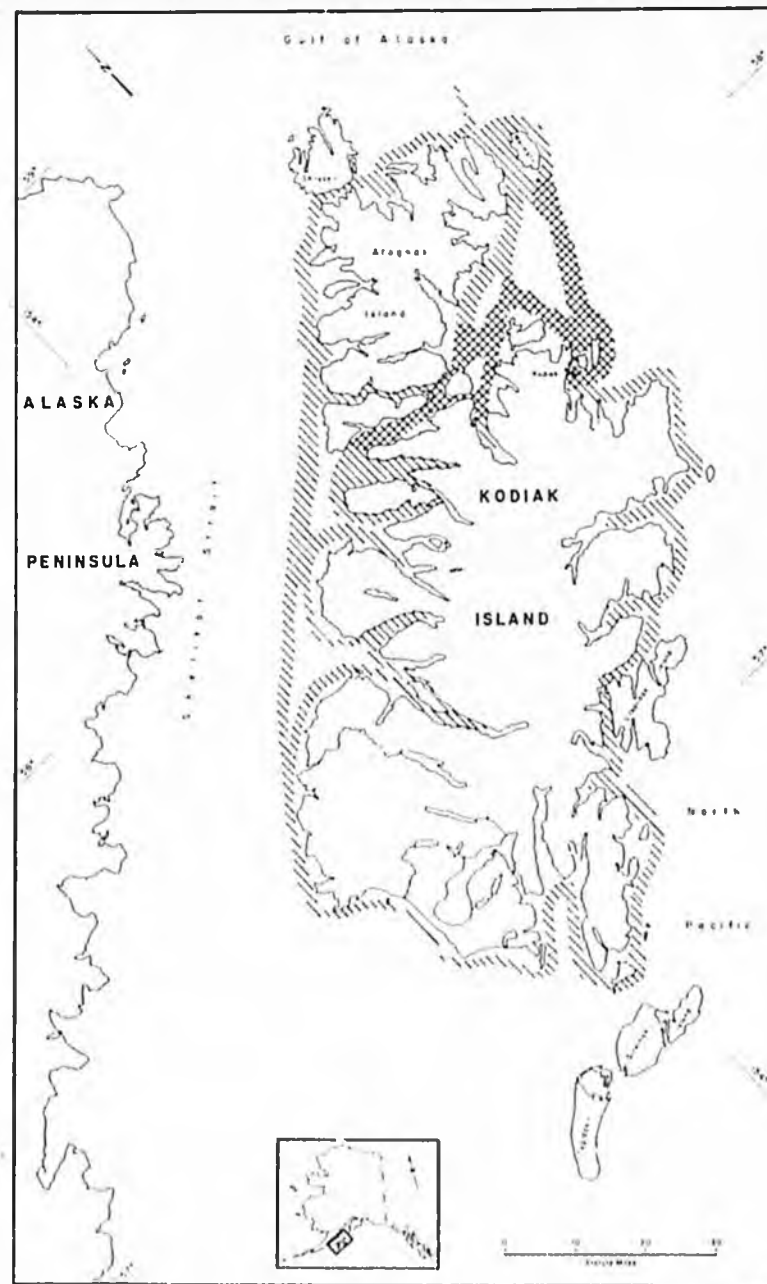
Concentrated research in Shelikof Strait will begin in 1985. During the 1984 field season activities were limited to reconnaissance surveys by aircraft and vessel (27, 28 and 29 August), photography of groups encountered by boat and collection of miscellaneous sighting reports from fishermen.

Aerial searches were made from a Partenavia P-68 Observer, a twin engine, high-wing, reconnaissance plane with a plexiglass nose cone and a 11 cm (28 in) blown-plexiglass bubble window at an observer station on each side. This configuration affords excellent visibility along and near the aircraft's survey track and appears suitable for quantitative aerial surveys of cetaceans (Larsen, 1984; Stewart, Yochem, Karl and Leatherwood, 1984). Surveys were flown at 163m (500 ft) altitude along the routes shown in Figure 9B, with the pilot and principal observer in front seats in the nose cone and one or two additional observers at the rear stations. As the principal purpose of searches during 1984 was to locate killer whales for close-up photography from a cooperating vessel, no attempt was made to randomize coverage for transect analysis. Instead, searches followed the coastal contour and remained within the vessel's cruising range. Aerial searches covered some 1,630 km (880 nm) in 20 flying hours. The remaining time was spent circling.

Vessel searches were made from the F/V Lucky Pierre, a chartered 13.7m (45 ft) whaleback Troyer Crabber, working in coordination with the aircraft. The four observers aboard searched for animals along the routes shown in Figure 9C, watching from the cabin (in inclement weather) or the top of the wheelhouse, where eye level is about 4 m (13 ft) off the water. Vessel searches covered some 370 km (200 nm) in 36 hrs. When the aircraft located killer whales, the vessel altered course, proceeded to the location and attempted to photograph the whales.

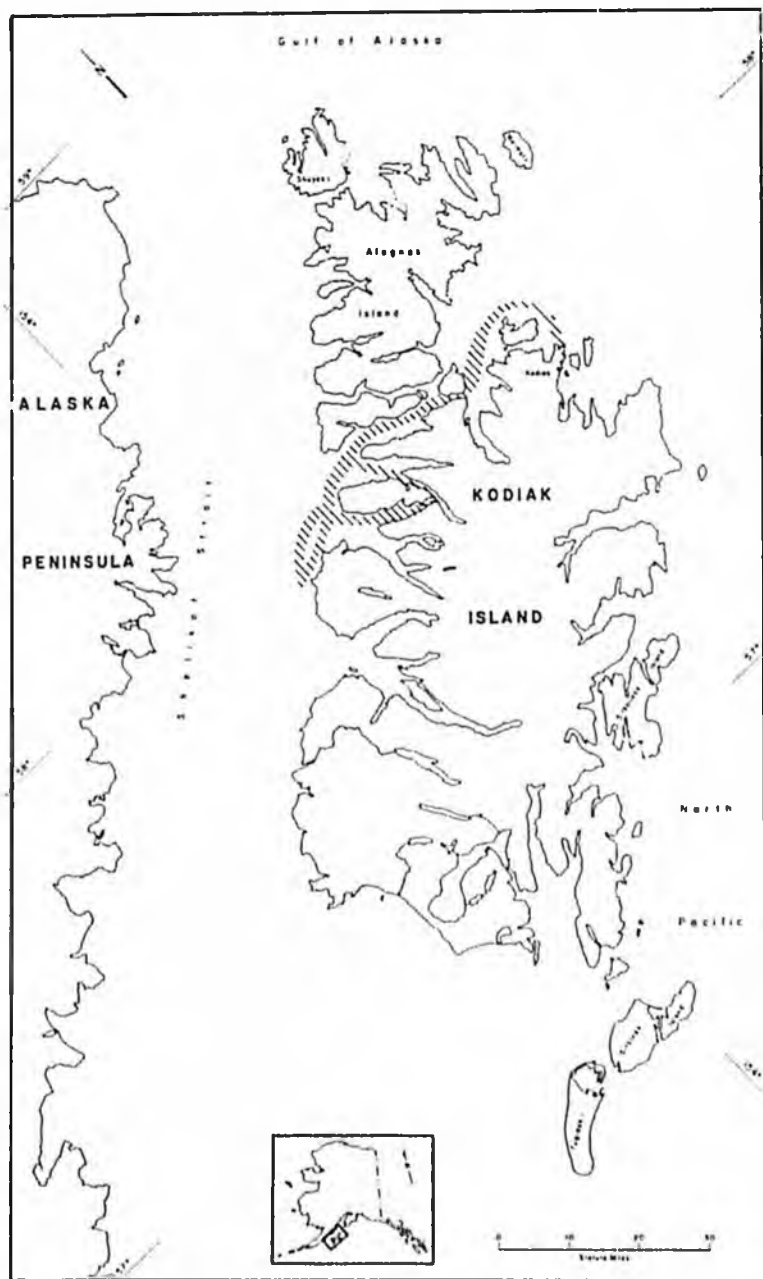


A

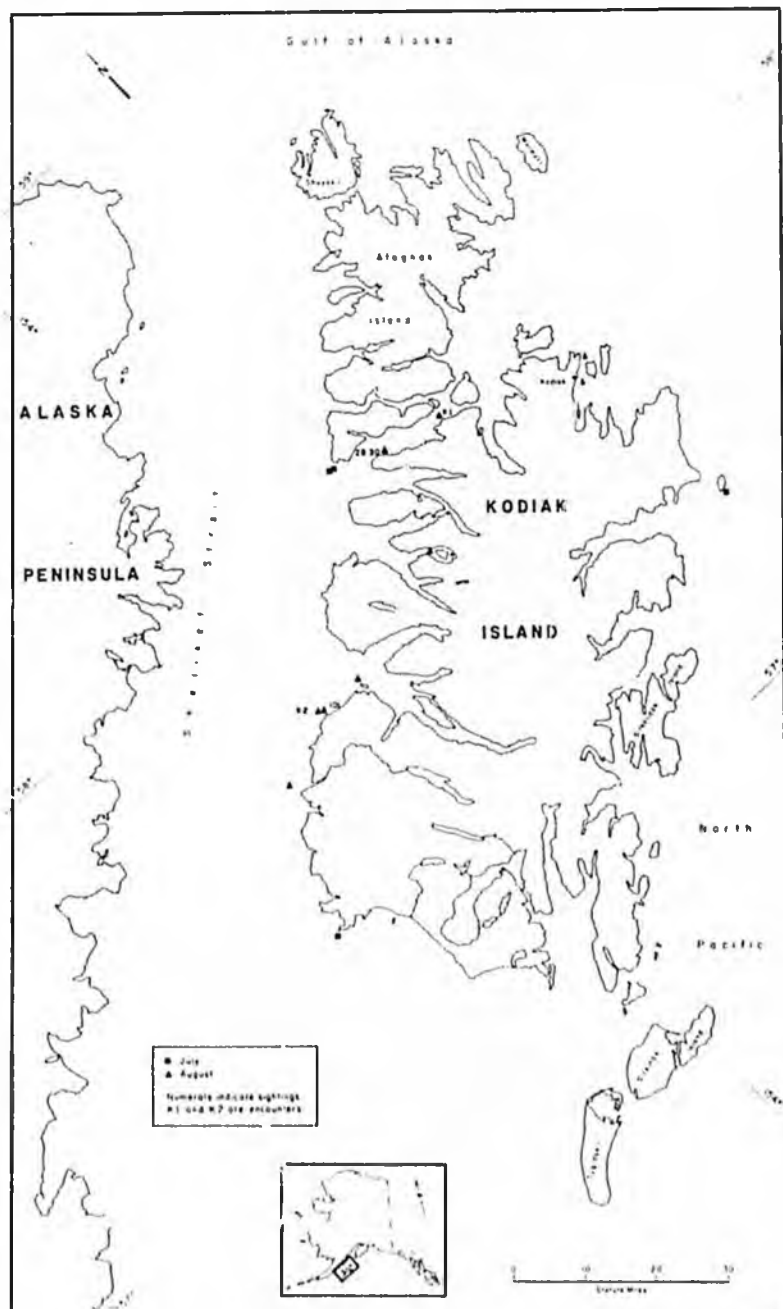


B

Figure 9. The Kodiak Island region showing: Place names and ADFG statistical reporting areas (A); aerial search areas 27-29 August (B); boat search areas 27 and 28 August (C); and sightings, reports and encounters of killer whales (D) (Figure continued on page 24.).



C



D

During all three days in Shelikof Strait seas were calm (less than Beaufort 4), making it easy to locate whales, but thick low overcast and intermittent rain made skies dark and unsuitable for photography. Further, most whales would not permit close approach by the vessel.

RESULTS AND DISCUSSION

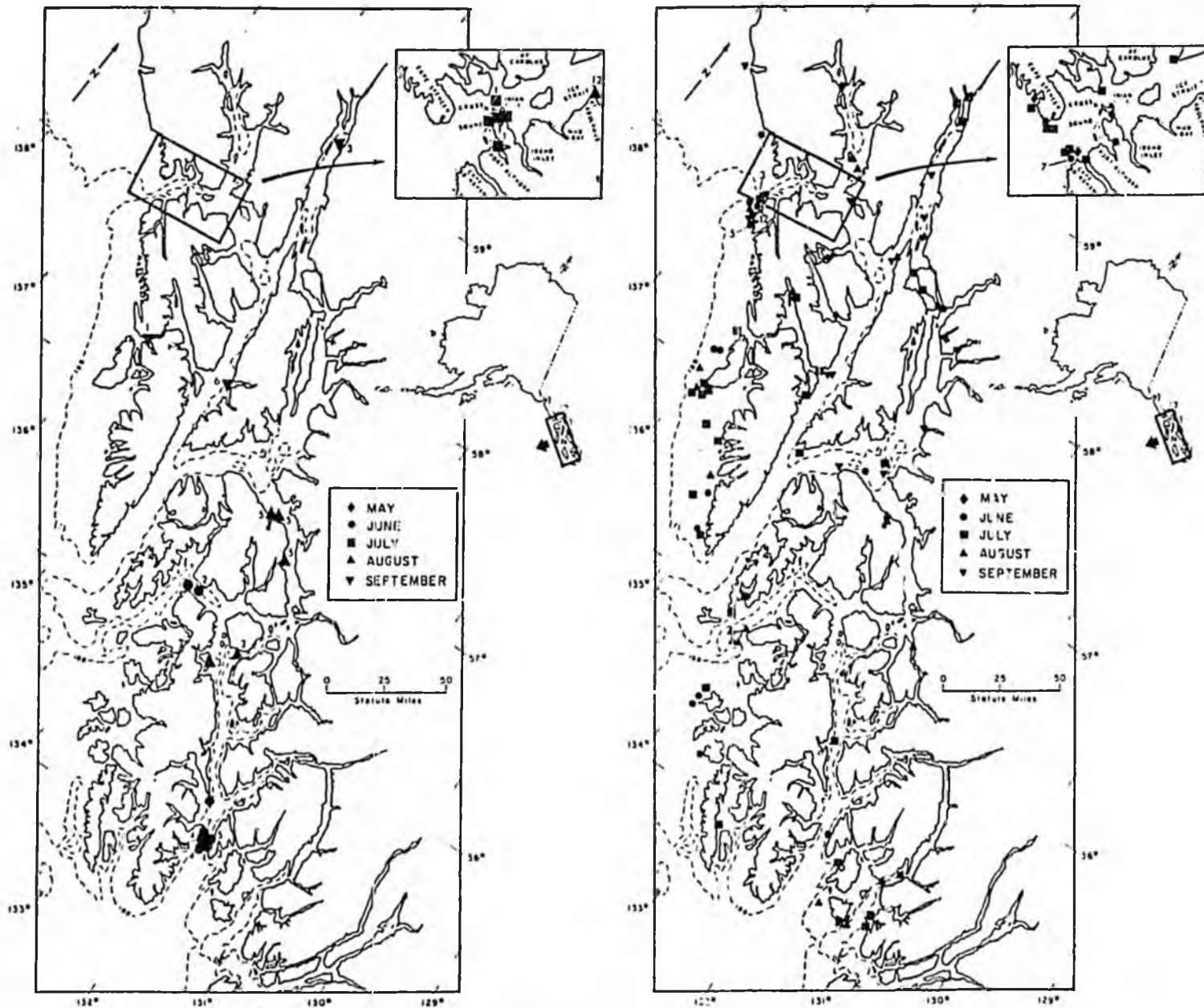
Experience during 1984 demonstrated that in southern Alaska as elsewhere, most killer whales are distinctively pigmented or scarred and can be distinguished by such natural tags from one encounter to the next (see Figure 4). Data on killer whales are presented and discussed below, by study area. Photographs of humpback whales, *Megaptera novaeangliae*, identified from tail fluke patterns are present in McSweeney (editor) in preparation. Details of observations of other marine mammals will be reported elsewhere (Miller, et al., in prep.).

Southeast Alaska

Between 24 April and 26 September we logged data on 192 observations of killer whales. One hundred and sixty-two were sightings or reports which resulted in no photographic data useful in the present analysis. The 24 sightings (Figure 10A) were from our vessels or shore camps, made when it was not possible to track or photograph the whales. Sixty-five of the 138 reports (Figure 10B) were from vessels participating in the logbook program of the ATA; seventy were from fishing, sport and passenger vessels; three were instances in which killer whales were acoustically detected by hydrophone monitoring but could not be located. Details of sightings and reports are on file at HSWRI and will be provided on request.

Twenty-six of the observations were encounters in which the whales were approached, tracked and photographed for identification of individuals (Table 4, Figure 11). During such encounters whales were tracked for a total of 77.21 hrs (range 0.62 to 12.65, x 3.22) and a total distance of 379 km (204.4 nm) (x = 15.75 km (8.5 nm)/encounter). Average rate of travel was about 4.89 km/hr (2.64 kts). Approximately 95 rolls of Tri-X (about 3100 frames) were exposed. Killer whale vocalizations (total about 120 minutes) were recorded in two encounters.

A total of 70 individual killer whales was positively identified from photographs and catalogued into eight pods (or clans) we identified as occurring in Southeast Alaska in 1984 (Table 5; Ellis, ed., in prep.). In addition, three members of a ninth pod (AR) [(originally identified off British Columbia, designated R-pod, and known to contain 19 individuals (Bigg, 1982)] were positively identified from photographs taken of a large group encountered twice off western Prince of Wales Island in August. We add all members of AR (=R) pod, as recommended by Bigg (1982) under the assumption that if some pod members are present all are. From photographs of two other encounters we recognize seven additional individuals which cannot be assigned to a pod because of incomplete photographic coverage. They are listed under a miscellaneous category pending further photographs. When the above are combined, one derives a minimum count of 96 killer whales in Southeast Alaska based on photographs (Table 6). It is unlikely that in a single short season we encountered all pods



A Figure 10. Locations of sightings (A) and reports (B) of killer whales in Southeast Alaska, 1984. Numbers indicate estimated group size (A) or multiple reports from the location indicated (B).

Table 4. Encounters with killer whales in Southeast Alaska, 1984.

Encounter Number	Pods Present	Date	Time		Hours Tracked	Location		Distance Tracked (nm)	Number of Individuals (field est.)
			Start	End		Begin	End		
1.	AA	Apr 28	1030	1520	4.83	SW Gravina Is., Clarence Strait	0.5 nm E of Wedge Is.	6.7	6
+2.A	AF	May 27	1950	2400	4.17	South Inian Pass	Sisters Islands	34.5	18
2.B	AF	May 28	0001	0830	8.48				
3.	AB	May 29	1425	1625	2.00	South Inian Pass	3 nm W of N end Three Hill Is	4.5	6
4.	AM	Jun 02	1416	1705	2.82	SW of Douglas Is, Stephens Passage	1 nm S Pt. Hilda, Stephens Passage	5.4	3
5.	AG	Jun 04	0548	0826	2.63	1 nm E Pt. Adolphus	1 nm W Lemesurier Is.	14.0	16
6.	AG	Jun 26	1753	2000	2.12	South Inian Pass	E end Lemesurier Is.	3.6	16
7.	AL	Jun 28	1515	1800	2.75	off Yakobi Is	Cross Sound	6.4	10
8.	AL	Jul 07	2000	2200	2.00	North Inian Pass	Three Hill Island, Cross Sound	6.5	7
9.	AF	Jul 16	0700	0751	.85	Pt. Lull	Pt. Thatcher	8.8	20
10.A	AL	Jul 19	1130	1544	4.23	Pt. Adolphus	Pt. Gustavus	6.2	7
10.B	AL	Jul 19	2050	2300	2.17	Pt. Gustavus	E end Lemesurier Is	3.6	5
11.	AL	Jul 20	1035	1112	.62	Idaho Inlet (entrance, W shore)	Idaho Inlet	1.6	5
12.	AL	Jul 21	1420	1628	2.13	Pt. Adolphus	entrance Glacier Bay	8.8	5
+13.	AF	Jul 21	2020	2400	3.67	4 nm NNE Basket Bay, Chatham Strait	mid-strait off Angoon	11.0	20
14.	AQ	Jul 25	1320	1715	3.92	3 nm SE Pt. Tantaloon	1 nm S of Grand Is.	8.6	5
15.	A misc	Aug 07	1525	1930	4.08	.5 nm off Customs, House Cove, Off Mary Is., Felice Strait	2 nm SE Pt. Winalow, Revill. Channel	3.5	5
16.	AO	Aug 13	1057	1340	2.72	South Inian Pass	W shore Lemesurier Is.	5.0	4
17.	AO	Aug 17	1300	1505	2.08	Brothers Is., Frederick Sound	False Pt. Pybus	2.7	5
18.	AR	Aug 25				Buccarilli Bay	Ulton Channel	4.0	23
19.	AP	Aug 28	1534	1842	3.13	Pleasant Is.	Pleasant Is.	12.8	13
20.	AP	Sept 02	1226	2000	7.57	SW tip Harbor Is., Holkham Bay	E of South Is., Stephens Passage	20.0	18
21.	AG	Sept 08	0947	1112	1.42	3 nm ESE Porpoise Is.	1 nm SE Porpoise Is.	2.5	9
22.	A misc	Sept 08	1208	1610	4.03	sea lion rookery, back of Gambler Bay	Chapel Is.	4.6	2
23.	AO	Sept 10	1009	1132	1.38	Pt Glass	1 nm N of Twin Pt	9.0	4
24.	AO	Sept 10	1907	2033	1.43	N end Admiralty Is.	Pt. Tantaloon	2.6	5

Note: (+) preceding encounter number indicates acoustic recordings were made during that particular encounter.

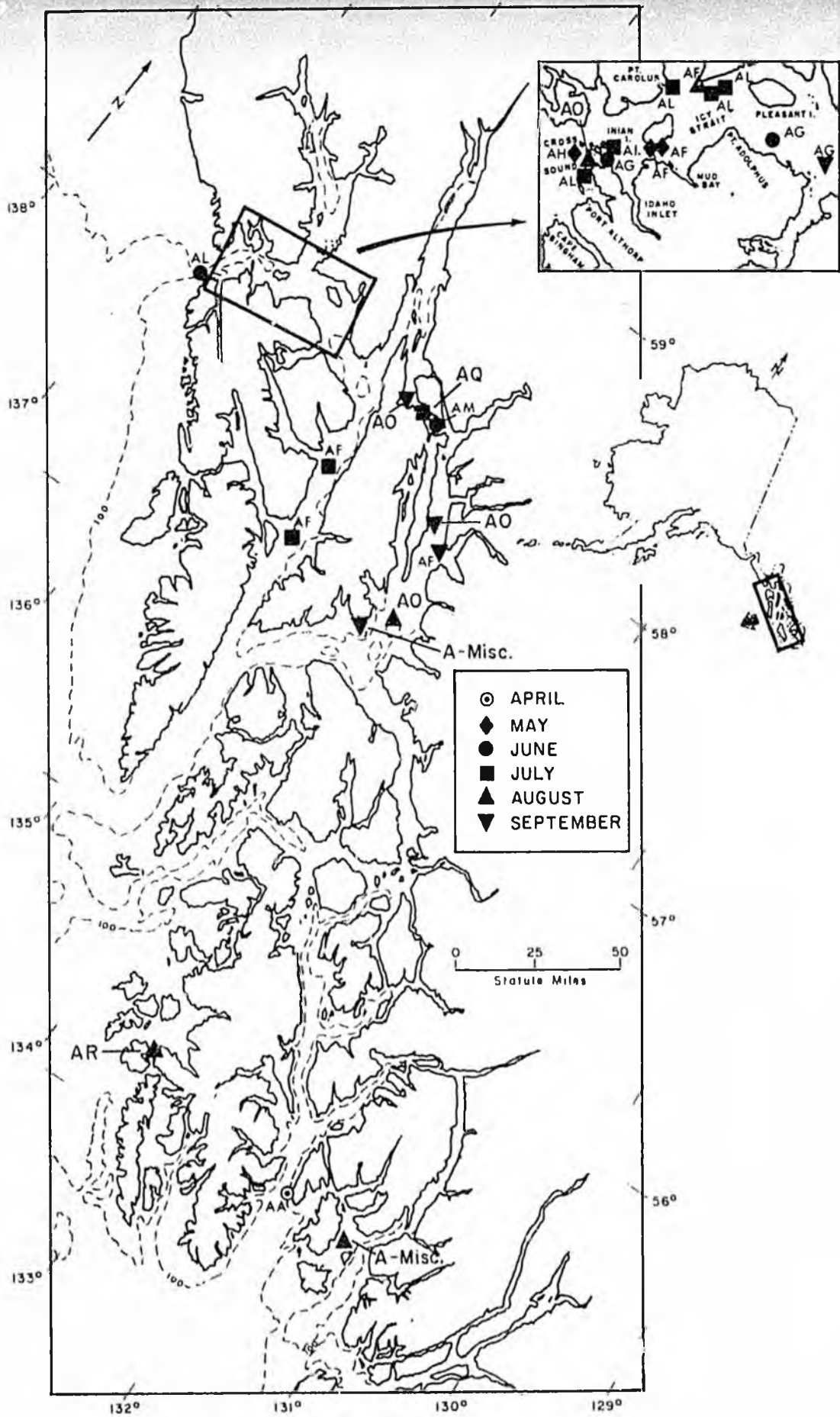


Figure 11. Locations of encounters with killer whales, Southeast Alaska, 1984.

Table 5. Size and composition of pods of killer whales encountered in southern Alaska, 1984.

Area	Pod	Resident or Transient	Number of Animals Photo-identified	Adult Males		Adult Females or Immature Males		Juvéniles or Calves**		Comments
				#	ID Numbers*	#	ID Numbers	#	ID Numbers	
SEA	AA	T	6	1	AA 1	5	AA 2,3,4,5,6	0		
	AF	R	21	4	AF 1,2,3,18	9	AF 4,5,6,8,11,13,15,20,22	8	AF 7,9,10,12,14,16,17,23	
	AG	R	14	3	AG 1,2,3	6	AG 4,5,8,9,11,12	5	AG 6,7,10,13,15	
	AH	T	6	1	AH 1	3	AH 2,3,4	5	AH 5,6	Probably contains one additional uncataloged animal
	AL	T	11	1	AL 1	5	AL 2,4,6,7,11	5	AL 3,5,8,9,10	
	AM	T	3	1	AM 1	1	AM 2	1	AM 3	
	AO	T	4	1	AO 1	2	AO 2,3	1	AO 4	
	AQ	T	5	1	AQ 1	3	AQ 2,3,4	1	AQ 5	
	AR	R	3***	3	AR 1,6,9	15	Not Available	1	Not Available	*** Three identified in SEA Pod contains 19±1 (Bigg, 1982)
	Subtotal	-	-	89	16	-	49	-	24	-
A Misc.	T	-	7	2	Not Assigned	3	Not Assigned	2	Not Assigned	
Total	-	-	96	14	-	52	-	26	-	
HWS	AB	R	35	5	AB 1,2,3,4,5	21	AB 6,7,8,9,10,11,14,16,17,19,20,21,22,23,24,25,28,29,30,31,32,34	9	AB 12,13,15,18,19,26,27,33,35	
	AC	T	4	2	AC 3,4	2	AC 1,2	0		
	AD	R	14	4	AD 1,13	7	AD 2,3,4,5,7,9,14,15,16	3	AD 6,8,10	Possibly contains 2-3 other animals not photographed
	AE	R	11	2	AE 1,9	7	AE 2,4,5,7,8,9,10,11	2	AE 3,6	May well include three other animals not photographed
	AI	R	6	1	AI 1	2	AI 2,3	3	AI 4,5,6	
	AJ	R	25	4	AJ 1,11,16,17	13	AJ 2,5,6,8,12,14,18,20,21,23,24,25	8	AJ 3,4,7,9,10,13,15,19	
	AK	R	7	0		5	AK 1,2,3,4,6	2	AK 5,7	
	AN	R	35	4	AN 1,2,3,4	4	AN 5,6,7,9,10,13,16,17,20,21,23,25,26,27,28,29,31,33,34,35	10	AN 8,11,12,14,15,18,19,22,24,30	
	AS	R	10	2	AS 1,10	4	AS 2,4,2,6,7	4	AS 3,5,9,11	Believed to contain five uncataloged animals
	AT	T	20	0	AT 1,5,11,13,14,15,16,17	9	AT 2,4,6,7,8,9,18,19,20	3	AT 3,10,12	
Subtotal	-	-	167	32	-	91	-	44	-	
A Misc.	-	-	6	7	Not Assigned	?	Not Assigned	?	Not Assigned	
Helikof	A Misc.	?	17	7	Not assigned	9	Not Assigned	1	Not Assigned	

Footnotes: * Not all numbers in sequence necessarily assigned (see Tables 7 and 9)

** Placement of some larger animals into this category somewhat arbitrary as animals length cannot be estimated accurately.

Table 6. Minimum numbers of killer whales in Southern Alaska documented from photographs.

Area	Number of Animals Photo-identified and Catalogued to Pod (=Clan)	Minimum Total Documented from Photographs	Comments
Southeast Alaska	89*	96	* Includes all 19 members of R (=AR) pod (3 identified from present study; 16 by M.A. Bigg).
Prince William Sound	167	173*	* Does not include the 21 animals in AF pod photographed in FWS but initially sighted and tallied in SEA.
Shelikof Strait		17	Based on only 3 days of work.
Total	256	286	

and individuals that use this large, complex area; therefore, this count should be regarded as a conservative representation of the population totals for Southeast Alaska.

The pods are characterized and their members classified by age/sex class in Table 5. Animals positively identified in each encounter are summarized in Table 7. Previous encounters with the various known pods and pod members are summarized in Table 8 and presented in detail in McSweeney et al., (in preparation). The pods as they were known at the end of the 1984 field season are described below and presented graphically in Ellis, ed., (in preparation).

AA pod - a total of seven "transient"-type whales - was encountered once, on 28 April in Clarence Strait near the west shore of Gravina Island. This pod has not been documented elsewhere or in previous years.

AF pod - a total of 21 "resident"-type whales - was encountered in Southeast Alaska five times between 27 May and 2 September 1984, in the Icy Strait, Chatham Strait, and Frederick Sound regions. This pod was also encountered in Prince William Sound four times between 4 and 14 August (Tables 9 and 10), thereby documenting a foraging range for "residents" of at least 1,110 km (500 nm). AF pod was photographed in 1983 in Prince William Sound (Table 8). Field estimates of the size of this group ranged up to 23 individuals. Several photographs which were not adequate for positive identification suggest the presence of one or two animals additional to those photo-documented.

AG pod - a total of 14 "resident"-type whales - was encountered twice in June and once in September, always in Icy Strait. In September 1983 four members of this pod were photo-identified in Glacier Bay (D. Larsen, pers comm; Table 8). Field estimates of this group ranged up to 16; hence it is possible that there are two additional animals which have not yet been photo-identified.

AH pod - a total of six "transient"-type whales - was encountered once in Cross Sound on 29 May. The pod has not been documented elsewhere or in previous years. It was estimated to include seven individuals. However, as the animals were difficult to approach, it is possible the pod contains an additional animal not yet photo-identified.

AL pod - a total of 11 "transient"-type whales - encountered five times between 28 June and 21 July, all in the Icy Strait/Glacier Bay region. Two or three members of AL pod were photographed in Frederick Sound in 1983 (Table 8). On all except one occasion in 1984 members of AL-pod were encountered in subgroups which were surmised, by virtue of repeated occurrence of certain individuals, to derive from a single pod. Such variation in group composition

Table 7. Pod members identified by encounter in Southeast Alaska, 1984.

Pod	Other Pods Present	Date	Encounter Number	ANIMAL IDENTIFICATION NUMBER																							Comments
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
AA	None	28 Apr 84	SEA 1	x	x	x	x	x	x																		
AF	None	27 May 84	SEA 2	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		o	x	o	x	?			
	None	16 Jul 84	SEA 9	x	x								?							o	o						
	None	21 Jul 84	SEA 13	x	x	x	?	x	x		x	x	?	?	x	x	o	?	o	x							
	AI, AB	4 Aug 84	FWS 40	x															o	o					Pod in Prince William Sound		
	AB	5 Aug 84	FWS 41	x	x	x		x	x	?	x	x	x	x	?	o	x	o	?						Pod in Prince William Sound		
	AB, AI	6 Aug 84	FWS 43	x	x		x	x							?	o	o	?							Pod in Prince William Sound		
	AB, AN, AI	14 Aug 84	FWS 46	x	x	x	x	x	x	x	x	x	x	x	x	x	o	x	o	?	x				Pod in Prince William Sound		
	None	28 Aug 84	SEA 19	x	x	x	x	x	x	?	x	x	x	x	?	x	x	o	x	o	x	x					
	None	2 Sep 84	SEA 20	x	x	x	x	x	?	?	x	?	x	x	x	x	o	x	o	x							
	Ai	None	4 Jun 84	SEA 5	x	x	x	x	x	x	x	x	x	x	x	o	x										
None		26 Jun 84	SEA 6	x	x	x	x	x	x	x	x	x	x	x	o	?											
None		8 Sep 84	SEA 21										?			o	?										
AH	None	29 May 84	SEA 3	x	x	x	x	x																			
AL	None	28 Jun 84	SFA 7	x	x	x	x	x	x	x	x	x	x														
	None	7 Jul 84	SEA 8																								
	None	19 Jul 84	SEA 10	x	x	x	x																				
	None	20 Jul 84	SEA 11	x	x	x	x																				
	None	21 Jul 84	SEA 12	x	x	x																					
AM	None	2 Jun 84	SEA 4	x	x	x																			Known this year from BC, Wash.		
AO	None	13 Aug 84	SEA 16	x	x	x	x																				
	None	17 Aug 84	SEA 17	x	x	x	x																				
	None	10 Sep 84	SEA 23	x	x	x	x																				
AQ	None	25 Jul 84	SEA 14	x	x	x	x	x																			
AR	None	25 Aug 84	SEA 18	x																					Known in BC in previous years		

Note: (x) indicates positive identification, (?) indicates probable identification and (o) indicates number not assigned.

Table 9. Encounters with killer whales in Prince William Sound, 1984.

Encounter Number	Pods Present	Date	Time		Hours Tracked	Location		Distance Tracked (nm)	Number of Individuals (field est.)
			Start	End		Begin	End		
+1.	AT	Apr 11	1639	2005	3.43	.25m SW Little Smith Is	2m S Sphinx Is	10	025
+2.	AB	Apr 14	1150	1307	1.28	1.5m NW Ingot Is	.5m NE Eleanor Is	11	008
+3.	AB AJ	Apr 14	1307	1615	3.15	1.5m N Eleanor Is	2m E Smith Is	18	030
+4.	AT	Apr 15	1330	1540	2.17	1.5m S Little Smith Is	.5m N of E end Smith Is	13	002
5.	AT	Apr 18	1125	1239	1.23	.25m N Galena Bay	Rocky Pt	7	034
+6.	AB A-misc	Apr 19	0605	0805	2.00	.5m N Eleanor Is	.75m N Little Smith Is	8	010
+7.	AB AE AI	Apr 19	0807	1225	4.3	.75m N Little Smith Is	3m NE Montague Pt	17	025
+8.	AC	Apr 21	0835	1035	2.00	Northwest Bay	Pt Eleanor	3	004
+9.	AE	Apr 25	1740	2005	2.42	1m SE Smith Is	.75m SE Seal Is	9	011
+10.	AB AE AI	Apr 29	0904	1210	3.1	1.5m NW Storey Is	1.5m N Eleanor Is	12	016
+11.	unknown	Apr 30	1655	1800	1.08	1.5m NW Eleanor Is	1.5 N Eleanor Is	5	002
+13.	AB AS A-misc	May 11	0715	1900	11.75	.75m SW Deer Cove	3.5m W Goose Is	43	020
+14.	AB AI	May 12	0825	1215	3.83	.5m N Knolls Head buoy	9m SSE Bull Head	15	024
+15.	AT	May 19	1506	1940	4.67	.5m E Gage Is	.5m W Squire Is	17	008
+16.	AT	May 20	1220	1615	3.92	North Twin Bay	Cape Erlington	10	014
+17.A	AB	Jun 03	1019	2400	13.68	SW Upper Herring Bay	2m NW Green Is	78	030
+17.B	AB	Jun 03	0801	1048	10.78				030
+18.	AB AD	Jun 05	0740	1520	7.67	.5m SW Squire Is	Fox Farm Erlington Passage	28	030
19.	AT	Jun 08	1420	1940	5.33	1.5m NW Upper Herring Bay	1.5m SE Applegate Is	19	007
+20.	AE	Jun 10	1340	1920	5.67	.75 m NW Cratton Is	.5m E Chesopa Pt	21	009
+21.	AI AB	Jun 17	0625	2255	16.5	.5m SW Upper Herring Bay	N tip LaFouche Is	55	012
22.	AT	Jun 18	1410	1545	1.58	.25m Nc Whale Bay	.75m N Whale Bay	11	002
23.	AT	Jun 19	1230	1410	1.67	Upper Herring Bay	Upper Herring Bay	5	004
24.	AB AI A-misc	Jul 07	1400	1815	4.25	.5m SW Bligh Is	SW Glacier Is	24	030
+25.	AE	Jul 08	1900	0030	5.30	2m N Main Bay	Outside Lower Herring Bay	25	006
+26.	AI AB A-misc	Jul 09	1735	2015	2.67	Pt. Helen	1 m SE Little Green Is	13	015
+27.	AK	Jul 11	1230	1535	3.08	Entrance Seawall Bay	Lower Prince Wales Pass	11	006
+28.	AB AI	Jul 12	1509	2100	6.00	Knicht Is Pass	Flaming Is	22	040
+29.	AK	Jul 12	2200	2250	.83	Drier Bay	Drier Bay	2	006
+30.	AI AE	Jul 14	2015	2400	3.75	.5m N Fleiden Is	N Chesopa Is	13	020
+31.	AB	Jul 16	1135	1505	3.5	Squire Is	Pt. Helen	15	008

Table 9. (cont.) Encounters with killer whales in Prince William Sound, 1984.

32.	AD	Jul 20	1030	1712	6.7	.12 nm E Little Green Is	4 nm SW Needle	34	040
33.	AJ AD	Jul 20	1450	1712	2.37	.5m E middle Latouche Is	2m S Danger Is	8	020
+34.	AK	Jul 22	1330	2110	7.67	.5m SSE Little Green Is	.5m N Green Is	25	067
+35.	AI AE AS	Jul 27	1342	2030	6.8	Channel Rock	.5m E middle Latouche Is	21	027
+37.	AI AE AS	Jul 28	1650	2130	4.67	N Squire Is	1m NW Icy Bay	13	022
+38.	AB	Jul 31	0645	1800	11.25	Squire Is	2m NW Squire Is	38	035
39.	AB AI	Aug 02	1600	1815	2.25	1m S. Lucky Bay	1m NE Pt. Helen	10	035
40.	AI AI AF	Aug 04	1430	1700	2.5	.5m N Needle	Between Needle and Montague Is	6	035
41.	AI AF	Aug 05	1540	1800	2.33	.5m W Johnson Bay	.5m E Pt. Nowell	13	040
42.	AT	Aug 05	2020	2040	.33	S Squire Is	S Squire Is	1	005
+43.	AI AI AI	Aug 06	1730	2100	3.5	Pleiden Is	.5m SE Pt. Helen	11	040
+44.	AB AI AT AE	Aug 09	1250	1900	6.17	E George Is	.5m W Lower Herring Bay	16	030
+45.	AI AI	Aug 10	1250	1515	2.42	1m S Pt. Helen	Pt. Brazil, Montague Strait	7	030
+46.	AI AB AF	Aug 14	1210	1545	3.53	Shelter Bay	1m SE Pt. Helen	12	060
+47.	AI AD	Aug 15	1130	2000	8.5	1m N Shelter Bay	1m E Latouche Is	21	015
48.	AI	Aug 16	1130	1205	.58	1.5m W Hanning Bay	1.5 W Hanning Bay	2	015
+49.	AI AI AI AI	Aug 16	1330	1745	4.25	2.5m SW Pt. Helen	1.5m W Pt. Helen	13	045
50.	AI	Aug 17	1700	1735	.58	.5m N Shelter Bay	N Latouche Pass	2	035
+51.	AI	Aug 20	1840	2145	3.08	.5m W Pt. Nowell	.5m NW Lower Herring Bay	7	008
52.	AT	Aug 23	1910	2030	1.00	N Bainbridge Pass	Pleiden Is	3	004
+53.	AI AI AI	Aug 25	1305	2100	7.92	1m SW Lower Herring Bay	.5m W Drier Bay	32	025
+54.	AI AK AI AE AI	Aug 28	1625	2005	3.67	.5m W Pt. Helen	.25m NE Sleepy Bay	18	040
+55.	AI	Aug 29	1615	2050	4.58	.5m W Mummy Bay	.5m SE Hogan Bay	13	020
+56.	AI AI AI	Aug 30	1050	1500	4.17	.5m SE Pt. Helen	1.5m NE Bishop Rock	21	012
+57.	AI AI AI AI	Aug 31	1455	2130	6.58	1m SE Pt. Helen	.5m SE Little Bay	34	055
+58.	AI AI AI	Sept 02	1220	2150	9.5	.75m SW Little Bay	2m NW Lower Pass	26	030
+59.	AI AI AI	Sept 15	1000	1100	8.00	.75m S Little Bay	.5m S Drier Bay	27	033
+60.	AI AI AI AI	Sept 16	0925	1150	9.42	.75m NE Pleasing In	.5m E Pleiden	22	040
+61.	AI	Sept 18	0820	1420	6.00	.75m E Echamy Bay	.5m N Pt. Eleanor	17	013
+62.	AI AI AI AI AI	Sept 19	0750	2000	12.17	.5m W Northwest Bay	1m S Mummy Bay	47	060
+63.	AI AI AK AI AI	Sept 20	1255	1950	6.92	Pleiden Is	.5m W Drier Bay	26	055
+64.	AK AI AI AI	Sept 21	1140	1910	5.5	Pleiden Is	.5m SE Pleiden	22	055
+65.	AI AI AI	Sept 22	1230	2000	7.5	.5m N Cape Is	.75m SW Drier Bay	27	055
+66.	AI AI AI AI AI	Sept 23	0845	1730	8.75	1m SW Drier Bay	2m NE Craton Is	21	090

Notes: (+) preceding encounter number indicates a double recording made during that particular encounter.

Table 10. (cont) Pod members identified by encounter in Prince William Sound, 1984.

AN, AD	16 Sep 84	IWS 60	x x x x x x	x x	x x x x	
AD, AN, AI, AJ	19 Sep 84	IWS 62	x x x x x	x x x x	x x x x x x x x x x	
AJ, AK, AN, AD	20 Sep 84	IWS 63	x x x x x x x x	x x x x x x x x	x x x x x x x x x x x x	
AK, AJ, AN	21 Sep 84	IWS 64	x	x x x		
AJ, AI	22 Sep 84	IWS 65	x x x x	x x x x x	x x x x	x
AJ, AD, AI	23 Sep 84	IWS 66	x x	x x x x x	x x x x x	x x x x x
AC	None	21 Apr 84	IWS 8	x x x x		
AD	AB	5 Jun 84	IWS 18	x x x x x x x x o o		
	AN	15 Aug 84	IWS 47	x x x x o o		
	AB, AN, AI	16 Aug 84	IWS 49	x x x x o o x x x x		
	Kodiak #1	27 Aug 84	SH1	x x x x o o		Part of pod in Kupreanof Strait
	Kodiak #2	28 Aug 84	SH2	x o o		Part of pod in Shelikof Strait
	AN, AK, AE, AI	28 Aug 84	IWS 54		o o x x x	
	AN, AB, AI	31 Aug 84	IWS 57	x x x o o		
	AB, AN	16 Sep 84	IWS 60	x x x x o o		
	AB, AI, AJ, AN	19 Sep 84	IWS 62	x x x o o x x x x		
	AB, AJ, AK, AN	20 Sep 84	IWS 63	x x x x o o		
	AB, AI, AJ	23 Sep 84	IWS 66	x x x x o o		
AE	AB, AI	19 Apr 84	IWS 7	x x x x x x x x		
	None	25 Apr 84	IWS 9	x x x x		
	AB, AI	29 Apr 84	IWS 10	x x x x		
	None	10 Jun 84	IWS 20	x x x x x x x x x		
	None	8 Jul 84	IWS 25	x x x x x x		
	AI	14 Jul 84	IWS 30	x x x x x x		
	AI, AS	27 Jul 84	IWS 35	x x x x x x x x x x		
	AI, AS	28 Jul 84	IWS 37	x x x x		
	AB, AI	9 Aug 84	IWS 44	x x x x		
	AD, AN, AI, AK	28 Aug 84	IWS 54	x x x x		
	No.x	18 Sep 84	IWS 61	x x x x x x x x x x		
AF	None	27 May 84	SEA 2	x x x x x x x x x x x x x x x x	o x o x ?	Pod in SEA
	None	16 Jul 84	SEA 9	x x x x x x x x x x x x x x x x	o o	Pod in SEA
	None	21 Jul 84	SEA 12	x x x x x x x x x x x x x x x x	x o ? o x	Pod in SEA
	AI, AN	4 Aug 84	IWS 41	x x x x x x x x x x x x x x x x	o o	
	AN	5 Aug 84	IWS 41	x x x x x x x x x x x x x x x x	o x o ?	

Table 10. (cont.) Pod members identified by encounter in Prince William Sound, 1984.

None	18 Jun 84	IWS 22		x x	
None	19 Jun 84	IWS 23	x x x		?
None	5 Aug 84	IWS 42	x x x x x		x
A1, AL	9 Aug 84	IWS 44		x x	2m distant from other pods
None	23 Aug 84	IWS 52	x x x x		

Note: (x) indicates positive identification, (?) indicates probable identification and (o) indicates number not assigned.

from one encounter to the next is common among pods of "transient" animals.

AM pod - a total of three "transient"-type whales - was encountered only once in Southeast Alaska this season, near Pt. Hilda in Stephens Passage on 2 June (Table 4). This pod is very well known, however, from southern British Columbia, where the two adults were maintained in captivity for about 12 months in 1970-1971 (Bigg, 1982; pers. comm.). The adults have been regular visitors to those waters and to northern Puget Sound since 1974. They are known to have produced at least two calves in the last 14 years. The present calf is three years old (M. A. Bigg, pers. comm.). Following the HSWRI encounter in Southeast Alaska this year, AM pod was photographed in greater Puget Sound, near San Juan Island on 18 September. From 2 June to 18 September the whales had traveled at least 1,445 km (780 nm). Large foraging ranges are among reported characteristics of "transient"-type whales (see Table 1).

AO pod - a total of 4 "transient"-type whales - was seen four times in Southeast Alaska in 1984, twice in August and twice in September, in Icy Strait, Stephens Passage and Frederick Sound. Members of the pod were photographed in 1979 and 1983 in Frederick Sound (Table 8).

AQ pod - a total of five presumed "transient"-type whales - was seen once, on 25 July in Stephens Passage. On the basis of this single encounter little can be said about the relationship of these animals to other whales in the region. This pod has not been documented elsewhere or in previous years.

AR pod - On 13 and 25 August approximately 11 "resident-type" killer whales were seen near Waterfall Cannery on western Prince of Wales Island. Photographs taken by W. S. Lawton document the presence of three whales (AR 1, 6 and 9) (Table 5) which were previously known from a group designated in British Columbia as "R" pod. As of the end of 1983, "R" pod contained 19 individuals, including three adult males, 15 females or juveniles, and one calf (Bigg, 1982) (Table 5).

A Miscellaneous - There were two additional encounters in which photographs were adequate to determine that uncatalogued whales were present but inadequate to permit positive identification. Therefore, the pod associations of these individuals could not be determined. This miscellaneous category includes:

Five "transient"-type whales that were encountered on 7 August during adverse weather conditions near Customs House Cove, in Felice Strait. The group consisted of one adult male, two adult females or subadult males, and two juveniles or calves.

Two "transient"-type whales that were encountered on 8 September near the Brothers Islands in Frederick Sound (Table 4). One adult male and one adult female or subadult male were present.

Assuming our provisional classifications of age/sex class are correct, the 70 members of the Southeast Alaska population photo-identified to date and assigned to pods includes 13 adult males (18.6%), 34 adult females or subadult males (48.6%), and 23 juveniles or calves (32.8%). For the only comparable category, Bigg (1982) and Bigg et al., (1983), reported 23% males in the 261 animals known through 1982 in Puget Sound and British Columbia.

Most encounters in Southeast Alaska occurred in Cross Sound/Icy Strait, Chatham Strait, Frederick Sound or Stephens Passage. The three southern encounters were along the seaward coast or in or near the mouth of Clarence Strait (Figure 11). Though sightings and reports (Figure 10) suggest a slightly broader distribution, they, too, concentrate in the entrances and along the outer coast.

The observed density (rate of encounters) in southern Southeast Alaska was relatively low, as expected from experience in Northern British Columbia, where surveys have yielded few encounters (Bigg, 1982). Based on experience in other areas, "resident" animals can be expected to occur relatively frequently year-round in inshore marine waters while the occurrence of "transients" is likely to be more episodic. The proportion of "transient" (39.3%) to "resident" (60.7%) animals in the photo-identified sample to date indicates Southeast Alaska has few if any "preferred areas" (areas of regular concentration). Repeated encounters with "resident" pods AF and AG in northern waters suggest Cross Sound/Icy Strait and contiguous waters inland from them may be one such area.

Prince William Sound

Between 11 April and 26 September we logged data on 151 observations of killer whales in Prince William Sound. Eighty-six were sightings from the R/V Pelican [4] or reports from other vessels or aircraft which resulted in no further data (Figure 12). (Details from these 96 observations are on file at HSWRI and will be provided on request.) Sixty-five were encounters from the R/V Kestrel in which whales were approached, tracked, photographed and sometimes recorded (Table 9; Figure 13). During such encounters whales were tracked for a total of 326.6 hrs (range 0.3 to 24.5, \bar{x} =5.10) and a total distance of 1,156 nm (\bar{x} =18.1 nm per encounter). Average rate of travel was 3.54 knots. A total of 264 rolls of Tri-X (approximately 9,500 frames) was exposed. Killer whale vocalizations (total 2,200 minutes) were recorded in 50 of the 66 encounters. Recordings are being analyzed and will be reported separately.

4. As an experiment with new methods, some photographs from the R/V Pelican were taken with Varicolor 1000 film using the techniques described in the Materials and Methods section. The film was examined but appears substandard for these applications; results are not included.

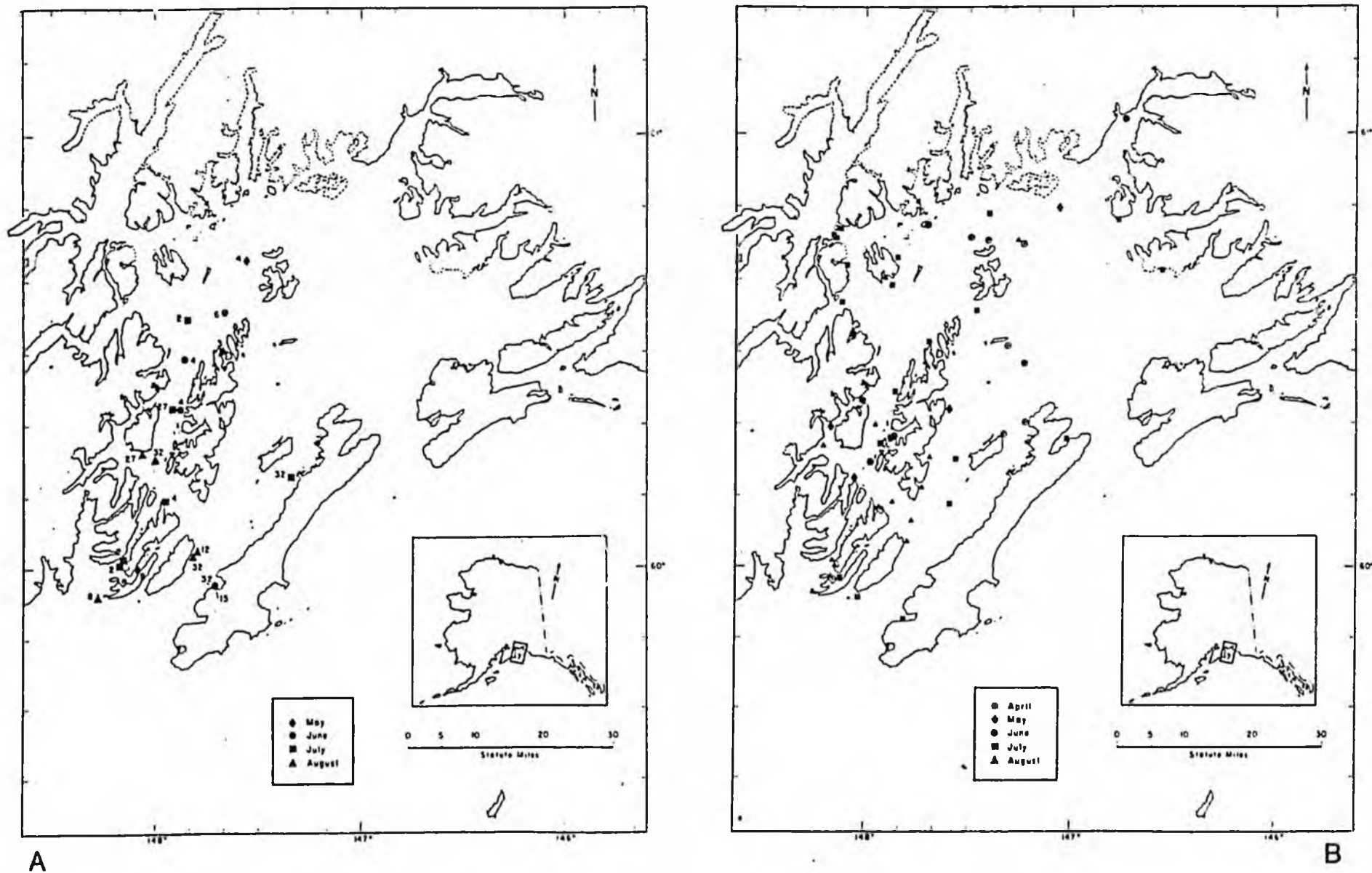


Figure 12. Locations of sightings (A) and reports (B) of killer whales, Prince William Sound, 1984. Numbers indicate estimated group size (A).

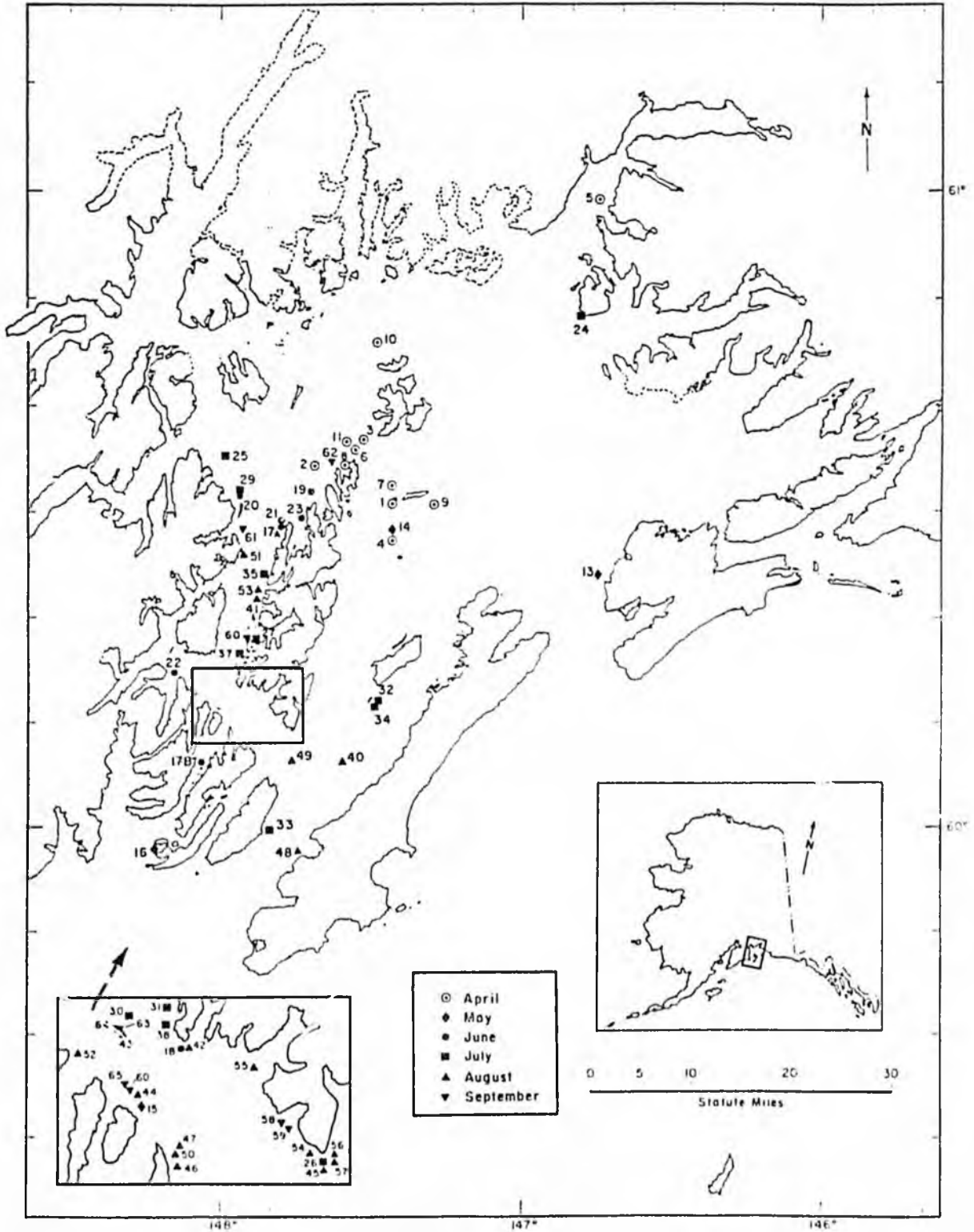


Figure 13. Locations of encounters with killer whales, Prince William Sound, 1984.

A total of 167 individual killer whales was positively identified from photographs and catalogued into the 10 pods (or clans) we identified as occurring in Prince William Sound in 1984 (Tables 5 and 10). In addition, six animals identified in poor quality photographs were known to be different from others photographed in 1984 but could not be assigned to a specific pod. They are listed in a miscellaneous category pending further photographs. When the above figures are combined one derives a minimum count of 173 killer whales in Prince William Sound based on photographs (Table 6). For reasons discussed under Southeast Alaska above, this count should be regarded as a conservative representation of the population totals for Prince William Sound.

Pods encountered in Prince William Sound in 1984 tended to aggregate and mix. Therefore, numerous resightings were often necessary to delineate the pod affinities of some individuals. The present pod assignments (Tables 5 and 10) have been made cautiously and appear to us to be accurate. Nevertheless they will be tested by additional field observations and photography.

Three pods (designated AD, AE and AS) are suspected of having additional members not yet photo-identified. One pod (designated AT) is likely an aggregation of several smaller pods of "transient"-type whales and contains most "transients" identified thus far in the Sound.

The pods are characterized and their members classified by age/sex class in Table 5. Animals positively identified in each encounter in 1984 are summarized in Table 10. Previous encounters with the various known pods and pod members, 1976-1983, are shown in Table 8 and are presented in detail in von Ziegesar et al. (in preparation). The pods as they were known at the end of the 1984 field season are described below and are presented graphically in Ellis, ed. (in preparation).

AB pod - a total of 35 "resident"-type whales - was by far the most frequently encountered and easily approached pod in Prince William Sound. It was encountered 36 times between 14 April and 23 September (Table 10). In 29 of those encounters its members were traveling with one or more other pods, most frequently AI pod. During much of the 1984 field season AB pod appeared to remain in a home range centered in Knight Island Passage but it was encountered in such other areas as the eastern side of the Sound, Hinchinbrook Entrance, and Montague Strait. Members of this pod were previously photographed in Prince William Sound in 1979, 1980 and 1983 (Table 8).

AC pod - a total of four "transient"-type whales - was encountered once in 1984, traveling alone on 21 April (Table 9). They were photographed in the Sound in 1983 (Table 8).

AD pod - a "resident"-type group - was traveling with at least one other pod during each of the nine encounters in 1984 (Table 10). It was seen once on 5 June, then eight times between 15 August and 23 September. AD pod was

associated most frequently with AN pod (7 of 9 encounters). One pod member was photographed in the Sound in 1977, two others in 1983 (Table 8; von Ziegeler, et al., in preparation). The pod is difficult to photograph. In addition to the 14 animals photo-identified to date AD pod possibly contains another two to four animals that have not been adequately photographed.

AE pod - a total of at least 11 "resident"-type whales was photographed on 19 April and 18 September, and at regular intervals between. In four of the 11 encounters in 1984 the pod was traveling alone (Table 9). It is likely that this pod centered its activities in Prince William Sound, though its presence was often difficult to confirm. Members of AE pod were photographed in the Sound in 1977 and 1983 (Table 9). AE pod has proven illusive, difficult to photograph, and extremely clean of nicks and scratches. It may well include three other individuals not yet adequately photographed.

AF pod - a total of 21 "resident"-type whales - is described in the Southeast Alaska segment of this summary; so, it is not included in the final tally of individuals for Prince William Sound. It was the only pod observed to travel between the two areas in 1984. It had also been photographed in Prince William Sound in 1983 (Table 8).

AI pod - a total of six "resident"-type whales - was observed 24 times in 1984, never without at least one other pod in the area, although members of AI pod frequently swam as a separate, cohesive unit some distance from other whales. They were seen with whales from AB pod in 19 of the 24 encounters (Table 9) and appear closely associated with them. Whales from AI pod were first encountered on 19 April, after which they were observed repeatedly through the end of the field season (23 September). Apparently, the pod centered its activities in the Sound during the entire field season. This is the smallest "resident"-type pod documented in Prince William Sound to date and was the second most frequently encountered. Members of AI pod were also photographed in the Sound in 1982 and 1983 (Table 8).

AJ pod - a total of 25 "resident"-type whales - was encountered on 10 occasions in 1984, only once alone (Table 9). Although a portion of this pod was photographed on 14 April (with AB pod) and again on 20 July, the pod was not resighted consistently until after 29 August. The last documented encounter was on 22 September. One member of this pod was photographed in the Sound as early as 1977 (Table 9).

AK pod - a total of seven "resident"-type whales - was photo-identified alone on three of six encounters in 1984 (Table 10) over a three month period, 11 July to 21 September. This group was also documented in Prince William Sound

in 1983, when all members except AK 5 and possibly 7 were seen and photographed (Table 8). Despite its unusual composition (no adult males), this appears to be a complete pod.

AN pod - a total of 35 "resident"-type whales - was frequently found mixed with AB (on 12 of 16 encounters) and other pods. AN pod was not encountered and photographed until 14 August but was repeatedly encountered from that time until the conclusion of fieldwork on 23 September (Table 9). Prior to 14 August it may have used areas of Prince William Sound not searched routinely but was more likely in areas outside the Sound. These animals were frequently encountered in Montague Strait and lower Knight Island Passage. Some members had been photographed in Prince William Sound in 1977, 1980 and 1983. (Table 9).

AS pod - a total of at least 10 "resident"-type whales - was encountered three times in 1984 (11 May, 27 and 28 July), always mixed with other pod(s) (Table 10). AS pod may well spend most of its time outside of Prince William Sound. It has not been photographed in previous years. Although 10 animals have been photo-identified this pod is believed to contain up to 15 individuals.

AT pod - a total of 20 "transient"-type whales - is likely an aggregation of several small "transient"-type pods since many of the animals were observed traveling in small subgroups on most occasions. In 1984, animals from this group were encountered first on 11 April and last observed on 23 August (Table 9). However, some individuals from these groups were photographed in 1978, 1980, 1982 and 1983 (Table 9).

The six A-miscellaneous whales recorded from Prince William Sound appeared in the background of encounters with other "resident" pods. Substandard photos prevented certain identification but they were determined to be "resident-type" whales, and were classified as three adult males and three adult females or immature males.

Assuming our provisional classifications of age/sex class are correct, the 167 members of the Prince William Sound population photo-identified to date include 32 adult males (19.2 percent), 91 adult females or subadult males (54.5 percent) and 44 juveniles or calves (26.3 percent). In Prince William Sound as in Southeast Alaska, the only category comparable to those from British Columbia/Washington is "adult males", which Bigg (1982) found to comprise 23 percent of the catalogued population.

Centers of concentration of whale sightings shifted during the field season. In early April to mid-May animals were most frequently encountered in the west-central Sound, in waters around Smith Island and the Naked Island group. After mid-May most encounters occurred in the Southwestern region, particularly in Knight Island Passage and Montague Strait. During the late August and September surveys pods or aggregations of pods were encountered in these areas on a daily basis.

At all times the density (frequency of encounter) of whales was greatest on the west side of the Sound. The proportion of "resident" type whales (85.6%) to "transient" whales (14.4%) indicates that Prince William Sound is a "preferred area" for "resident" whales although centers of concentration may shift seasonally.

Shelikof Strait

There was no concerted effort around Kodiak Island. Nevertheless we logged data from 15 observations of killer whales in that area (Figure 9D). During the only three days of dedicated boat survey (Figure 9C) there were two encounters, one on 27 August in Kupreanof Strait and one on 28 August in Shelikof Strait. From the 27 August encounter, 10 whales were identified from substandard photographs but could not be catalogued. Six of the identified animals (five adult females or subadult males and one juvenile or calf) were not documented from any other area. The remaining four were believed to be AD 1, 3, 4 and 10, known from Prince William Sound. From the 28 August encounter, 18 whales were identified from photographs but could not be catalogued. Five, including AD 1, had been identified the previous day; one was believed to be AD 9; and one had been photographed in Prince William Sound on 7 July but not catalogued. [(This last animal was included in the A-Miscellaneous category for Prince William Sound (Table 5)]. The remaining 11 whales photo-identified on 28 August, including seven adult males and four adult females or subadult males, were not documented from any other time or place. Thus, at least 17 new animals were present. Given that the observers estimated that 28-30 whales were present on 27 August, at least 103 were present on 28 August and that most major pods known from Prince William Sound can be accounted for during these two days, it is likely that there were many other uncatalogued animals present in Shelikof Strait.

SUMMARY

- (1) Photographic research was undertaken between April and September 1984 to identify individual killer whales in Southeast Alaska and Prince William Sound and to study their group composition and behavior. Similar activities were conducted for three days in Shelikof Strait in August. All research activities are part of a five-year study of population dynamics of southern Alaskan killer whales.
- (2) Two hundred and eighty-six different killer whales were identified from photographs. These include 96 in Southeast Alaska (counting all 19 members of R (=AR) pod known from encounters in British Columbia though only three were photo-identified when the group was encountered in Southeast Alaska), 173 in Prince William Sound and 17 in Shelikof Strait. It is improbable that all pods using southern Alaskan waters were encountered. Further it is known that not all animals encountered were photographed. Therefore the figure 286 is a minimum count, not a population estimate. An estimate of 356-372, calculated based on these known individuals and using rates of encounter with new whales in the long-term studies in British Columbia/Washington, is provided in Appendix I.
- (3) Animals catalogued by pod (=clan) include 89 whales in nine pods in Southeast Alaska and 167 in 10 pods in Prince William Sound. Other animals

photo-identified could not yet be reliably assigned to pods.

- (4) The 256 catalogued whales classified by age/sex class include 48 adult males (18.8 percent), 140 adult females or subadult males (56.7 percent), and 68 juveniles or calves (26.5 percent). Adult males are the animals most likely to be correctly classified. The proportion of adult males observed in southern Alaska is comparable to that in 261 whales known from Washington/British Columbia (23 percent). The other two categories require further observation.
- (5) Relative frequencies of encounters, distribution of encounters and observed proportions of "transients" to "residents" in Southeast Alaska (39.3 percent), to 60.7 percent), and Prince William Sound (14.4 percent), to 85.6 percent), suggest that there are few if any "preferred areas" in Southeast Alaska (possibly Cross Sound/Icy Strait and the immediately contiguous waters east and southeast of the Strait) but that western Prince William Sound is a "preferred area" within which centers of abundance may shift seasonally. This latter situation is comparable to that off Vancouver Island where preferred areas are known and the identified population through 1983 consisted of 47 "transients" (18 percent), and 214 "residents" (82 percent). The southern Alaskan population(s) known to date consists of 23 percent "transients" and 77 percent "residents".
- (6) The goals for 1985 field work will be (a) to refine population counts by identifying yet undocumented animals in known pods and photo-identifying all animals in new pods encountered, (b) to refine the classification of animals into age/sex class by sexing individuals and documenting calves born after the 1984 field season, and (c) based on pods in which all members are identified, to begin to monitor births and deaths for calculations of vital statistics.

ACKNOWLEDGMENTS

The research described in this paper was funded by a contract from Sea World, Inc., San Diego, California, through Dr. Larry H. Cornell, to Hubbs-Sea World Research Institute (HSWRI) and was conducted under the authority of National Marine Fisheries Service Permit Number 439, issued 1 November 1984. The authors wish to gratefully acknowledge the assistance of the many people without whom such a vast and complicated project could not have been conducted safely and efficiently.

First, we heartily thank the vessel operators, pilots, commercial fishermen and others who have contributed sighting information on marine mammals during this and previous years.

In the Southeast Alaska research the SRV Diamaresa was provided by Island Packers Company, Ventura, California, and handled skillfully and cheerfully by Kirk and Mark Connally. The Boston Whalers and R/V Black Whale were chartered from K.C. Balcomb and D. McSweeney, respectively.

In Prince William Sound research, valuable background data were available from previous work by John D. Hall, Olga von Ziegesar and Beth Goodwin 1976-

1983, Wendell Jones, a local fisherman/pilot, provided invaluable assistance from the air and on the water. Harry Curran, Jim van Sant and Richard Randall of the ADFG provided information on killer whale sightings. Jim Bishop of Bishop Brothers' Flying Service volunteered time reporting sightings of killer whales from the air. Brad Maynard, Dan Warren and Brian Allee, and the rest of the crew at the Port San Juan Hatchery provided cheerful assistance and support throughout the project. Kirsten Englund, David Grimes and Rick Steiner all provided valuable assistance in the fieldwork.

For the Kodiak Island research, Mr. Lou LaFierre provided and skippered the E/V Lucky Pierre during surveys of Shelikof Strait. The Partenavia P64 Observer used in those surveys was chartered from Rare Bird, Inc., Anchorage, Mr. Robert T. Sutherlin, and was flown by Dennis Warth.

Michael A. Bigg of Fisheries and Oceans Canada answered our numerous questions with generosity and patience. Ron Nelson of Nelson's Photo Works in Nanaimo provided top quality photo processing and printing.

Historical photographs were contributed by Kathy Frost, Don Goldsberry, Beth Goodwin, David Grimes, John D. Hall, Brad Hanson, Dotte Larsen, Lloyd Lowry, Craig Matkin, Dan McSweeney, John Reinke, Frank S. Todd, and Olga von Ziegesar.

The staff at HSWRI, particularly Marie Wright, Elizabeth Garner, Steven A. Karl, Donald B. Kent and Steven Ingram, assisted with administration, field work data analysis and report preparation. Chick Hayashi prepared the figures.

In addition to staff and contractors, the following guests assisted with field work: Greg Donovan, International Whaling Commission; Pieter Folkens, Mark Ferrari and Deborah Glockner-Ferrari, Oceanic Society; and Suzanne Healy, University of California, Santa Cruz.

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APPENDIX I

Estimated Number Of Killer Whales In Portions Of Southern Alaska Based On Photo-identified Individuals

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The distribution of killer whales in Alaska has been reviewed most recently by Fiscus et al. (1976), Braham et al. (1972), Leatherwood and Dahlheim (1978), Dahlheim (1981), Braham and Dahlheim (1982), Lowry et al. (1982), Perrin, editor, (1982) and Leatherwood et al. (1983 and 1984a). Killer whales are known to occur in inland marine waters of Southeast Alaska, Prince William Sound and Cook Inlet and in northern waters of the Gulf of Alaska particularly over the continental slope and shelf. They occur both north and south of the Aleutians, particularly near the eastern islands. North of the Aleutians, killer whales are widely distributed in the Bering Sea north to Diomed Islands and Bering Strait. Above Bering Strait they range into the western Chukchi Sea and into the eastern Chukchi at least as far north and east as Pt. Barrow. Presumably some individuals travel farther north to the ice edge. At least in summer some continue eastward into the Beaufort Sea.

Prior to 1984 there was little published information on the status of Alaskan populations. Rates of encounter, estimated densities and estimated number in various areas of the state, based on surveys, are summarized in Table I-1. In addition to figures included in that table we note but are unable to evaluate anecdotal accounts of sightings of 500 killer whales near Middleton Island and 2,500 near Unimak Pass (J. Branson, ADFG, cited in Braham and Dahlheim, 1982) or the National Marine Fisheries Service (NMFS) 1984 estimate that there are 3,000 killer whales in Alaskan waters.[1]

The most reliable numbers to date on size of Alaskan killer whale populations are those contained in Leatherwood et al. (1984b) (see Table I-1). The total of 286 whales presented in that paper must be regarded as a minimum count as it includes only individuals photo-identified (i.e. recognizable in photographs). Another 11-13 whales in the studied population(s) were visually recognizable but were not photographed at all. Thus, the minimum population size in the studied portions of southern Alaska (principally Southeast Alaska and Prince William Sound but also including Shelikof Strait) is 297-299 whales. It is clear that even the highest of these figures is conservative; so, we looked for a logical reasonable basis for using these counts to estimate the size of the killer whale population(s) of southern Alaska.

Bigg et al. (1976, 1983) and Bigg (1982) presented data concerning rates of identification of new killer whale pods and individuals during photo-identification studies of the species off British Columbia, 1972-1982. After

1. Brooks, NMFS, Alaska Region, Juneau, Alaska, Testimony to House Resources Standing Committee. Juneau, Alaska, 29 February 1984.

Table I-1. Rates of encounter, estimated densities and estimated numbers of killer whales in various areas of Alaska.

Reference	Basis	Area				
		Southeast	Prince William Sound	Shelikof Strait	Other	
Hall (1979, 1981)	Systematic aerial surveys					
	1976	---	0.070/rm			
	1977	---	0.043/rm			
	Systematic vessel surveys					
	1976	---	0.168/rm			
	1977	---	0.115/rm			
	Apr '80, 81	---	0.00-0.03/rm			
Leatherwood, Reeves and Bowles (1983)	8 randomized, semi-serial aerial surveys	---	---	0.15/rm searched (summer)	S.E. Bering Sea, east of 174 W, south of 62 N	
					Spring .010-.016/rm searched	
					Summer .003-.007/rm searched	
					Fall .002-.005/rm searched	
Brueggeman, Grotenfendt and Erickson (1984)	Aerial and vessel surveys	---	---	---	Navarin Basin	
					Spring 129 seen, 396±713 estim.	
					Summer 68 seen, 42±110 estim.	
					Fall 136 seen, 798±1658 estim.	
Leatherwood et al. (1984a)	Fishermen's reports, aerial and vessel surveys	---	---	---		
		Minimum counts same day surveys	93	80	60	---
		Conservative estimated minimums, from above	93	100	100	---
Leatherwood et al. (1984b)	Minimum number of animals photo-identified	96*	173*	17**	286 Total	
	Above plus other animals known present but not photographed	97	183-185	17	297-299 Total	

* Based on coverage April - September

** Based on 3 days of survey in August

four years of work researchers there had catalogued 19 pods and 210 individuals, after nine years 30 pods and 267 individuals. Therefore, only 80.45 percent of the population known in British Columbia by the end of 1982 had been catalogued after four years of research involving intensive effort. When this proportion is used to correct the southern Alaskan counts from 1984 one obtains an estimate of 356-372 killer whales for the three areas of southern Alaska studied. We regard even these figures as conservative estimates for at least four reasons: (a) The proportion is based on four years of work; the Alaskan work represents only one year; (b) Not all areas of southern Alaska were surveyed in 1984 and the areas that were surveyed are considerably larger than studied portions of Washington/British Columbia; (c) It is improbable that all pods or clans that use southeast Alaska and/or Prince William Sound were encountered in a single season. In British Columbia for example, though all known "residents" were encountered in 1982 no more than 75% of known "residents" are typically encountered in a given year. In 1983, three of 13 known "resident" pods and 50 of 155 known "resident" animals (32.3%) in Northern British Columbia apparently did not visit the area at all. Further, catalogued "transient" pods are usually seen in only one of three or more years and new "transient" pods continue to be identified and catalogued in British Columbia even after 11 years (All B.C. data courtesy M.A. Bigg, pers. comm. 2 Dec. 1984); and (d) The brief survey of Shelikof Strait in 1984 (three days) provided evidence of the existence there of a significant population, which overlaps with that from Prince William Sound but also contains animals not known from elsewhere in Alaska. The 17 new whales catalogued on those days can reasonably be assumed to be only a small part of the population(s) using the Kodiak Island region.

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