

ALASKA LEGISLATURE SPECIAL COMMITTEE/SUBJECT FILES 8672

2614 SCOMM 114: HOUSE SPEC. COMM ON FISHERIES, 1999-2000

Signature	Printed Name	Address
Walter Clark	WALTER CLARK	Box 513
Karl Cook	Karl Cook	Box 492
Dan M. Marsden	Dan M. Marsden	Box 15
Clinton Winter	Clinton Winter	Box 262
Trennis J. Hayward	Trennis J. Hayward	Box 289
Byron Hayward	Byron Hayward	Box 446
Arthur F. Wellington	ARTHUR F. WELLINGTON	Box 12
Richard P. Hudson Jr	Richard P. Hudson Jr	Box 747
Wendy Riden	WENDY RIDEN	Box 157
Blaine Hayward	Blaine Hayward	Box 256
Victor Wellington Jr	Victor Wellington Jr	Box 69
Chris Booth	Chris Booth	Box 395
(13) Nick S. Olsen	Nick S. Olsen	Box 157
Peggie Atkinson	Peggie Atkinson	Box 463
Rondy Fawcett	Rondy Fawcett	Box 511
David Booth	DAVID BOOTH	Box 605
Pamela K. Leask	Pamela K. Leask	Box 763
Kevin E. McKeelhan	KEVIN E. McKEELHAN	Box 763
Michele Gunyah	MICHELE GUNYAH	Box 414
Mark H. Gunyah	MARK GUNYAH	Box 414
John G. Fawcett	John G. Fawcett	Box 44
Eric C. Leask	Eric C. Leask	Box 766
Steven L. Booth	Steven L. Booth	Box 395

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MEMORANDUM

STATE OF ALASKA
COMMERCIAL FISHERIES ENTRY COMMISSION

TO: The Honorable Albert Kookesh
House of Representatives
Alaska State Legislature
M/S: 3100

DATE: November 29, 1999
(907) 789-6160 VOICE
PHONE: (907) 789-6170 FAX

FROM:  Commercial Fisheries Entry Commission
Marlene Johnson, Commissioner
Mary McDowell, Commissioner
Bruce Twomley, Chairman

SUBJECT: Letter From Tim Gilmartin
Regarding Metlakatla Dive
Fishermen

Thank you for sharing the October 29, 1999 letter that you received from Timothy Gilmartin, the mayor of the Metlakatla Indian Community. Mr. Gilmartin and others in the community are concerned about how Metlakatla fishermen will fare if the Commission limits entry into some or all of the Southeast Alaska dive fisheries.

We held a public meeting in Metlakatla in 1998 to discuss the SE dive fisheries. In addition, as you will recall, we met with you and a delegation of Metlakatla city officials on this topic last spring. We understand that the employment situation in Metlakatla recently has taken a turn for the worse and we are very sympathetic with the economic concerns of the residents of the community. Nevertheless, we must act fairly in accordance with the law in determining whether or not to limit these Southeast dive fisheries and in determining who is eligible to apply should we limit entry into one or more of the fisheries.

The Southeast Alaska dive fisheries for geoducks, sea urchins, sea cucumbers, and abalone have been under a moratorium on new entrants since July 1, 1996. The moratorium was established by Alaska's legislature when they passed HB547 in 1996. The legislature established the temporary moratorium largely

because of resource conservation and management concerns and the fears of Alaska divers that the viability of these fisheries were being jeopardized.

The moratorium law was codified as AS 16.43.228. By law, the moratorium is to last only four years and is due to expire on July 1, 2000. The law directs CFEC to consider limiting these fisheries prior to the end of the moratorium. These fisheries will return to open access on that date unless the commission establishes a permanent limited entry program or the legislature passes a new law restricting access.

So far, the commission has proposed limiting entry into the geoduck and sea urchin fisheries. These proposals are based upon concerns that the fisheries will become inundated with new effort from both inside and outside Alaska if they are returned to open access. The commission held public hearings on these proposals in a number of S.E. Alaska communities in October of 1999.¹ The public comment period on the proposals closed on November 8th and the commission is presently considering the testimony. The public comments appear to support limitation of the geoduck fishery as well as the sea cucumber and abalone fisheries which were not included in our original proposal.

The commission will meet on November 30th to consider these limitation issues. If we decide to limit entry into any or all of these Southeast dive fisheries we will act in accordance with the Alaska's limited entry law. AS16.43.260 (a) requires us to accept applications only from applicants who participated in the state fishery being limited and commercially harvested the resource as a permit holder in that fishery prior to the qualification date.

¹The commission scheduled a meeting in Metlakatla, but bad weather forced cancellation of air flights. However the commission arranged for Metlakatla residents to testify by teleconference.

If we limit a fishery that is subject to a moratorium, AS16.43.260 (f) requires that we look only at an applicant's qualifications as of the effective date of the moratorium law (July 1, 1996 as noted above). Furthermore, the moratorium law (AS16.43.228(g)) prohibits the commission from using an applicant's participation during the moratorium period for eligibility for an entry permit that may be issued in a fishery following termination of the moratorium. The legislature passed the moratorium law to halt new entrants into these fisheries, and established these "cut-off" provisions to reduce effort during the moratorium.

Thus July 1, 1996 is the qualification date in our limitation proposal. By law, CFEC can only accept applications from persons who actually participated in the fishery prior to the qualification date and commercially harvested the resource as CFEC permit holders. By law, we cannot allow nonparticipants to apply. Moreover, if the legislature passed a new law allowing some nonparticipants to apply but not others, it would give rise to an "equal protection" or "open access" constitutional challenge. We know that there are many persons who did not participate in these fisheries prior to the proposed qualification date who would like to enter the fisheries, including both residents and nonresidents of Alaska. We note that residents of Metlakatla had the same opportunity to participate in the S.E. dive fisheries during the qualifying years as all other individuals.

The participation requirement prior to the qualification date has been true for all entry limitations. These rules in the limited entry law have become fairly well known among commercial fishermen. Some Metlakatla divers did participate in state managed dive fisheries prior to July 1, 1996 and will be eligible to apply in those fisheries if the fisheries are limited.

Our current proposals for limiting the Southeast sea urchin and geoduck dive fisheries only apply to the waters in Southeast Alaska where the State of Alaska has jurisdiction. Waters controlled by the Annette Island Reserve (Metlakatla) are not covered by the proposal and could not be limited under the proposal.

The dive fisheries in the waters of the Annette Islands Reserve are exclusively controlled and managed by tribal authorities under federal law. Many persons from Annette Island have participated in their dive fisheries and outsiders are excluded from these fisheries. The waters of the Annette Islands Reserve are not under the jurisdiction of the State of Alaska and cannot be included in any limited entry plan. These waters will continue to be managed by the tribe for the benefit of Annette Islands residents. Metlakatla divers will be able to continue to participate in the tribal-managed fisheries.

Additionally, Metlakatla residents have always been able to participate in state-managed fisheries. Some of the SE dive fisheries had been going on for several years prior to passage of the moratorium law. The moratorium law temporarily halted new entry into these fisheries and that is a source of frustration for some Metlakatla divers who are not eligible during the moratorium but would like to enter the state-managed dive fisheries in the future. Several residents of Metlakatla testified during the public hearings on our limitation proposal that they want all of these fisheries to return to open access at the end of the moratorium.

Open access for some or all of these fisheries is still an option under consideration. Contrary, to Mr. Gilmartin's letter, these fisheries currently contain a mix of both resident and nonresident fishermen. Many resident fishermen have had the opportunity to learn how to harvest sea urchins during the moratorium.

We are currently trying to sort out disparate forecasts of what a return to open access would mean for these fisheries. While such a move would allow additional persons from Alaska who would like to enter these fisheries to do so if they can find a market, many have predicted that there would be an immediate influx of highly skilled divers from outside Alaska particularly in the sea urchin and geoduck fisheries which are more technically challenging and require a considerable amount of acquired expertise. We have heard testimony that a return to open access would mean that processors would rely heavily on new outside divers who have already acquired the requisite expertise.

A return to open access may also mean greater effort, overcrowded dive areas, shortened seasons, and more intensive fisheries that are more difficult and expensive for the state to manage and control for resource conservation. Shrinking seasons may also lead to increased safety concerns as well as marketing problems and lower ex-vessel values that will further lower the potential value of these fisheries to Alaska fishermen and their families. Indeed, during our public hearings we received testimony from some divers urging us to limit these fisheries even though they did not expect to qualify for an initial permit allocation. They claimed that they would rather buy a permit to enter a controlled access well-managed commercial fishery than enter an open access fishery that had been rendered worthless by excessive effort.

We note that the State of Alaska has created two loan programs to help Alaskans who want to purchase limited entry permits. There may be additional federal sources of potential funding or financing for tribal entities. These programs can assist residents of Metlakatla and other Alaskans enter fisheries subsequent to limitation.

In summary, CFEC is still considering the best approach to take on these fisheries. However, if we do decide to limit one or more of the fisheries, only persons who participated in a fishery and commercially harvested the resource prior to the qualification date will be eligible to apply for an initial permit allocation for that fishery.

We hope that this memorandum has been helpful. If you have any questions, please don't hesitate to contact us. We would appreciate any thoughts or comments that you might have on these issues.

cc:

Solomon Atkison, Mayor-elect of Metlakatla
Timothy E. Gilmartin, Mayor of Metlakatla
All members of Alaska Legislature



October 23, 1999

Bob Tkacz
Alaska Fisherman's Journal
Juneau, Alaska

Dear Mr. Tkacz:

I thought I might follow up our interview in Juneau with some more information on what Alaska Trademark Shellfish is trying to accomplish, and how our geoduck aquaculture project is an appropriate use of the state resources.

The goal of our company is to develop a profitable year-round seafood business that will employ 15-25 Alaskans. Our company was formed by three long-time Southeast fishermen (salmon, longline and dive fisheries) who were concerned about our ability to continue to make a decent living and decided to gain more control over our business of producing high quality seafood.

As active participants in the geoduck dive fishery, we were particularly concerned about the management of the fishery and slow progress toward making it a viable harvesting business endeavor for participants. What prompted us to action was the realization that Alaska's geoduck resources will never support a large harvest because of limited habitat and that our tiny fishery is about to be overwhelmed by farmed product from Washington State and British Columbia.

My decision to become involved in aquaculture was not easy. I was born and raised in Ketchikan and always have made my living as a fisherman. My salmon seining business had become very marginal over the past decade, my longline quotas were too small to remain viable, and the geoduck quota was being cut. It became difficult to see how I could continue to adequately provide for my wife and two young children. I sold my fishing business to help finance our new business venture, and my partners have made similar sacrifices.

Alaska Trademark Shellfish has carefully prepared to make our entry into the aquaculture business by visiting geoduck farms in Washington, contacting scientists, researchers and farmers, and hiring an knowledgeable expert on geoduck biology and aquaculture. We have collaborated with the University of Alaska and the Qutekcak Shellfish Hatchery in Seward in projects to conduct controlled growth studies, broodstock collection and research into sub tidal planting methods. The Marine Advisory Program plans to develop a husbandry manual for Alaska farmers using project results.

We applied for sites on the west coast of Prince of Wales Island following careful research into selection of suitable habitat in relatively protected areas. The choice also was based upon minimizing potential conflicts with other users, including the geoduck fisheries, the nearest of which are 45 (Gravina Island) and 60 (Noyes Island) air miles away. The area is not included

in sea urchin or sea cucumber harvest areas, and there are no other commercial fisheries nearby. Likewise, the isolated area does not support sport, personal use or subsistence fisheries or pose any other conflicts.

Yes, the sites do contain significant numbers of geoduck clams, and we do plan on utilizing these standing stocks to offset propagation costs and support the hatchery's high research and development costs for producing the seed we need for planting activities.

The following table uses ADF&G's biomass estimates for our proposed sites to show what the resource might mean on an annual basis for the geoduck fishery. The figures also assume an exploitation rate of 2%, a 1998 \$2/lb. grounds price, and participation by 160 (moratorium number) and 104 (proposed number of limited entry permits) divers.

Site	Acreage	Biomass	Annual Harvest	Annual Value	\$/Diver (160)	\$/Diver (104)
Dall Is.	8.78	198,057	3,961	\$7,922	\$49.51	\$76.17
Long Is.	6.82	73,348	1,467	\$2,934	\$18.34	\$28.21
Long Is.	18.01	343,880	6,877	\$13,754	\$85.96	\$132.25
Totals	33.61	615,285	12,305	\$24,610	\$153.81	\$236.63

The 12,000 pound annual harvest would be about the size of the Seymonds Bay geoduck fishery on Biorka Island in Sitka Sound, a fishery that ADF&G generally is nervous about opening for fear of over-harvesting. The fleet is capable of taking a 12,000 pound quota in a two-hour opening.

In contrast to the 12,000 lb. annual harvest, Alaska Trademark Shellfish's farming operations would produce one million pounds of geoducks per year at the site and provide year-round employment for 15-25 Alaskans, including most of which will be divers. ATS has secured funds to send several Alaskans to a first-class advanced dive school in California and we plan to recruit other divers to work on the project.

Limited entry has been proposed for the Southeast geoduck fishery. Participation would be limited to 104 divers. While non-resident divers will get about 60 percent of the permits, these more experienced divers take about 80 percent of the quota. Limited entry will eliminate 56 mostly resident divers from the fishery.

Alaska captures very little from the geoduck fisheries which are managed to take the quota very quickly, effectively relegating the fishery to lower-value processed markets. A slower paced fishery could cater to the more lucrative live market in China, doubling the grounds price to divers.

This is in stark contrast to the estimate of one of the region's largest shellfish farm which estimates 90 per cent of its revenues are spent in Alaska because of the year-round nature of the business. I believe it is in the state's best interest to encourage and support development of geoduck aquaculture by local residents. Approval of applications like those submitted by my company is the best thing the state could do to help residents develop year-round businesses in rural Southeast Alaska.

My partners and I believe other Southeast geoduck divers would be better off getting involved in aquaculture operations. I was one of the first Alaskans to get involved in the geoduck dive fishery, helped start the state's first dive fishery association, and was a leader in the effort to obtain legislative approval of the self-assessment funding mechanism for the dive fisheries. Despite the resolution opposing geoduck aquaculture from the Southeast Alaska Regional Dive Fishery Association, I know that many other divers support farming the species in Alaska.

Thank you for considering these comments as you write your article.

Sincerely,

Scott Thomas

SARDFA
Southeast Alaska Regional Dive Fisheries Association
P.O.Box 2138, Wrangell, AK 99929
Ph: 907-874-3110; Fax: 907-874-4270
gigjulie@seapac.net

Legislators of the State of Alaska
Capitol Building
Juneau, AK

March 1st, 2000

RE: SARDFA's position on aquatic farming of geoducks

Dear Legislators,

I am writing to you on behalf of the Board of Directors of the Southeast Alaska Regional Dive Fisheries Association, SARDFA. The Board of Directors is composed of eight directors: one mayor, one processor from the dive industry, and six divers (one at-large, and one from each community - Ketchikan, Craig, Sitka, Petersburg, and Wrangell). SARDFA was officially recognized by the State on March 5th, 1998. SARDFA is a non-profit, economic development corporation with the following mission statement:

- The mission of the Association is to develop, expand and enhance new and existing dive fisheries in Southeast Alaska. This is to be done by implementing the Regional Dive Fishery legislation, CSHB198 (self-assessment), and by collecting, organizing, and utilizing other appropriate resources.
- The Association views the local knowledge, experience, and talents of dive fishermen as a primary resource to be used and coordinated by ADF&G to help develop commercial dive fisheries in an economically feasible manner.

The divers voted to assess themselves (7% for urchins, 5% for geoducks and sea cucumbers) and began collection of the assessments in 1999. The assessments are expected to total \$330,000 the first year, and these funds will go to increase management activities and areas open to harvest. This background information will help to better understand SARDFA's position regarding aquatic farming of geoducks.

SARDFA is not opposed to aquatic farming. In fact, SARDFA is interested in supporting any economic development activities for Southeast and its residents.

On the last Board of Directors' meeting, February 25th, 2000, the Board expressed the following concerns about the current geoduck farm applications.

Standing Stocks

Greg Wood (SARDFA Director): "Can geoduck farming work in Southeast Alaska without utilizing standing stocks?"

Scott Thomas (farm applicant): "I think so, but you would need about \$5 million dollars to do it."
-taken from the minutes of the SARDFA Board of Directors' meeting, 2/25/00

The largest concern within the geoduck dive industry is the use of standing stocks to finance the farm operations. SARDFA believes allowing the geoduck farmers to use standing stocks to finance their operations will drastically hinder SARDFA's plans for development of the common property geoduck dive fishery.

The areas requested in the farm permit applications have not been fully utilized at this point by the common property geoduck fishery due to a lack of funding within the State to do so. ADF&G has not had the money to survey these unutilized areas in order to set guideline harvest levels and allow commercial harvests. The hindrance of the development of the dive industry, because of this lack of State funding, has been the main reason for organizing SARDFA and the dive assessments. The dive industry has been planning this development for five years with financial support from the communities, divers, and processors of Southeast. With this funding mechanism in place, the geoduck industry is poised to open these unutilized areas to increase the annual quota available for harvesting. Now is the first year that the dive assessment will return to the geoduck fishery to help fund this development.

Several of the geoduck farm applicants are actually divers who have been intimately involved in the planning of the development for the geoduck fishery for the past five years. These applicants are now asking the State for exclusive rights to standing stocks, which would seriously impair development of the common property geoduck fishery. These applicants did not come to SARDFA for support during the application period, nor have they supplied information regarding their farming operations to SARDFA when asked, until this past Board of Directors meeting.

Some farm applicants have implied that they have not requested much area compared to the entirety of Southeast. However, it is the nature of the wild geoduck to grow in small, concentrated pockets, called "beds". These beds do not occur everywhere throughout Southeast. It has been a part of the planning of the development of the geoduck fishery to find these beds and fund the surveying of them. However, several of the largest known beds to divers have been requested by farm applicants.

Enforcement & Lack of Guidelines

The next most important issue to the SARDFA Board of Directors is enforcement. If a farm is operating 365 days/year in a remote area, it would seem next to impossible to enforce regulations about how much product is sent out and from where. Also, there are currently not adequate guidelines for establishing and managing the geoduck farms.

~~Brood Stock~~

There remain two important questions to SARDFA surrounding the taking of brood stock to supply "seed" to the geoduck farms: How much brood stock is needed? From where will it be taken?

Financing Activities

Since the dive industry was required to put forth an assessment to develop its industry in the face of dwindling State finances, it would only seem fair to expect the same of the aquaculture industry.

Disease and Competing Markets

As with finfish farming, the impacts of disease and competing markets on the wild geoducks as a result of geoduck farming has not been adequately discussed.

Options

In conclusion, the SARDFA Board of Directors offers the following options to help solve these conflicts:

- 1) Geoduck farm applicants ~~that do not contain standing stocks of geoducks~~ &G.
- 2) Geoduck farm applicants ~~that do not contain standing stocks of geoducks~~ start-up costs, instead of financing farms with the use of standing stocks from a developing common property fishery.
- 3) If the previously stated concerns cannot be resolved at this time, geoduck farm permits should not be issued until these concerns can be resolved.

Thank you for your time and consideration in this matter. Over 100 individual small businesses within Southeast will be affected by your decision.

Sincerely,

Julie Decker, Executive Director, SARDFA

Cc: Representative Harris, Co-Chair, FSH
Representative Morgan, Co-Chair, FSH
Representative Hudson, Co-Chair, RES
Representative Masek, Co-Chair, RES
Representative Phillips, Chair, ECT
Senator Halford, Chair, RES
Senator Taylor, Vice-Chair, RES
Senator Torgerson, Co-Chair, FIN
Doug Mecum, ADFG
Jackie Timothy, ADGC
Guyla McGrady, ADNRR
Scott Thomas, Alaska Trademark Shellfish
Roger Painter, Tenass Pass Shellfish Co.
Board of Directors, SARDFA

SARDFA
Southeast Alaska Regional Dive Fisheries Association
Board of Directors' Teleconference

February 25th, 2000

Minutes

Chair (Watson): Julie, can we have roll call taken?

Present: Brant Baxter (Craig), Dennis Watson (Mayor), Ed Gray (Sitka), Rod Linton (At-large), Steve Abernathy (Processor), Greg Wood (Wrangell), Mike Bangs (Petersburg).

Not Present: Tom Trumper (Ketchikan) – he enters the teleconference 10 minutes late.

Also present: Gig & Julie Decker, Kyle Hebert, Phil Doherty, & Scott Walker.

Watson: We've got a quorum established. We need to have someone move to accept the past minutes.

Greg: I move to accept the past minutes. Seconded. All in favor.

Watson: Amendments to agenda? Do we have any?

Julie: I just got an email from Scott Thomas this morning and he requested to be heard earlier in the meeting because he has to leave at 10:45am. So we could put him after the executive director's report if that's all right with everyone?

Rod: Scott was here but he had to leave, he only has a brief amount of time he can be here and so we said we would call him when we get to that spot in the agenda.

Julie: Should we hear him later in the agenda then?

Rod: Why don't we just wait until we get to #14 in the agenda and call him then.

Julie: Okay.

Watson: Hang on a second. I thought Scott had bailed out, evidently he didn't. Did he get the material to us he was supposed to.

Julie: He bailed and then wanted to speak again. And no he didn't get the material to us to summarize what he wanted to say.

Watson: So after dealing with the issue with Steve LaCroix we're going to let Scott do it without giving us those materials.

LaCroix I don't object.

Watson: There has to be some consistency here. We asked for that stuff for a reason.

Julie: Right. I see your reasoning. But I do think there are some aquatic farming issues that need to be discussed with the Board. Maybe it would be better to have a separate meeting with the Board and the farmers.

Watson: I tell you what I'm going to do. I'm going to hear from the Board on this issue, knowing what happened at the last meeting.

Rod: Ketchikan doesn't have a problem.

Mike: We'll take the time.

Greg: I don't have a problem.

Ed: I don't have a problem if we can get through the rest of our material, if he wants to speak at the end.

Watson: I suggest we hear him at the end of the meeting.

Clay: Okay we'll call him when we get there.

Don House: Julie did you send a fax to us?

Julie: I sent a fax yesterday for Rod Linton and I spoke to someone in your office, Leslie, and Rod did you get that?

Don: I just needed to make copies for the rest of us.

Julie: It was just some of the Board materials that couldn't be emailed.

Watson: I have been asked to bring up the idea of Sitka assembly being paid back for the assessment work. I few have time at the end of the meeting to bring that up on item #16. Is there anything else under the amendments to the agenda? Are you guys listening? (Yes). I'm working on a draft. Let's move along to the Executive Director's report.

Julie: Some of the latest things happening is that SARDFA received the grant that a lot of you wrote letters in support of. We received \$60,000 on a reimbursement basis. We should be receiving the first

reimbursement in a couple of weeks. We went to the Legislature on Monday and Tuesday, Gig and I, and spoke to as many legislators as we could. We gave them a four point speech to them all. First we explained who SARDFA is and where we've come from so far. Second, we discussed the bill in the house right now, HB333, that reclassifies the dive assessments as non-general fund program receipts, and we're in the midst of figuring that out. The third thing was aquatic farming. We said that SARDFA was not opposed to aquatic farming but we do have some conflicts with geoduck farming in the way that the applicants wrote up their application. The fourth point was limited entry and that it's on the table for this Board meeting. The Legislators were all very interested in these topics and they would like to see the minutes from this meeting. They would like to continue our conversation with them. A lot of them expressed an interest in coming to some resolve about the aquatic farming issue. Geron Bruce has published a "Plan for Developing New Fisheries in AK". I will mail copies out to everyone. You can comment on it by August. The other thing that's happened recently is the Board of Fish. We weren't there but Mike Bangs was there and maybe we could have him comment right now about it?

Watson: Does the rest of the Board want to hear Mike's story right now?

Ed: Yeah.

Greg: Sure.

Mike: There were three other people beside myself there and we aired our concerns to the Board members who attended the meeting. We went over the way SARDFA had voted on each of the issues. There was very little change, although Nitrox will be used. They thought the safety factor outweighed it. That was the only change that we didn't agree with whole-heartedly. As we talked about it more, there was no legal way to stop the use of it, so there was no enforcement of it and that was the reasoning behind that. There were no other changes made besides that. Any questions?

Watson: Next, timeline for the geoduck 7% assessment vote.

Julie: The Board at the last meeting said they would like to combine this vote with the Board of Directors vote to save some money on mailings. When I looked back on the law and the way these votes must happen, it looked like we wouldn't be able to overlap much more than one mailing. That would cut down the expenses of the vote by about \$300 or so. Basically, we can try to combine these two votes or have them separate. The one thing to make clear is that the public meeting in the geoduck assessment vote needs to be during a time when the public can attend, like not in the summer. I would like to hear from the Board right now to see when they would like to administrate these votes.

Brant: Has the Board decided that they want to do this?

Julie: I'd have to look at the past minutes, I believe that the Board was just unsure of what time to do this.

Watson: Who votes on this?

Julie: It's written in the law that the people who hold an interim use permit this season will get to vote on this. We will get that list from CFEC.

Watson: I see a conflict there because we don't know who be involved after July 1st, but if the committee is okay with that then that's fine.

Julie: Yeah, the committee seemed that they wanted to do that at the last Dec. meeting.

Brant: I think the geoduck committee is still behind it, I just forgot whether the Board voted on it yet.

Ed: If the committee wants it let's just have it as quickly and as economically as possible.

Watson: The question is still whether or not the Board voted on this. I wasn't at the last meeting.

Julie: I can't check to be 100% sure in the last minutes. It will take a couple of minutes here.

Watson: The way the committee works is that the committees decide and the Board then votes on that decision before there is action.

Mike: Dennis, at the last meeting we voted to back up what the committee came up with, but the question was what time to have it. The Board wanted to see if we could combine the vote with the Board of directors vote to save costs. If this was too late in the year for the geoduck committee then we would have to find a different way to fund it.

Watson: My concern is just to make sure, because someone could contest it otherwise.

Julie: I've got the summary here and it says the Board unanimously approved putting out a ballot to amend the geoduck assessment and the timeline will be set at a later date.

Watson: Okay.

Brant: If we did it right now, would we be able to get it done in time for next season?

Julie: Yes.

Brant: Then we should just go ahead and do it.

Rod: I agree.

Greg: What would the normal timeframe be for the Board of Directors vote?

Julie: The normal timeline is June 1st through Sept. 1st, so we can have the new Board members in place for the annual meeting in October.

Greg: So if we coincided these we could still have the assessment on line by October?

Julie: I think so. The Commissioner just has to verify the results, so if the season opened October 1st it would be a little tight.

Greg: If we could save the \$300, I say let's save the money, it sounds like we can so we should save the money.

Watson: Well, if you're going to spend money we should have a motion on it.

Greg: I move that we proceed directly to put the vote for the geoduck assessment to 7% along with the vote for the Board of Directors. Seconded. All in favor.

Tom: This is Tom Trumper. And I'm on line and I vote yes on that.

Watson: Julie did you get that?

Julie: Are there any no's?

Watson: No, next item is the executive directors' raise. I don't know where you'd like to start with this Julie.

Julie: Where we left off in October was in the discussion of the SARDFA budget we were trying to trim down some items to make the budget, as Rod said, "lean and mean" and the executive director's raise that we had asked for was cut out - that was for \$10,000 a year starting in October. My impression was that we wanted to see how the funding issue was in Feb. and we would revisit it then to see if we got a grant or a loan.

Watson: For the benefit of anyone in the audience, would you break down what is in the current salary.

Julie: The current salary is \$25,000/year for salary for Gig and I and \$5,000 a year for running the office out of our home, for a total of \$30,000. This salary would increase our salary to \$35,000/yer and still give us \$5,000/year for the office.

Watson: Okay let's talk about finances. What do we have for finances?

Julie: We have nothing right now. In a few weeks we will put in to be reimbursed for the amount of money we have spent so far from the \$60,000 grant we've received, because we received on a reimbursement basis.

Watson: I understand about reimbursement. What is the status of the remaining grant money?

Julie: The \$60,000 will cover a \$10,000 raise and we will be online with our budget without having any debts. Out of the \$25,000 salary that we received for our first year, which we haven't received yet, but we've had contracted for our first year, \$5,000 of it was paid by ADF&G in order to have us draft an Annual Operating Plan. That was directly taken off of our salary that SARDFA has to put out. We've also been able to get \$37,000 from ADF&G to open the urchin fishery this past October and then this \$60,000 grant so these are moneys that we have directly brought to the Association. Without getting into a long discussion about how much time and effort it takes to do this job, we feel that we've been doing a good job. We feel our first year was a learning experience and now that we've made the contacts between SARDF and the State and we're experienced at this we feel this a justified thing.

Watson: I'd like each Board member to give their thoughts.

Greg: Remembering back to the last Board meeting I remember we had the sentiment that if we receive this grant we'd like to give them this raise. What other monies do we have in the future? Are we going to be able to keep up that level in the future. How much assessment money are we going to be able to use for administration in the future?

Rod: I feel the same as Greg. If we have the funds right now, that's good, but if we can't cover this in the future, maybe she can comment on this later. I don't have a problem giving them the extra money. I certainly think they deserve it.

Steve: I think they should get the raise, I think they are doing a good job and spending a lot of time, I don't think the association runs into any major deficit. They went a long time without knowing if they were going to get paid. If I'm not mistaken we set it up that if the association has the money then they get paid. The association can't run into debt. Gig and Julie didn't even know if they were going to get paid.

Tom: They deserve it. The way we have it set up, we can't go into debt. I really felt that they should have it.

Brant: I think they've paid their way at this point. I would like to see them continue to bring in outside money. I'd like to see them continue to bring in outside money. If they can do that, I don't see how anyone can complain.

Ed: Offer them five and see if they'll take it.

Mike: I think they've done a good job and they deserve to get a raise. If the funding is a problem in the future, then maybe we can split the difference like Ed suggested.

Dennis: Anyone left? My feeling on it is that they've carried a lot of debt not knowing if they were going to get paid. I'm pretty familiar with what they have to do to this. But I'd like to state this clearly...right now they've got this grant money, so I'm for doing it now, but making the salary work for the future we may have to do. We may have to sit down and make this work if we run up against some problems. Basically, we have people who are concerned about the future.

Rod: I'd like to make a motion that we approve the \$10,000 raise. Seconded. All in favor.

Watson: Next issue. The AOP for FY2001.

Julie: Okay the budget I gave you is not exactly what ADF&G gave me late yesterday afternoon. I emailed to you guys this morning but you probably didn't get it. It outlines what they would like to do with the dive assessments next: what areas to survey, what research projects to do etc. I don't really know how to do this without you being able to have the material in front of you. I could go through each fishery and name off the expenditures. It's four pages.

Watson: I feel at a loss without having this in front of us.

Rod: I feel the same.

Watson: What's our timeline Julie?

Julie: The legislator is meeting concerning this budget right now, but I don't think this has to be set in stone today. No one has told me that.

Watson: Get us copies of this and if we find ourselves in a time crunch we can do a phone poll. Does that sound good to the Board?

Mike: Kyle is here and he said he can fax this to everyone is that would work. It's a one page summary. Then the Board can discuss it in a few minutes.

Watson: Is everyone in a position where they could receive a fax?

Tom: I'm sitting on a beach in Florida. There's no way I could receive a fax.

Watson: It's my feeling that we would like to digest what we're reading before we make a decision. We'd like to have time to go over this thing.

Rod: Julie, you said you emailed that to us?

Julie: Yeah, about an hour before the meeting.

Rod: Are we going to have a break in the meeting or just roll through it?

Julie: Roll through I think.

Watson: I'm afraid I cost us some time in the beginning and we have to roll through this. Let's put this off for now.

Julie: We can do a legal vote as long as everyone has the same piece of paper in front of them. The other thing is that some Board members need to talk to the Committees about some of these issues. Some of the things aren't budget items, but rather priorities of areas that you would like open next year. So I think it would be a good thing for the Board to look at.

Watson: Let's go to the next issue then. Have we already taken care of this?

Julie: I was thinking that in order to disperse these funds when we receive them from the grant agency, we should have the Board's okay.

Watson: So we need to have someone put the figure with the raise on it on the table so we can vote on it.

Brant: I motion we approve the executive directors pay of \$44,689.64. Seconded.

Greg: I would put forth an amendment to add the accountant and Telspan on the motion.

Watson: Julie, what do you think?

Julie: Sounds good.

Brant: I'll second that.

Watson: Okay so what we have on the floor is authorizing payments as on the agenda with the addition of the executive director's raise and the amendment.

All in favor.

Julie: One thing I would like to say about this company that we're teleconferencing with is that we got cut off in the last Geoduck Committee meeting and they credited us the entire next Board meeting, which was actually more than the entire geoduck committee meeting. So they're being very reasonable with us. I'm sure they will do something about this meeting as well, since Dennis couldn't get hooked up.

Watson: You're coming in and out, but Mike sounds like he's right next to us, so I do think there are some things we should negotiate out.

Watson: The next issue is the NBA account for USDA grant funds...Julie?

Julie: We're going to open a new account to put the USDA funds in to keep track of the grant. I would like to know the Board members ideas on if we should put all of the Board's names on the signature card or if just Greg, Gig, mine, and one other Board members would be sufficient? That way we can disperse these funds in a couple of weeks when they become available.

Rod: I think we should do like we did with our other account, so we don't have to chase someone down.

Watson: How does everyone else feel? We still need two signatures, right?

Julie: Yes.

Watson: It's usually pretty hard to nail down everyone, since we're in and out so much.

Julie: Okay, I'll send around the signature card and if everyone could turn it around as soon as possible, we'd appreciate it.

Rod: Are we able to go to the local branch in town to sign or do we have to wait for the card to come around?

Julie: I don't know about that, but I'll check on it.

Ed: I won't be home until March 7th, so skip me until then.

Watson: Let's move on to urchin recon bids.

Julie: Maybe Kyle Hebert can speak here.

Kyle: There was a request to change the requirements to do a recon survey. The Board originally required people to have made landings in 3 of the last 4 years. Someone who is a diver who hasn't made landings in the last couple of years would like to bid. ADF&G would like to know what you would like to do.

Ed: Okay that's reasonable to change so we don't have to have them 3 consecutive years.

Rod: I don't think it's set up for 3 consecutive years. I think it's within the past three years. I think it should stay the same:

Julie: Excuse, but it is set up so they have to have made landings in 3 of the last 4 years.

Rod: I think it should stay that way.

Abernathy: I don't care. But if the work is being done, I would leave it the way it is, I'm not up to speed on how many people have been bidding. I don't think we want it so that no one is bidding, or that if one person bids there is no competition.

Tom: Are we having problems getting people to make the bids?

Kyle: We've had three rounds of bids. There's been growing participation in the bid process. First, we just had minimal bids, and the last one has had more bids than jobs.

Tom: If there's no problem getting bids, we should leave it the way it is.

All the same sentiment - stay the way it is.

Watson: I'd like to see competent people involved, so I'll probably go with the stay the way it is. I don't want to open the door for anyone to make a mess of this. We want the work to be credible.

Abernathy: I can agree with that. If it's not broken let's not fix it.

Watson: Let's move on to item #12.

Julie: These are things that have come up that I think there will be room in the budget that you all approved, because we haven't been making the long distance calls for the amount that you budgeted. There is a newsletter, I think everyone's got a copy of it. Bob Tkacz, who is a reporter for Alaska Fishermen's Journal, also writes this newsletter. It is published every Friday and it highlights all of the action taken in the Legislature having to do with fisheries issues. We feel it is worth it, and we will pay for it if the Board does not want to. We feel it is worth it, because sending us to Juneau is a real expense, but if we can keep abreast of the issues each week, we can react quickly enough to follow issues with phone calls, emails, and teleconferences. The next one is consultation with Steve Grabacki. He is with Graystar Seafoods. They do all kinds of projects like the Copper River Red marketing and consultation. He is also the executive director of Alaska Fisheries Development Foundation. He's pretty much got his finger on the pulse of these things. He is willing to meet us in Ketchikan or Juneau so we don't have to pay his travel from Anchorage, so we'd just have to pay \$100/hr to talk to him.

Watson: Did we ever join SE Conference?

Julie: No, I'm not sure how to do that.

Watson: We should do that because they are the reason that we're on the map.

Greg: For the newsletter, is this a subscription price or just to lend support to his efforts?

Julie: \$300 is the subscription fee per year.

Rod: Would this fee allow us to put it on our web site and all the members see it?

Julie: I'm not sure about that. I think he's flexible there. We'll talk to him about that.

Rod: I don't want to spend \$300 per person of SARDFA.

Julie: Yeah, that sounds unreasonable and I think he's reasonable about this.

Watson: It sounds more attractive to me if we can do that.

Mike: I saw the original newsletter in Juneau, I think every Board Director should receive it for this price, but I think it's worthy. You can get a newspaper subscription for a year for \$35.

Gig: I believe that was Bob Tkacz's intention for the entire association to be able to receive the newsletter and we could distribute it via email. Since I've stepped in, I'd like to make a couple of quick comments. For people in our positions who are trying to keep track of things like the geoduck farming, it makes it available for us to keep on top of this. Also, in respect to Steve Grabacki, one thing he can help us with is grant development. This is something that I'm sure the Board wants us to keep focusing on.

Rod: I think if we can make this available to all the members of the association, I'd like to see it approved. How often is this published?

Julie: Once a week every Friday.

Mike: Just during the session?

Julie: Yes.

Rod: I'd like to do it.

Mike: Same

Watson: So if this is available to our whole membership, do we want to go ahead with it?

Greg: I feel the same.

Watson: Is there anyone who disagrees?

Brant: I don't think we should spend money on this, but I don't think I can comment intelligently here and I would defer with Gig & Julie's opinion here.

Watson: I'd like to put my two cents in here. Tracking legislation is very tiresome. If he is doing all the front work, since that's what he does for a living, it saves our office a lot of work. It takes a lot of time figuring all the tracking out, and that means that much less we can do in our office. Any other comments? Let's move on to the Grabacki issue. I've seen what he can do. I'd like to have him at a meeting to talk to him to get a better feeling of what can be done. When you start talking about \$100/hr, I'd like to have a little bit better plan.

Rod: If we approved \$100/hr, when is he charging us and for how long? I'm concerned about it and I'm not all that much in favor of doing this.

Watson: yes this is an open ended request, not intentionally. I think that any relationship with Mr. Grabacki should be laid out clearly so Board members exactly what they are getting out of it.

Abernathy: I think we could handle this issue by having an account for consultation so when something comes up we could use it for those items.

Gig: Can make a comment? In conversations with Mr. Grabacki, once the Board showed some positive interest in working with him, we intended to write up a perspective of issues we could use his help on. I believe he is willing to put together a presentation to the Board of these issues and at that point, you can decide whether you'd like to contract with him.

Rod: I think we should move off of this issue and wait until we know better what to expect.

Greg: I'd like to be clear that he is willing to develop a perspective and a presentation to the Board.

Watson: Okay, next issue, Walker's email.

Rod: I'd like to jump on this. I don't think it's reasonable to give ADF&G the money from overages.

Let's have a 10% allowance for overage, and if there is anything beyond that it goes to ADF&G. We don't have scales on our boats. I don't want to see us cut ourselves short.

Walker: The reason we're doing this is to address the concern and solve this problem. A lot of times the fishermen's catch goes to the processor. The same thing was a concern for the grounds fish fisheries. We'd like to mirror what happened there. They have trip limits also. I talked to all of the tenders and found that it is a wide-spread problem that there are thousands of pounds landed that is not recorded.

Tom: Is it possible that when someone goes over it could be taken off of the next week's allotment.

Mike: that sounds like a nightmare to track.

Brant: I think you should give a specific percentage without giving a ticket.

Walker: Enforcement suggested that between 100-200 pounds overage would be without ticket and the rest goes to ADF&G.

Abernathy: If you have a limit, that's the point of a limit. If I had a limit of 2200 pounds, that's what I would go get.

Rod: I think that's the point of giving the money to ADF&G.

Mike: I don't have a problem with giving a 5% overage that goes to ADF&G.

Ed: That's reasonable. Rod: Yes. Steve: Yes. Tom: Okay. Brant: Yes.

Mike: Yes, but it should be a percentage, because we may have small clean up quotas.

Greg: Yes, either way.

Walker: We're going to work on this process.

(Suggestion that the money go to protection?)

Watson: Okay next issue aquatic farming. SARDFA statement regarding farming in general and geoduck in particular.

Julie: After being in the Capitol, it seems that SARDFA needs to make a statement about how it feels about farming in general and also about geoduck in particular.

Watson: Julie, you could draft a position paper on Aquatic farming to give to legislators that summarized our views.

Brant: I would like to be able to read anything that has SARDFA's name on it before it goes out.

Gig: I'd like to give the impression that the Legislators had when we were up there. Many legislators did not understand the areas that we were not opposed to and the areas that we were opposed to. We explained to them that SARDFA would be supportive of aqua culture that didn't conflict with the geoduck fishery and that all of our members could participate in this equally. It seems that the standing stock is the main conflict. I think we can be behind geoduck farming as long as it's not in conflict with our current fishery.

Ed: I asked for some material from those people that I still haven't received. I told LaCroix that I don't understand how this lines up with the wild harvest association. My main concern is the standing stocks.

Who watches what goes out and where it comes from?

Watson: Your main concern is how there could be a commercial fishery in support of farmers.

Rod: I'm not opposed to the idea of these farms, but taking out our wild stocks, I'm very opposed to that.

Abernathy: I have to concur with Ed. Our personal interests may be different, but as a Board, I don't think you can support farming of standing stocks. What constitutes an area with too little product to be commercially fished? What is the level that there is no conflict? ADF&G should provide that to us. It seems that we have to take that position or we wouldn't be representing the harvesters.

Tom: In an area, if there are no natural stocks in a place at one period of time, there may be some there in the future. I really have a problem with it myself.

Brant: We had a meeting in Craig last night. The main concern was standing stocks of geoduck and other species. Another issue is poaching. There are rumors that poaching is going on right now. I think before the State goes ahead with this we need to deal with these issues.

Mike: I agree with a lot of things that have been said here. Personally I'm concerned with it being a license to steal, and as far as standing stock that's the root of the issue for most harvest divers. The simplest way to deal with this is to have a depletion fishery on the farm sites before farming and then address the issue of enforcement. The reason salmon farms didn't go through here is because of market issues. I think this should have gone through together with SARDFA.

Greg: The foremost thing in my mind is the standing stock issue. I would like to see the standing socks left out of it, hands off. It's ranching to me and I don't agree with it. The second concern is enforcement, not that the people who applied for them are not meaning to do this, but if you have a farm that can send out product 365 days a year, there is a lot of potential for this.

Watson: I've followed this thing pretty closely. My biggest concern is that there was a permit period open without having these issues figured out. I agree with everyone on the standing stock issue. I've been commercial fishing for 30 years and no one has offered to pay for my financing. I have concerns with lack of guidelines and enforcement. Who's paying for enforcement? The divers were told they have to pay for themselves. Why are the farmers offered these opportunities and the divers weren't offered the same. It isn't fair. There are market competition problems, also. The fishery is finally being allowed to expand and this could be a real weight if it's allowed to proceed.

Gig: There is a meeting March 6th in the House Fisheries Committee where they will be pounding out the differences that the divers have. One thing no one's mentioned yet, there have been a number of people in SARDFA talking about planting ourselves. Do we envision ourselves working along side these people? The other thing is considering the track record of farming being anti-eco-clean. Is this something that the Board needs to consider?

Watson: In relation to the divers or farmers?

Gig: The farmers. These farms are in a congested areas and there may be some biological concerns with them. The Board may be thinking of moving towards enhancement and our ability to do that should be protected.

Watson: It has occurred to me that ASTF has given out grants without people having permits. I think that we need to ask for a grant ourselves to reseed things like geoduck and abalone. All through this we keep hearing the standing stock issue. This species is in direct competition to our . Do we have enough to put together a position paper?

Julie: Yes. Do the Board members need to see the paper before the legislators?

Watson: Definitely. Are you going to be up there for the March 6th meeting?

Gig: If the Board directs us to be. We dispelled the misconceptions on the first round and now we need to have our problems outlined and addressed.

Rod: Scott Thomas is here now.

Scott: I was jotting down notes. There are a lot of issues. The reason I came here today is to get the door open to discussion of these issues. I think we're starting to move towards a compromise position instead of the blanket opposition the Board gave before. I don't think that's a good position. I've spent a lot of time researching these issues. I don't think Alaska will be able to compete in the markets without farming.

There are operations in WA and CN that produce the same amount as the entire Alaska quota in one year. People have been reseeding the wild stocks and that wasn't successful in CN & WA. I have a lot of visual information that I would like to present the Board with. I brought it with me today. The interesting thing about Alaska is that it is the furthest north that these creatures exist. We have a whole different situation here. Supposedly we're managing this thing on a 2% guidelines harvest level. We had a quota this year...let me back track...according to CFEC 77% of the quota has been taken by out of state divers. These are the numbers and these are the facts. I'm convinced that the only way we're going to make this work for us is through enhancement of confined areas. I know there is concern and mistrust. The areas that we chose for farm sites we think are ideal areas because it doesn't conflict with all of the other fisheries/interests. We've been providing the hatchery with seed stock for the last 5 or 6 months and we have that project underway. I've heard you say why should the state turn over millions of dollars of resource? The state isn't. It's very hard to get these critters out live with DEC restrictions. ...We have suggested a whole host of conditions to watch people so they do not strip mine and leave. We want to plant and use a portion of the standing stock each year. We'll pay for the observer to be out there 365 days a year. I think aquatic farms represent the most exciting economic development out there right now. We have requested 33 acres. It's not a lot of resource. Clinton has put out the position to increase aquafarming in the states from 5 million to 5 billion a year. Shellfish farming in particular is viewed as a very clean industry. Finfish is different. Shellfish has hundreds of years of history behind it. If anybody wants information, come to my office. I would like to get the Board members educated. I've been so busy developing this, that I haven't had time to get out public awareness out there. Any questions?

Mike: You're looking for support in general from the dive community. Why didn't you come to the SARDA Board from the beginning rather than wait until this time in the game and we're not included? We're just started to get off the ground developing this fishery. Why didn't you try to work with us from the beginning?

Thomas: I really didn't know there was a clear tie between the dive association, the divers and farming. Not all of our operations are going to be on bottom farming. We'll be doing some oyster hanging and such. I really wasn't sure how it related to the dive fishery.

Ed: How do you see this helping the dive fisheries?

Thomas: It will develop an Alaskan name for product. If this works, you can do it yourself. Or work for us. Lynn Goodwood in WA, they are getting 5,000 lbs/acre in wild, vs 50,000 lbs/ acre in farms. I will agree with Dennis that the state has not done a good job in developing these policies for these things. This is the first application period for 4 years.

Ed: It sounds like Alaska may not be in the same situation with WA and CN in planting in concentrated areas. We need to investigate ways to help the wild harvesters. I don't think we should be promoting individual enterprises.

Thomas: If you could see this map I have here, there is a lot of area. Our site is 45 miles away from the nearest fishery. Our primary focus was not finding geoducks, but it was important. We needed enough product for them to propagate. That is the logical place to propagate, somewhere where natural stocks already occur.

Greg: Can geoduck farming work in SE AK without utilizing standing stocks?

Thomas: I think so, but you would need about \$5 million dollars to do it.

Greg: Does that mean you need that much standing stock to make it work?

Thomas: No...

Watson: I read your attorney's letter to Steve White, and there are some grave misnomers in it. Since you decided to mention me personally in it, I would like to say that I'm inclined to write a letter in response to Steve White in which I clear things up.

Thomas: Okay, chief, since you started this, what's legitimate about you trying to get out: funding killed?

Watson: I called ASTF and said, "If I ask you something I'm not supposed to, just tell me to shut up."

Rod: This is probably not the right place for a personal pissing match.

Watson: Let's move on to #15.

Thomas: I think the Board members need to get input from their constituents. There are guys that support farmers and they are harvest divers.

Ed: I'm speaking to our constituents.

Gig: I've been talking to as many people as possible. I haven't spoken to anyone (any diver) who isn't a part of farming who supports the geoduck farming issue.

Thomas: I'm a diver and I support it.

Gig: I guess you didn't understand what I said. I said a diver who isn't involved in the farming...

Thomas: Oh.

Watson: Let's continue with the Geoduck Committee proposals.

Julie: I'd like to read an email we received yesterday from Doug Mecum (read letter). I think one way we can continue to improve our communications with DEC is by appointing a contact person within SARDFA who communicates, along with the SARDFA office, Mike Ostasz, and Manny Sores all in emails. That way we can track what is going on and all have the pertinent info at any time necessary. Clay has been working on the PSP issue with DEC and is willing to continue doing the work and I think if we have it set up in this fashion, we will make the most progress.

Mike: Motion to appoint Clay as the DEC contact. Seconded.

Watson: It's important to let SARDFA know what is going on. We need coordination in doing this so we keep confusion out of this.

All in favor.

Watson: The item on the agenda is the letter to CFEC supporting 104 transferable geoduck permits.

Brant: The original letter says all permits transferable.

Julie: I think CFEC's latest proposal says 104.

Brant: It will range a little bit.

Rod: I thought we weren't supposed to be talking about this?

Watson: The October meeting we didn't decide to not talk about this.

Mike: I don't think it's the Board's place to be deciding these things. I think it should be discussed in the committees and whatever they decide the Board should go along with. So I would support this, because the committees came up with it.

Ed: We've never limited ourselves to what the committees discuss, I don't know where that comes from.

Greg: I'm not sure if it's appropriate for all of these permits to be transferable when I've heard there is a large percentage of them that only made one sale. Should those people be allowed a transferable permit? I don't know if that's equitable.

Clay: Can I make a statement? I'm Clay Bezenek, the Chair of the Geoduck Committee. This is the political hot potato of this issue...after looking at the minutes of the first meeting in 1998, we've gone through all of the legalities. The transferability clause will allow the majority of Alaskans to get involved. If you don't allow these permits to be permits, the majority of Alaskan divers will not get in. That wouldn't be good for people who want to dive in these communities. I spoke to 4 people in BC who all want a permit here. This decision from the committee has come not as a land grab, but from thinking of what is the best for the communities and people who want to be involved.

Mike: Maybe we could speed along through these. If we could make it clear to CFEC, whether we, as Board members, have an interest on the issue. When a proposal comes through a committee, and it's agreed upon by the user group themselves, I don't have any problems with endorsing that. I have a hard time with us as a Board addressing limited entry issues without explaining our interests in the fisheries. The mission of the association is to expand and enhance, it doesn't say anything about limiting them.

Watson: Mike, you just made the best case for a for z-card that I've heard yet. The problem is that we have too many people with too many conflicting agendas and instead of sitting down and working through

the issues and working for the good of the industry and the divers, we're sitting here pissing on each other. What I'd like to know from the Board is do we want to get it on the floor and vote on it or do we not want to?

Abernathy: I would like to make a comment. One of the things that CFEC does is that they are unbiased. They don't have the permits. Generally, we get into the arguments of haves and have-nots. That's CFEC's job. We could go on with these arguments all year. I kind of agree with Mike that this is the reason for CFEC's job.

Ed: Did anyone check with CFEC whether they were open to taking suggestions about this idea of transferable/non-transferable?

Clay: I've talked with Susan Haymes a number of times...I'm not sure what you are asking.

Ed: Did they say they want input about this issue?

Clay: No, this is something the committee has come to...

Ed: Okay, I don't think I'll vote on that, because I feel like we're stepping out of our bounds. It's my understanding they have a policy as far as issuing transferable vs. nontransferable permits.

Julie: Can I make a statement? In my discussions with Commissioner Mary McDowell, CFEC will come up with a point system this fall. Then it will come out for public comment. At that time, the public can comment and tweak it one way or the other if they want.

Gig: I'd like to make one more comment on that. They don't just choose a number, they come up with a number that they call economic hardship. So it's more of a generalized thing and you can't be certain of how those numbers will fall.

Rod: Are you sure they come out with the point system this spring or this fall?

Julie: this fall, and they said they would do all of the dive fisheries at once. What they're doing now is determining the numbers of permits to give out. Later, with the point system, they will determine who gets those permits.

Ed: Okay, Clay, I understand your intent, but it looks like this should be done at a different time so I would abstain on that.

Brant: I think if we ask them to make them all transferable, they'll do it. So **I'd like to make the motion to approve this letter.**

Rod: Seconded.

Watson: One more period for comments. Let's vote. All those in favor say I...

Julie: Can we have the names of who voted yes?

Watson: We'll take the vote again, I think this is ethical, and do a roll call vote. Julie do you have a list of the Board members present?

Julie: Yes, I do.

Abernathy: Dennis, can I ask a question?

Watson: Ah, go ahead, we're out of order anyway.

Abernathy: If we vote to support the 104 transferable permits, aren't we supporting the idea of the 104 by default?

Watson: That's a good question.

Brant: I don't think that wasn't the intent of the geoduck committee, but...

Abernathy: I don't know how we could vote on that and not be making that statement.

Greg: As long as we're out of order already, maybe we could make that intent clear?

Watson: ...this is the motion on the floor and if they want to restate it they will have to come back and restate it. So if we want to change this it has to be resented. The vote is what is on the agenda.

Brant: But the letter says all permits.

Watson: Do you want to resend this vote?

Brant: Yes, **I will resend the vote.**

Watson: Rod, do you resend your second?

Rod: I guess I don't have a motion to second anymore, yeah.

Watson: The technicality is that we're voting on what's on the agenda, if we want to change that we're going to have to figure out what you want to change.

Tom: Is it possible to change "104" to "all"?

Clay: That's how the letter was stated.

Watson: Okay.

Tom: **I'd like to motion that we support all geoduck permits issued to be transferable. Seconded.**

Abernathy: So that would preclude any geoduck permits issued under a z-card from having to be transferable. I guess...

Watson: You need to decide whether to vote on this questions.

Abernathy: I understand that, but all covers everything in there...

Brant: This was just in light of CFEC's geoduck proposal and we're getting complicated here. I think we should just hold off on this.

Call for a question (many overlapping voices).

Ed: Can I ask a question?

Watson: No, that's why it was called to question.

Greg: Can we have the motion restated? Are we voting on what's in the agenda?

Julie: We are voting on SARDA supporting all geoduck permits issued to be transferable. Any objections?

Watson: I think they're saying all of the permits within CFEC's proposal. This is a fairly vague question. I think this issue is not clear. I think we need a roll call vote.

Julie: Roll call vote - Brant: No. Watson: No. Ed: No. Mike: No. Rod: Yes. Abernathy: Abstain, don't understand the question. Greg: No. Tom: Yes. **The vote fails, 5 No's, 2 Yes's and 1 Abstain.**

Watson: Out of all fairness, I don't think it's important whether I agree with this or not. I think because this issues was not clear. I think if someone wanted to bring this up for reconsideration, then we could reconsider this at a later date, because if you leave the vote the way it is it says no.

Mike: I agree. I personally agree with the intent, but it got so messed up that we need to restate it with better language. I suggest we reconsidered.

Brant: I move that we reconsider this at the next meeting.

Watson: I'm not sure if we need a second on a reconsideration, but just in case...

Seconded.

Watson: I think the way it was intended by the committee it needs to be thought about. Next item. New geoduck areas to be surveyed by ADF&G. Where do we want to go with this? I think there'll be some inherent problems. I think ADF&G will have some problems with this.

Julie: Maybe Kyle could speak to this?

Kyle: I just finished talking to Woodby about this and we'll consider this, but we need to take it to headquarter to get the okay. We won't be able to do surveying until we find out.

Watson: I'm sure this is frozen, because of the existing aquatic farm permit applications. Can we just accept these recommendations and deal with the issues later, Clay?

Rod: Clay is out of the room, but I'm sure that would be okay with him.

Watson: So Board do you want to get this on the floor and vote on it, and we can deal with the issues later.

Rod: I move that we approve geoduck committee proposal requesting ADF&G to survey the areas on the agenda. Seconded.

Watson: Okay it is seconded.

Thomas: This is Scott and I'd like to make a comment. I'd like to get this on the record. I don't think the Department will go for this, but I don't think this will be viewed in a proactive light, maybe the committee can reconsider this because it sets a bad policy.

Watson: Let's try to limit your comment.

Thomas: I'm just concerned that this is a bad policy for the Board.

Watson: Did you note Scott's comments?

Julie: Yes.

All in favor.

Watson: Okay, next proposal, D.

Julie: I think the Board should readdress this after they look at ADF&G's suggested uses for the dive assessment.

Watson: Does everyone agree? (Yes) Next item "e": Board supporting the committee in its work with DEC, does this jive with what you've been doing, Clay?

Clay: Yes, we've been doing a lot of research here and I think we're getting close to changing how we do business here with a West Coast Standard and I think we're going to get 50,000 lbs of live clams out of it.

Mike Ostasz: We have to remember that there has been no PSP data in Nakat and the same for Sea Otter Sound, so that needs to be thought about, we're willing to work with SARDA, but we need to have enough data to work with and feel confident about and hopefully everyone will end up with a win-win.

Clay: What Mike is talking about is opening an area with no historical data. It's common practice in Bc to open areas with no historical data. If there was PSP in an area in 10 years ago, that doesn't have any effect on what the PSP level will be today, but what it does is give people an idea whether the area will be hot at a certain time of year. It by no means represents what the PSP levels will be at any given day.

Watson: The future of this thing is to keep communicating and cooperating with DEC and the geoduck Committee and get a solution that makes this a viable fishery.

Ostasz: We don't feel confident about going into an area without historical data and not knowing the variability within these sites. Before I came online I looked at some data we had from Butterclams and the numbers were all over the Board.

LaCroix: I'd like to know if I can get permission from the Department to take those sample clams to find that out, what Mike's talking about.

Phil: We will think about it.

Clay: I don't think it's a problem if we draw up a plan and if you do the sampling.

Just draw up a plan with Mike and use a common sense approach to it.

LaCroix: DEC just said they don't want to open up an area without data. I'm willing to take those samples to give them data, as long as ADF&G gives me a permit to do it.

Phil: I guess we need to know an idea what we're looking at.

Watson: It sounds like we're working towards a solution, but this meeting is not the place for it. Clay, did you want a consensus from the Board on this?

Clay: I'd just like to thank DEC and I'd like to get a go-ahead from the Board to get a program together that passes safety.

Phil: The Geoduck Committee should give us a direction so we can know what they're looking at, so we have something on paper to look at, like time frames, areas, etc.

Brant: I move that Clay acting as the coordinator put together a testing program for PSP with DEC. Seconded. All in favor.

Watson: next item, "F". I think this is pretty hot

Brant: I don't think it is very hot. I don't think it is liked by the divers. We had a meeting here in Craig and it was pretty soundly rejected.

Rod: I think you would need to have an assessment vote, and I don't think they will vote in favor of it.

Watson: Let me remind the Board that when we had the public hearings that there was a resounding message to keep the dive assessment separate. If this was to happen I do think it would have to go to a vote.

Brant: I move that the Board borrow the funds from the cuke divers....

No second. No action.

Watson: Next agenda item. CFEC's latest fun and games. How do we want to approach this? (No answer.) Okay, should we start with fishery with the biggest ramifications, urchins? There seems to be a lot of resistance in the constituency not to go open access, there also is a lot of voices no to limit it to 37. Do we want to approach this?

Mike: The letter we received from CFEC said they would extend the public comment period. I thought that was a good idea. I think Steve Abernathy knows what kind of numbers the fishery needs to be sustained.

Watson: Let's go through the whole Board. Let's go to Greg next.

Greg: I've heard the same things you have said, no support for open access or strict limited entry (37). The other possibilities of combining it with other fisheries seem to be the way people want to go.

Brant: No support for combining it with cukes, or limiting it by itself, but strong support for combining it with abalone.

Tom: This is a touchy issue with me because I'm an urchin diver. California divers have been calling me about this fishery going open access. I don't think 37 is right. I think combining the fishery is the best way to go.

Steve: One of the problems we're having from a processors point of view is that there are a handful of people diving out of the 500. Most of the time we haven't been able to keep the plant busy. If you took the top four people out the industry, there wouldn't be an industry. We purchase a little over 70% of the total. They are out of state. I don't know what the answer is. Personally I support limited entry. But there are some problems here. First the participants haven't been clearly defined from the beginning. Combining these with the abalone fishery, you have to remember that the fishery was built by the guys taking a nickel/lb from them and it doesn't seem fair to eliminate those people from the equation. I don't have a

good answer. If there was a little more participation, a little larger number, there would be more participation and that's healthy. If you went open access the majority of the product would go out of state. Rod: I'm undecided as to the specific solution. I don't think 37 is enough, but am skeptical of open access. We have to come up with a solution that's good for the guys that are in the industry. I'm not sure what the right thing to do is. I don't think we should be excluding the divers who built the fishery.

Ed: I'm totally opposed to open access. I'm not representing any would-bes or could-bes, I'm representing the people who are here. I support a z-card. I think all the things that everyone described would be solved by a z-card, and I've been saying that for 3 years.

Watson: I'm caught in the middle here. I do believe what Steve said, I don't think open access is the way, because we know what's in store for us. I tend to lean more towards a z-card than anything else, to deal with it. Some of the people would like to see it combined, and find a fairer way to limit this. I don't know where we're going to go with it.

Mike: I agree with everyone that open access is the least favorable way to do. 37 isn't going to help things. There's another way to go about it and that's attaching it to each and every permit card.

Brant: If everyone who qualified in the moratorium a non-transferable urchin permit, use-it or lose it, that would be transferable in three years when you get down to an optimal number. That would take care of our problems, but I imagine that would take legislation to do.

Steve: The problem that is if one or two people who are diving get sick or quit, there are not enough people diving (needs to be transferable). I'm not opposed to combining these, quite frankly, I support a z-card, but if we don't have enough numbers diving the fishery out of the 500, how can you take a smaller portion of that number and rationalize that's going to be better unless it's transferable.

Mike: I think what Brant says takes care of that. There would probably be increased participation because of the use-it-or-lose it.

Steve: If that takes legislation, why don't we do 3 to 1 transfer, that brings the number down right away and people don't have to wait 3 years to get into the fishery?

Mike: That may be an option, that's why I'm for extending the comment period.

Steve: I haven't ever heard an option that didn't take legislation. I think we should think about that.

Maybe the Board and Committee can get together and propose some legislation to solve this. Otherwise, I don't see an option that makes everybody feel warm and fuzzy.

Rod: There was an option that was brought up to me that the moratorium is going to expire and it will go open access. If the moratorium expires, so will the law that doesn't allow us to count the moratorium years. We should look into it.

Pat: There is only 74 days left to introduce legislation and it would take some pretty strong railroading to get a bill passed that's not even written. I'm against open access like everyone else. I would like to see the people working right now continue. CFEC has given us the option of 37/50 permits. They could go back to 1988 and make it 64 permits. They'd be transferable immediately on July 1st. My second choice would be to combine the urchin and abalone fishery. Julie has spoken with CFEC and asked them to be at our teleconference. Julie, are they here to answer questions?

Julie: I've spoken with them and I have a number to call them if we come up with any specific questions to have them answer.

Pat: I think we need to ask them about the z-card and find out exactly what they can do without having to go to the Legislature.

Watson: what's your pleasure Board?

Ed: We've run head-long with this thing for years. Changing legislation right now would be very difficult if not possible to pass legislation. The problem is the resources committee and Halford. If we wanted to change the limited entry law, it would involve changing the transferability of the permits.

Watson: That is one of the difficulties.

Mike: After hearing everyone talk, Craig supports combining urchins and abalone and it gives us the proper number, it wouldn't exclude any urchin divers, I would support that proposal right now.

Watson: I think a lot of people are leaning in this direction. Why don't we call these guys and see exactly this circumstance is.

Julie: I'll call them now.

Tom: How would that include the divers who are diving right now.

Watson: We're going to ask CFEC that, because that's where the bottom line's at.

Pat: That's not what I said.

Ed: I don't think that's the case. I think the only way to include those people is with a z-card.

Abernathy: I'm not sure what CFEC's position is to qualify for an abalone permit...I don't know of any of the urchin divers right now that have an abalone card.

Ed: Out of your current guys who are diving, I think the only thing that would include them is a z-card. Is that correct, Pat?

Pat: Yes.

Mike: Oh, I misunderstood you to mean that the abalone/urchin card would cover the guys diving right now.

Pat: What we might ask CFEC is if the z-card could be written so that it doesn't have to go to the Legislature.

Greg: Maybe that's a second question for CFEC is whether the z-card is a valid option right now.

Rod: CFEC has said that none of the fisheries could with stand 472 people in them. I agree.

Greg: But when CFEC comes up with a hard ship level, that will make some of these permits transferable and some not. I understand what you're saying Rod and I agree with you to some extent. At the same time, the levels of participation in the fisheries as a whole a lot of these permits would go away and maybe then we'd have numbers we could live with.

Rod: Did we get a hold of CFEC yet?

Julie: Yes, Kurt, Al, and Susan will be calling in 3-4 minutes.

Ed: I've stood behind the z-card not because it's a good option, but because it was the best of what we had to work with. Hopefully, people will drop off who aren't fishing and we'll have a number of permits that we can make work for these fisheries.

CFEC (Kurt Schelle, Susan Haymes, & Al Tingley) enter.

Watson: What the Board is discussing right now is what kind of an urchin card we can come up with that includes the current urchin divers and allows enough permits to support the fishery to continue to operate. Is the z-card do-able without having to go to the legislature? Can you hear me?

Julie: Hello...Kurt...

Kurt: Can you hear us? I think we're okay now. I think we heard the question. Those things are possible under the law. We can do a z-card with the remaining species or any combination of them. We are concerned with doing a z-card with cukes because of the number that this would place in the fishery. We put the idea out for the urchin/abalone combination because it didn't increase the number much.

Watson: I think the intent of a z-card is to not allow for that number of transferable card.

Kurt: The problem with the transferable/nontransferable permit is that we can't target a number. It has to be determined by a minor-hardship level point system. It seems the more fisheries we throw together the harder it will be to make larger nontransferable permits.

Watson: When you look at the number of people fishing, about 150, that takes the awesomeness out of the number of z-cards. The 472 number's artificial.

Kurt: That number, 150, seems to be the number a lot of people prefer to see transferable, but there's no guarantee that we can reach that.

Rod: When the moratorium expires, can we use the moratorium years as points in a limited entry program?

Kurt: No, the law says these years can't count for limited entry.

Rod: This moratorium is a legislated moratorium, is there a difference between a CFEC moratorium?

Kurt: Yes, there is a difference, but we have never been able to implement our moratorium because it is very difficult to implement. There is a bill that is in the Senate resources committee that gives us the ability to extend the moratorium. But it's been stuck in the Senate Resources Committee. We've heard it's basically dead there because Sen. Halford wants to attach non-transferable clause to it.

Mike: Is it possible to attach the urchin permits to each of the individual permits?

Kurt: That idea has come up and would take additional legislation. We have to define what the fishery is. Under the law we define it as one species or a combination, but there's no way to include the fishery resource in more than one fishery.

Susan: Unless we define the fishery as a combined fishery.

Rod: The easiest way to do this is to combine this with one fishery?

Kurt: The number that we're putting out there is a concern for the Commission

Rod: The number of 130 in combining the two permits seem like it's a pretty good number for both of the fisheries. We're not happy with cutting out the people who are participating in the fishery right now.

Kurt: We're frustrated with it too. One thing we would get with the abalone/urchin combo is a number that isn't too large for urchins.

Eric Hamilton: I think it's ironic that the abalone guys would get this windfall, but the guys that built the fishery would be scrambling to buy a permit, and we're the only guys on the ground.

Kurt: We're concerned with that too.

Jim Dennis: How many of the abalone guys dove multiple years? I did abalone for quite a number of years and for a long time there were only a few people and the last couple of years a bunch of people jumped in.

Kurt: I don't have those numbers in front of me. Al do you have those?

Al: No.

Abernathy: Has there ever been a fishery that was limited where the participants haven't been defined. I see the need to not light a forest fire and then put it out. At the same time, it's very frustrating that the options we have will eliminate the people who literally built the fishery. It doesn't seem right to me. If it goes to 130 permits, that'd be fine, but...

Kurt: I think there are some urchin divers who would get in, but we don't know until we assign the points.

Eric: Can we set a hardship level to allow people who don't qualify for the abalone and urchin right now, but would allow them to qualify?

Kurt: Under the law, once we define the fishery we are limiting, to be eligible to apply you must have participated in the fishery prior to qualification date. In this case, if we do it now, the qualification date would be June 30th, 1996, and usually the qualifying years are 4 years or so prior to the qualification date. So in a combo card you would have had to landed abalone or urchins or both in the period before the qualification date.

Watson: So you can't get an interim permit if you didn't land during the appropriate times.

Kurt: That's correct. Only people with landings would be eligible to apply.

Eric: There's no opportunity for the people from the test fisheries to get in on that.

Kurt: That's correct, they would not be eligible to apply.

Rod: Scott's got a question about possibility of legislation.

Scott: I'm not an urchin diver, but can we extend this legislation just for urchins?

Kurt: Yes, you're welcome to do that.

Watson: The problem is getting it passed Halford.

Kurt: Yes, getting it passed Halford. He's said that he won't let anything out of his committee unless there are only non-transferable permits. We don't think that only non-transferable permits would be good for the fisheries. That's the risk of trying to get legislation passed.

Clay: But it still sounds like the easiest way to get it solved?

Kurt: If you could get something through the legislature to help the situation. I don't know if it's the easiest thing.

Watson: Okay Board, where do we want to go here?

Greg: I'll throw out a suggestion. What if we conducted a vote of each of these options just to see where we are here? I wonder if we could come to any consensus of what option would be best by doing that?

Rod: I'm opposed to that Greg, because what would be the point of doing that because we can't come up with any one thing as it is.

Mike: Maybe we could at least all agree on no to open access and no to 37 and that would be a place for us to start.

Greg: I think that seems to be the consensus of the Board. I think we can agree on those two pretty easily. Where to go from there is the bigger question.

Abernathy: The only problem I see with that is I don't see where we're going with that. You're saying that if you don't want open or 37, that means you must want either 130 or 436, and that isn't the consensus of the group that I'm hearing here, because it eliminates the guys who are diving. How can you represent the urchin divers if any plan you have eliminates them all?

Eric: Amen.

Watson: Well...

Ed: Steve, didn't we just say that the 436 would include all of the urchin divers?

Abernathy: I believe it would.

Mike: I was just trying to narrow down our options.

Rod: So we could have a z-card that was with 2 species, 3 species or 4 species? It wouldn't have to be a 4 species z-card?

Kurt: We had talked about having an endorsement option, but we talked to the AG and he felt we would need additional legislation to do that.

Rod: But the three species z-card is an option, abalone, urchins, and cukes?

Kurt: Yes, that's one option.

Abernathy: And a part of that would become transferable but you're not sure how many?

Kurt: That's right.

Rod: That seems like a good option to me. Some people in the room are shaking their head yes. I'm not sure what the rest of you out there think? Combining the three permits together will include the guys fishing now, it will give enough permits to keep the fishery going. It seems pretty good to me.

Ed: We support the z-card as a four species card because it gives the diver the ability to make a living diving. I'm not willing to vote for a partial card.

Rod: I thought that CFEC already adopted limited entry of geoducks, so it doesn't seem like geoduck are on the floor anymore?

Ed: They're off the table, Kurt?

Kurt: We've adopted the regulations to limit the geoduck fishery.

Ed: So that's absolutely off the table?

Kurt: The legislature could override the regulations. The Commission thought the numbers would be way too high if we went to a z-card. They're also concerned about the numbers being too high for abalone and urchins.

Watson: So we can talk about it, but we can't talk about it?

Kurt: You can talk about it, and if SARDFA came to a consensus, no matter what that consensus is, it would be of interest to the Commission.

Watson: We're getting nowhere fast.

Abernathy: I think the closest thing we can agree on is the z-card on the remaining species, but that may not have a bearing on anything anyway.

Rod: It sounds like the closest thing to what we want. **I'd like to make a motion that we vote to combine the remaining three species on a z-card. Seconded.**

Watson: Okay, it's been moved and seconded to support an abalone, urchin, and cucumber permit. Is that what I'm hearing?

Rod: That's correct.

Watson: Okay let's open it for discussion.

Tom: In California, we're at about 400 permits and we have a viable fishery with that many permits and the participation we've seen in Alaska, even with that many permits we won't see that much participation. So I don't think it's that scary of a number.

Rod: What I think will happen is that some of those will be transferable and we will get some aggressive urchin divers up here who will buy those permits and I think that will bump up the participation level here in Alaska.

Tom: Will that number of transferable permits be high enough that it will affect it a lot?

Brant: This combination card doesn't raise the number of permits in the cuke fishery significantly, but it will raise the number of transferable permits, because we are combining the cards.

Kurt: That's a possibility, because you're going to be weighing participation of people in three different fisheries. It might be hard for the Commission to set a minor hardship level.

Mike: The only concern I have is about the reopening the abalone fishery. I would lean towards combination with cukes, if that would allow for the participants to continue in the fishery.

Rod: I would say that attrition would probably take care of this by the time the abalone fishery comes back.

Mike: That's true. And I want to do what is best for the urchin fishery.

Greg: The concept of the 3 species z-card is not one I've talked to a whole lot of people about. It's news to me that the geoduck thing is off the table...

Watson: It's not off the table until July 1st.

Greg: Right, I think the Wrangell constituents would prefer a z-card for all the species, and if we vote for what's on the floor will we eliminate that option?

Rod: It seems to me the geoduck thing isn't up for discussion any more. I don't know. I'd like to call a question on the motion.

Cassin: I'd like to ask Kurt a question that's pretty important. If we go with 448 permit for the 3 fisheries, won't the probably be that the people who did the urchins will be eliminated.

Kurt: We've got 778 people eligible to apply from Jan. 1992-une 1996, so that's quite a number.

Cassin: but if the point system goes by years of participation, pounds landed, the guys who did urchins in 91-92 would probably be eliminated from the fishery. Is that correct?

Kurt: There would be some risk. All of the point systems that have been adopted, the closer you get to the qualification date, the more heavily your participation is weighted. So in 92 & 93 would be weighted less than 94 & 95 probably, but we wouldn't know for sure. When we draft a point system, it will come out for public comment and everyone will get the chance to...

Cassin: the guys who are in the moratorium by landing something other than urchins, like cukes or abalone, what's their prospects under this. It seems like we're giving our permits to abalone and cuke divers but not to urchin divers.

Kurt: I can't answer your question for sure, but I think people who are divers in general, and participated in multiple years in one or more of these species will have a better chance.

Cassin: So we're voting on something that we don't know what we're voting on.

Kurt: That's essentially correct. I've given you two of the elements of the point system that's usually there. The specifics aren't out in a proposal yet.

Cassin: thanks you.

Watson: Okay, we still have the motion on the table. I'm going to ask for a roll call vote. Julie, will you do that?

Julie: Sure.

Watson: Do we know what we're voting on now?

Julie: I believe we're voting on a combination card for the abalone, urchin and cuke fisheries that would yield 448 permits. Is that correct?

Kurt: That's what the management number is now. That's correct.

Watson: You're not saying 448 transferable permits.

Kurt: Hopefully not, but we won't know for sure until we do a point system.

Rod: Yes. Abernathy: Yes. Greg: Yes. Tom: Yes. Brant: No. Watson: Yes. Ed: Yes. Mike: Yes. 7 in favor and 1 against.

Julie: Could we get Brant's reasoning, so we can include that to CFEC so they can understand our vote?

Brant: We had the meeting here and I don't think that's what they want. I also think that's going to hurt cuke divers. I don't think there's that much consensus within the dive industry and I think there should be a no or two in there even if I agreed with it.

Watson: I guess we've got something we can start working on scenarios. We've got a fishery where 150 fish and we need to get this number down to that.

Brant: I couldn't agree more.

Ed: I voted yes with all kinds of reservations. I'm just hard core against open access and that's the only reason why I would say yes to anything. It's necessary to translate those ideas too.

Watson: And endorsements too. At least that gives us something to bite on. I think that takes care of most of this.

Rod: Scott Thomas has another short comment.

Tom: I have to sign off because I have to go.

Watson: Okay, Board is this okay?

Ed: I didn't catch what he wanted?

Watson: He just wants to say a few more things.

Thomas: I understand that Gig and Julie are going to be representing SARDFA on Aquatic farming in the House meeting. I wonder just exactly what the Board's position is and what Gig and Julie are going to be doing up there?

Watson: From the information that Julie's been given, she will develop a position paper and we will look at it and critique it and decide whether that's what they want to see. Correct me if I'm wrong?

Julie: That sounds right to me.

Watson: Sorry I can't give you a clearer answer than that.

Thomas: If the Board has a position they should vote on it.

Watson: The Board will have a chance to decide whether they agree with the position paper after it is written.

Julie: Scott, we can legally as a non-profit corporation vote by mail as long as everyone is looking at the same piece of paper and voting on the same thing.

Thomas: Right. I'd like to see a copy of that when you send that out.

Watson: Jim Dennis has a comment.

Jim: I'd just like to say thanks for putting more people into my cuke fishery, and into my already closed abalone fishery and letting me fish something that no one want to pay anything for unless you're part of a good old boy club.

Watson: Oh also I've had it brought to my attention that the 104 geoduck divers might think about paying back the Sitka assembly for the money they invested in expanding this fishery. Is that it?

Haymes: I was wondering **what the Board's position on open access of the urchin fishery.**

Watson: I think everyone is against it. Should we take a vote?

Haymes: I think the Commission would be interested in knowing this.

Watson: Okay, Julie will you take a poll vote?

Julie: **Ed: against open access. Rod: Against, with reservations. Abernathy: Against, with reservations. Greg: Against. Brant: Against. Watson: Against. Mike: Against.**

Haymes: And what about open access of the cucumber fishery?

Julie: I believe the Board voted on that in October and the vote was 6-0 against it.

Haymes: Thank you.

Watson: Is that it?

Julie: Time and Place...

Watson: Anyone have ideas about the time and place of the next meeting?

Brant: I just assume we do it by teleconference because face-to-face is too expensive.

Watson: Julie what's our timeline?

Julie: I think mid-April might be a good time...

Watson: What does everyone else think about that?

Brant: Sounds good.

Rod: That's fine with me.

Greg: No problems here.

Watson: Okay we'll plan on that.

Rod: I motion to adjourn the meeting. Seconded. All in favor.

Watson: Meeting adjourned.

SARDEFA
Southeast Alaska Regional Dive Fisheries Association
Board of Directors' Teleconference
February 25th, 2000

Summary - Revised

The entire Board of Directors was present at this meeting. The Board of Directors took the following actions:

- 1) accepted the past minutes (all in favor)
- 2) approved administering the 7% geoduck assessment vote along with the Board of Directors vote this summer (all in favor)
- 3) approved the Executive Directors' raise of \$10,000, beginning last October (all in favor)
- 4) approved expenditures of \$44,689.64 (ex.dir. since 10/98), \$1,500 (accountant), \$263.20 (Telspan) (all in favor)
- 5) work on tracking sea cucumber overages with ADF&G; possibly set a 5% overage allowed without ticketing, with the proceeds going to ADF&G (consensus)
- 6) appoint Clay Bezenek as DEC contact (all in favor)
- 7) motion (seconded) to reconsider the letter to CFEC supporting all geoduck permits issued to be transferable
- 8) approved geoduck proposal for new areas to be surveyed by ADF&G (all in favor)
- 9) directed Clay Bezenek, in cooperation with DEC, to develop a PSP testing program (all in favor)
- 10) no action taken on motion to borrow funds from the cuke assessment for the geoduck fishery
- 11) support CFEC combining the abalone, sea cucumber and sea urchin fisheries into one permit (7 in favor, 1 against)
- 12) do not support for open access of urchins (all against)
- 13) adjourn meeting (all in favor)



COMMITTEE:
Fisheries

DATE: *3-6-2000*

Subject of meeting:
~~HB 363 Salmon Product~~
Reports

Overview of Shellfish Farming

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DO YOU
WANT TO
TESTIFY
?

Stephen Lacroix	P.O. Box 5686 KTN, AK ⁹⁹⁹⁰¹	225-3868	Self farm applicant	Yes
~~Rodger Perdue~~	~~Box 7074 Jewell AK 99802~~	~~463-3600~~	~~Alaska Shellfish Growers~~	~~Yes~~
~~John Pugh~~	~~9451 Port Place Jun, AK 99801~~	~~785-5866~~	~~ASA~~	
~~Mr. Asplund~~	~~Box 939 Cordova, AK 99574~~	~~424-3447~~	~~edfu~~	~~No~~
~~Clay Bizenet~~	~~P.O. 6464 Ketchikan AK ⁹⁹⁴⁰¹~~	~~225-3738~~	~~Sardine harvester~~	~~No~~
~~Ray Decker~~	~~P.O. Box 2138 ⁹⁹⁹²⁵ Wainwright~~	~~874-3110~~	~~Sardine~~	~~Yes~~
Dennis Watson	Box 125 Craig AK ⁹⁹⁹²¹	826-3275	Mayor of Craig	Yes



One More in Cordova
Mr. Jerry Blackler
HB 363



Teleconference Participants

TCN: 10494

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Testifiers

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Unidentified Observers: 0

HOMER (HOM)

2

~~Name: Ms. Nancy Hillstrand~~

Address:

City /St /Zip:

Bill: SHELL FISH FARMING

Phone:

Affiliation:

Type: Testifier

KODIAK (KOD)

1

Name: Mr. Bruce Schactler

Address:

City /St /Zip:

Bill: HB 363: SALMON PRICE REPORTS

Phone:

Affiliation:

Type: Testifier

KETCHIKAN (KTN)

1

Name: Mr. Gary Zaugg

Address: 5833 S. Tongass

City /St /Zip: Ketchikan AK 99901

Bill: HB 363: SALMON PRICE REPORTS

Phone: 2472089

Affiliation: Pac AK

Type: Testifier

PETERSBURG (POO)OFF NETS

Dr. CHANEY

BOB LOEFFLER

Professor RALOND

JIM DENNIS

JIM GARNER



Teleconference Participants

TCN: 10494

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Unidentified Testifiers:

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Unidentified Observers:

0

CORDOVA (COR)

1

Name: Mr. Ken Roemhildt *Opposing*
Address: P.O. Box 1040
City / St / Zip: Cordova AK 99574
Bill: HB 363: SALMON PRICE REPORTS

Phone: 424-7111
Affiliation: NPPI
Type: Testifier

HOMER (HOM)

2

Name: Ms. Nancy Hillstrand
Address:
City / St / Zip:
Bill: SHELL FISH FARMING

Phone:
Affiliation:
Type: Testifier

KODIAK (KOD)

1

Name: Mr. Bruce Schactler ✓
Address:
City / St / Zip:
Bill: HB 363: SALMON PRICE REPORTS

Phone:
Affiliation:
Type: Testifier

KETCHIKAN (KTN)

1

Name: Mr. Gary Zaugg
Address: 5833 S. Tongass
City / St / Zip: Ketchikan AK 99901
Bill: HB 363: SALMON PRICE REPORTS

Phone: 2472089
Affiliation: Pac AK
Type: Testifier

PETERSBURG (PSG)

SCOMM

114:9

Alaska State Legislature

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Special Committee on Fisheries

March 26, 1999

TO: Fisheries Committee
FR: Liz Cabrera, Committee Aide
RE: Overview: Steller Sea Lion

The issues surrounding listing of the Steller Sea Lion under the Endangered Species Act and the resulting restrictions on the pollock fishery and other trawl fisheries in the Bering Sea, Aleutian Islands, and Western Gulf of Alaska are complex. This memo is an attempt to provide you with background information and a basic overview of the salient points.

I. BACKGROUND:

In 1990, the National Marine Fisheries Service (NMFS) listed the Steller sea lion as a threatened species under the Endangered Species Act of 1973 (ESA). At that time, NMFS identified critical habitat areas for the sea lion to include marine waters within 20 nautical miles of major rookeries and haulouts in western Alaska (west of 144 degrees longitude) and implemented "no-trawl" zones in some of these areas.

In 1993, a study by the National Marine Mammal Laboratory indicated that if the downward population trend continued, there was a very high probability that sea lions would be extinct in Alaska from Prince William Sound westward within 100 years.

In 1997, NMFS recognized two separate populations of sea lions and reclassified the western population as endangered and kept the eastern population listed as threatened.

In April 1998, NMFS was sued by a coalition of environmental organizations for failing to "take a comprehensive look at the impacts of commercial groundfish fisheries in Alaska for almost two decades, despite dramatic downward changes in the ecosystem" and "failing to protect... the Steller sea lion -- and its critical habitat from overfishing of groundfish species, as required by the ESA."

In December of 1998, NMFS issued a Biological Opinion as required by the ESA. The Biological Opinion concluded that the Bering Sea/Aleutian Islands (BSAI) and Gulf of Alaska (GOA) pollock trawl fisheries, as currently managed, are likely to

- (1) jeopardize¹ the continued existence of the western population of the Steller sea lions and
- (2) adversely modify its critical habitat².

¹ "jeopardize the continued existence of" means "to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species" (50 CFR 402.02)

The Biological Opinion also concluded that the Atka mackerel fishery, as modified by recent regulatory changes, is not likely to jeopardize the continued existence of Steller sea lions or their critical habitat.

The Biological Opinion concluded that, to avoid the likelihood of jeopardizing the continued existence of the western population of Steller sea lions, reasonable and prudent alternatives to the existing pollock trawl fisheries in the BSAI and GOA must accomplish three basic principles:

1. Temporal dispersion of fishing effort;
2. Spatial dispersion of fishing effort; and
3. Pollock trawl exclusion zones around Steller sea lion rookeries and haulouts.

In December, 1998, the North Pacific Fishery Management Council voted to adopt a series of emergency measures to protect Steller sea lions and allow for the pollock fishery to begin in January of 1999. Without these measures, NMFS has stated that it would be required, under its Biological Opinion finding of "jeopardy", to prohibit pollock fishing.

II. ISSUES:

A. Cause of Decline:

Probably the only aspect of this issue that is not under dispute is that the Steller sea lion population has indeed declined in recent years. According to NMFS, counts of adults and juveniles in the western population of Steller sea lions declined from about 110,000 to about 30,500 between the late 1970's and 1990, a decline of 72%. The decline has continued with counts of adults and juveniles dropping 27 percent from 1990 to 1996, and an additional 9 percent from 1996 through 1998. Similarly, counts of pups dropped by 19 percent from 1994 through 1998.³

The exact cause of the decline is the subject of extensive research and debate, but short on conclusive results. Varying perspectives follow:

NMFS Biological Opinion. "Multiple factors have contributed to the decline, but considerable evidence indicates that lack of available prey is a major problem. Foraging studies confirm that Steller sea lions depend on pollock as a major prey source, and sea lions may be particularly sensitive to the availability of prey during the winter. The significance of pollock in the diet of sea lions may have increased since the 1970s due to shifts in the Bering Sea ecosystem related to oceanographic changes. Pollock are also the target of the largest commercial fisheries in Alaska, fisheries that have grown increasingly concentrated in time and space. This concentration of effort occurs largely in areas designated as Steller sea lion critical habitat and may reduce prey availability at critical times in the life history of sea lions. Therefore, NMFS concluded that it is reasonably likely that the pollock fishery contributes to the decline and impedes the recovery of Steller sea lions."

Draft Minutes of the Scientific and Statistical Committee, NPFMC, December 1998.⁴ "The SSC (Scientific and Statistical Committee) again shares the general discomfort over the large amount of uncertainty in the data and large data gaps. Uncertainty allows many approaches and interpretations,

² "adversely modify its critical habitat" means "a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species. Such alterations include, but are not limited to, alterations adversely modifying any of those physical or biological features that were the basis for determining the habitat to be critical" (50 CFR 402.02).

³ NMFS, Biological Opinion, Federal Register, Vol. 64, No. 14, January 22, 1999, page 3438

⁴ The 13 member Scientific and Statistical Committee act as scientific advisory body to the North Pacific Fishery Management Council.

none of which can be overwhelmingly supported by rigorous science at this time. However, the basic facts remain: 1) the Western Steller Sea Lion numbers are greatly reduced, 2) the stock has been listed as endangered, 3) pollock forms a large part of their diet, and 4) pollock fisheries remove potential prey. These facts have led to the formation of the working hypothesis that competitive interactions between the fishery and the Steller sea lions somehow make survival for this endangered species more difficult. There is a lack of data with which to test this hypothesis. The findings in the Biological Opinion rely on various correlations. Simple correlations do not by themselves establish causation. ...The SSC also notes, that although the original cause of the decline is of interest scientifically, it may be irrelevant in this process."

Letter from Steller Sea Lion Recovery Team to NMFS. "With regard to pollock, the Recovery Team is very concerned about the large amounts of fish being taken from areas designated as critical habitat for Steller sea lions. While we do not have the data to assess the specific importance of each critical habitat area for sea lion feeding, large removals of pollock (or other important prey) from relatively nearshore areas could have a detrimental effect on sea lion nutrition. Therefore, it is the opinion of the Recovery Team that management options for the pollock fishery that reduce fishing in areas close to rookeries and important haulouts during critical periods might be beneficial. The Recovery Team thinks that the precautionary principle should be employed where possible to try and ensure that commercial fishing is not causing the sea lion population to continue its decline, and is not impeding its recovery. But, assessing what, where, and when the problems are is very difficult and we continue to be limited in what we can say by lack of data."

Letter from Susan Sabella, Greenpeace and Michael Barnette, American Oceans Campaign to NMFS. "It also is well-established that pollock, Atka mackerel, and other groundfish targeted by the fisheries are the primary prey of sea lions...these giant fisheries have become concentrated in sea lion critical habitat, to the point where about 80% of the pollock catch in the Bering Sea, and about 70% of the total groundfish catch occurred in critical habitat. Moreover, these fisheries are concentrated into a few months, including the crucial winter period, heightening their likely adverse effects."

Letter from Walter Perya, Ph. D. to NMFS. "recent papers by Alverson, Merrick, Trites, Boyd and others, have convinced us that the dramatic decline in SSL [Steller sea lions] is not an indirect result of the pollock fishery, but rather the cumulative impact of other factors over time. Those of particular note are the substantial reduction in the availability of small forage species, such as herring and capelin, together with a shift in the sea lion's diet to pollock, which has a much lower nutritional value; a general reduction in diet diversity; SSL removals by killer whales; and subsistence harvest which have remained high despite the decline in sea lion stocks."

Letter from Joe Plesha, American Seafoods Company to NMFS. "1. The pollock fishery targets pollock larger than the size preferred by sea lions. Harvest of small pollock by the fishery is insignificant. 2. The pollock fishery trawls at depths greater than the shallow depths at which sea lions dive and forage. 3. Removing larger pollock reduces the possibility of cannibalism of younger, smaller pollock preferred by sea lions. 4. Lack of evidence to suggest that localized fishing effort have resulted in negative impacts on the sea lion population. 5. Inadequate consideration of recent research that indicates diversity of diet is the most important factor in the sea lion's diet, not availability of pollock."

B. Reasonable and Prudent Alternatives:

Based on the principles supplied by NMFS, the North Pacific Fishery Management Council recommended a series of management measures. In January 1999, NMFS published an emergency rule containing specific restrictions:

1. Close the Aleutian Islands Subarea to directed fishing for pollock with a recommendation to reduce the allowable catch to 2,000 metric tons.
2. Prohibit directed fishing for pollock within either 10 or 20 nautical miles of rookeries and haulouts in the Bering Sea Subarea and Gulf of Alaska.
3. Divide the pollock season into four sections in the Bering Sea.
4. Reapportion the harvest so each opening harvests no more than 30 percent of the total catch
5. Establishes critical habitat/catcher vessel operational conservation zone and restricts harvests within zone.
6. Establishes new fishing seasons and pollock allowable catch for Western and Central Gulf of Alaska
7. Limits removals from Shelikof Strait during the first part of the season.
8. Establishes 300,000-lb trip limits for vessels harvesting pollock in the Western or Central Gulf of Alaska.

III. THE NEXT STEP:

The above regulations are established under emergency rule authority; they expire in 180 days. Therefore, North Pacific Council will again address this issue in the coming months. In light of that, they have made the following requests:

1. The Council requests that NMFS, in consultation with the Council, the Marine Mammal Commission, ADF&G, and other relevant management agencies, coordinate an independent scientific review of the biological data, Biological Opinion, and other relevant information relating to factors affecting Steller sea lions and their prey. The purpose of the scientific review is to provide guidance to the Council as it prepares to address the long-term aspects of the Steller sea lion situation through the plan amendment process. The Council requests that the scientific peer review be completed by April 1, 1999.
2. The Council requests that NMFS reconstitute the Steller Sea Lion Recovery Team to address concerns such as those expressed by the SSC to ensure that the Council has an appropriate additional source of advice as the Council prepares for long-term treatment of Steller sea lion issues.
3. The Council requests that NMFS prepare and submit a budget proposal for the FY 2000 budget for a sustained research program to investigate: the efficacy of the emergency actions adopted by the Council; sea lion dietary and foraging patterns; sea lion/fishery interactions; and current trends in sea lion population dynamics

The North Pacific Council will consider the Steller sea lion issue at their upcoming meetings in April and June.

time to prepare for coming into compliance making a thirty-day delay in effective date unnecessary.

The President has directed Federal agencies to use plain language in their communications with the public, including regulations. To comply with that directive, we seek public comment on any ambiguity or unnecessary complexity arising from the language used in this emergency interim rule.

List of Subjects in 50 CFR Part 679

Alaska, Fisheries, Recordkeeping and reporting requirements.

Dated: January 15, 1999.

Andrew A. Rosenberg,
Acting Assistant Administrator for Fisheries,
National Marine Fisheries Service.

For reasons set out in the preamble, 50 CFR part 679 is amended as follows:

50 CFR CHAPTER VI

PART 679—FISHERIES OF THE EXCLUSIVE ECONOMIC ZONE OFF ALASKA

1. The authority citation for part 679 continues to read as follows:

Authority: 16 U.S.C. 773 *et seq.*, 1801 *et seq.*, and 3631 *et seq.*

2. In § 679.2, a definition of "American Fisheries Act" is added in alphabetical order to read as follows:

§ 679.2 Definitions.

* * * * *

American Fisheries Act (AFA) (applicable through July 19, 1999) means Title II—Fisheries, Subtitles I and II, as cited within the Omnibus Appropriations Bill FY99 (Pub. L. 105-277).

* * * * *

3. In § 679.20, paragraph (d)(1)(iv) is added to read as follows:

§ 679.20 General limitations.

* * * * *

(d) * * *

(1) * * *

(iv) *American Fisheries Act harvest limitations* (applicable through July 19, 1999). (A) If the Regional Administrator determines that any harvest limitation of groundfish other than pollock, established under section 211(b)(2) (A) or (C) of the American Fisheries Act for catcher/processors identified in section 208(e)(1) through (20) of that Act, has been or will be reached, the Regional Administrator may establish a directed fishing allowance for the species or species group applicable only to those identified catcher/processors.

(B) In establishing a directed fishing allowance under paragraph (d)(1)(iv)(A) of this section, the Regional

Administrator shall consider the amount of the harvest limitation established under section 211(b)(2) (A) or (C) of the American Fisheries Act that will be taken as incidental catch by those catcher/processors identified in section 208(e)(1) through (20) of that Act in directed fishing for other species.

4. In § 679.21, paragraphs (e)(3)(v) and (e)(7)(ix) are added to read as follows:

§ 679.21 Prohibited species bycatch management.

* * * * *

(e) * * *

(3) * * *

(v) *American Fisheries Act prohibited species catch limitations* (applicable through July 19, 1999). The aggregate amounts of any crab, halibut or herring trawl PSC limit caught by the catcher/processors identified under section 208(e)(1) through (20) of the American Fisheries Act and counted against the bycatch allowances specified for the fishery categories defined under paragraphs (e)(3)(iv)(B) through (E) of this section shall be limited to the amounts established under section 211(b)(2)(B) of that Act and published in the *Federal Register* under paragraph (e)(6) of this section.

* * * * *

(7) * * *

(ix) *Closures under the American Fisheries Act prohibited species catch limitations* (applicable through July 19, 1999). When the Regional Administrator determines that the catcher/processors identified under section 208(e)(1) through (20) of the American Fisheries Act have caught the amount of any crab, halibut, or herring prohibited species catch limitation specified under paragraph (e)(3)(v) of this section, directed fishing for groundfish by those vessels will be prohibited in the applicable area defined under this paragraph (e)(7), except for pollock with pelagic trawl gear.

* * * * *

5. In § 679.50, paragraph (c)(5) is added to read as follows:

§ 679.50 Groundfish Observer Program applicable through December 21, 2000.

* * * * *

(c) * * *

(5) *Observer coverage under the American Fisheries Act* (applicable through July 19, 1999). Any catcher/processor listed under section 208(e)(1) through (20) of the American Fisheries Act is required to have two observers aboard the vessel any day it harvests, receives, or processes groundfish. One of the two observers must meet the

qualifications described at paragraph (h)(1)(i)(D) of this section.

* * * * *

[FR Doc. 99-1379 Filed 1-15-99; 5:01 pm]

BILLING CODE 3510-22-F

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 679

[Docket No. 990115017-9017-01; I.D. 011199A]

RIN 0648-AM08

Fisheries of the Exclusive Economic Zone Off Alaska; Steller Sea Lion Protection Measures for the Pollock Fisheries Off Alaska

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Emergency interim rule; revision to 1999 interim harvest specifications; technical amendment to Steller sea lion no-trawl zones; request for comments.

SUMMARY: NMFS issues an emergency interim rule implementing reasonable and prudent alternatives to avoid the likelihood that the pollock fisheries off Alaska will jeopardize the continued existence of the western population of Steller sea lions or adversely modify their critical habitat. This emergency rule would implement three types of management measures for the pollock fisheries of the Bering Sea and Aleutian Islands Management Area (BSAI) and Gulf of Alaska (GOA): Measures to temporally disperse fishing effort, measures to spatially disperse fishing effort, and pollock trawl exclusion zones around important Steller sea lion rookeries and haulouts. These emergency measures are necessary and must be effective before the start of the BSAI and GOA pollock fisheries on January 20, 1999, or NMFS will be obligated under the Endangered Species Act to close all fishing for pollock until such measures are in place.

DATES: Effective January 20, 1999, through July 19, 1999. Comments must be received by February 22, 1999.

ADDRESSES: Comments may be sent to Sue Salvesson, Assistant Regional Administrator, Sustainable Fisheries Division, Alaska Region, NMFS, P.O. Box 21668, Juneau, AK 99802, Attn: Lori Gravel, or delivered to the Federal Building, 709 West 9th Street, Juneau, AK. Copies of the Biological Opinion

(BO) on the pollock fisheries of the BSAI and GOA and the Atka mackerel fishery of the Aleutian Islands Subarea, and the Environmental Assessment/Regulatory Impact Review (EA/RIR) prepared for the emergency rule may be obtained from the same address. The BO is also available on the Alaska Region home page at <http://www.fakr.noaa.gov>.

FOR FURTHER INFORMATION CONTACT: Kent Lind, 907-586-7228 or kent.lind@noaa.gov.

SUPPLEMENTARY INFORMATION: NMFS manages the groundfish fisheries in the exclusive economic zone off Alaska under the Fishery Management Plan for the Groundfish Fishery of the Bering Sea and Aleutian Islands Area and the Fishery Management Plan for Groundfish of the Gulf of Alaska (FMPs). The North Pacific Fishery Management Council (Council) prepared the FMPs under the authority of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), 16 U.S.C. 1801, *et seq.*, implemented by regulations appearing at 50 CFR part 679. Regulations governing U.S. fisheries and implementing the FMPs appear at 50 CFR parts 600 and 679 respectively.

Purpose and Need for Action

NMFS issued a BO dated December 3, 1998, and revised December 16, 1998, on the pollock fisheries of the BSAI and GOA and the Atka mackerel fishery of the Aleutian Islands Subarea. The BO concluded that the BSAI and GOA pollock trawl fisheries, as currently managed, are likely to (1) jeopardize the continued existence of the western population of Steller sea lions and (2) adversely modify its critical habitat. The clause "jeopardize the continued existence of" means "to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species" (50 CFR 402.02). The clause "adversely modify its critical habitat" means "a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species. Such alterations include, but are not limited to, alterations adversely modifying any of those physical or biological features that were the basis for determining the habitat to be critical" (50 CFR 402.02). The BO also concluded that the Atka mackerel fishery, as modified by recent regulatory changes, is not likely to jeopardize the

continued existence of Steller sea lions or their critical habitat.

In 1990, NMFS designated the Steller sea lion as a threatened species under the Endangered Species Act of 1973. The designation followed severe declines throughout much of the GOA and Aleutian Islands region. In 1993, NMFS defined critical habitat for the species to include (among other areas), the marine areas within 20 nautical miles (nm) of major rookeries and haulouts of the species west of 144° W longitude. In 1997, NMFS recognized two separate populations, and reclassified the western population (west of 144° W longitude) as endangered. Counts of adults and juveniles in the western population of Steller sea lions declined from about 110,000 to about 30,500 between the late 1970s and 1990, a decline of 72 percent. The decline has continued, with counts of adults and juveniles declining 27 percent from 1990 to 1996, and an additional 9 percent from 1996 through 1998. Similarly, counts of pups dropped by 19 percent from 1994 through 1998. The absolute magnitude of the decline has been smaller in recent years because the western population is already at a severely reduced level. However, the continued decline remains a serious problem.

Multiple factors have contributed to the decline, but considerable evidence indicates that lack of available prey is a major problem. Foraging studies confirm that Steller sea lions depend on pollock as a major prey source, and sea lions may be particularly sensitive to the availability of prey during the winter. The significance of pollock in the diet of sea lions may have increased since the 1970s due to shifts in the Bering Sea ecosystem related to oceanographic changes. Pollock are also the target of the largest commercial fisheries in Alaska, fisheries that have grown increasingly concentrated in time and space. This concentration of effort occurs largely in areas designated as Steller sea lion critical habitat and may reduce prey availability at critical times in the life history of sea lions. For these reasons, the BO concluded that the pollock fisheries of the BSAI and GOA may compete with sea lions and either contribute to their decline or impede their recovery. Additional information on Steller sea lions and the pollock fisheries of the BSAI and GOA is contained in the BO and in the EA prepared for this action (See **ADDRESSES**).

The BO concluded that, to avoid the likelihood of jeopardizing the continued existence of the western population of Steller sea lions or of adversely

modifying its critical habitat, reasonable and prudent alternatives to the existing pollock trawl fisheries in the BSAI and GOA must accomplish three basic principles: (1) Temporal dispersion of fishing effort, (2) spatial dispersion of fishing effort, and (3) pollock trawl exclusion zones around Steller sea lion rookeries and haulouts. The BO also contained examples of specific management measures that would implement the three basic principles.

At its December, 1998 meeting, the Council deliberated on various management measures to implement the principles described in the BO. After significant debate and public comment, the Council voted to adopt a series of emergency measures to protect Steller sea lions. After review, NMFS has determined that the Council's recommended measures, with certain modifications, adhere to the principles identified in the BO. The Council's motion forms the basis for the management measures contained in this emergency rule.

Elements of the Emergency Rule

Aleutian Islands Closure

The emergency rule closes the Aleutian Islands Subarea to directed fishing for pollock. This closure, recommended by the Council as part of its emergency rule recommendation, is consistent with the principles contained within the BO. In light of its recommendation to close the Aleutian Islands Subarea to directed fishing for pollock, the Council also recommended that the pollock total allowable catch (TAC) for the Aleutian Islands Subarea be reduced to 2,000 metric tons (mt) to provide for incidental catch of pollock by vessels participating in other groundfish fisheries. This TAC recommendation, if approved by NMFS, will be published in the final 1999 BSAI harvest specifications.

Pollock Trawl Exclusion Zones

This emergency rule prohibits directed fishing for pollock within either 10 or 20 nm of rookeries and haulouts in the Bering Sea Subarea and GOA. The location, size, and period of each exclusion zone are set out in the Tables 12 and 13 of 50 CFR part 679 of the codified text. The size of the exclusion zones in each area reflects the relative widths of the continental shelf. In the Bering Sea Subarea, the shelf is relatively wide and exclusion zones have radii of 20 nm. In the GOA, the shelf is narrower and exclusion zones have radii of 10 nm.

NMFS approved these sites on the basis of ten Steller sea lion counts

conducted since 1979 during the reproductive season (summer) and non-reproductive season (winter). NMFS used the following criteria to identify and approve sites that require exclusion zones and to determine the period of the closure:

1. Rookeries

All rookery sites have 10 or 20 nm year-round pollock trawl exclusion zones.

2. Summer Haulouts

Haulouts with greater than 200 sea lions in a summer survey since 1979 and less than 75 sea lions in winter surveys since 1979 have 10 or 20 nm pollock trawl exclusion zones effective May 1 through October 31.

3. Winter Haulouts

Haulouts with less than 200 sea lions in summer surveys since 1979 and greater than 75 sea lions in a winter survey since 1979 have 10 or 20 nm pollock trawl exclusion zones effective November 1 through April 31.

4. Year-Round Haulouts

Haulouts with greater than 200 sea lions in a summer survey since 1979 and greater than 75 sea lions in a winter survey since 1979 have year-round 10 or 20 nm pollock trawl exclusion zones.

The Council's emergency rule recommendations contained all of the pollock exclusion zones put forth by

NMFS in the BO with one exception in the Bering Sea Subarea and eight exceptions in the GOA.

In the Bering Sea Subarea, the Council recommended no closure for a proposed 20 nm exclusion zone around the Cape Sarichef haulout. The BO states that "some of the principles identified above may be accomplished by an incremental or phased approach if the incremental approach does not jeopardize the continued existence of the western population of Steller sea lions. The phase in of any reasonable and prudent alternative must not be drawn out, and two years is a general guideline with a significant portion occurring in year one."

Consistent with the BO, and based on the above criteria, NMFS has decided to phase in the exclusion zone around this haulout with a 10 nm exclusion zone in 1999 and anticipates extending the exclusion zone to 20 nm for 2000 and beyond.

In the GOA, the Council recommended no closures around Cape Barnabas, Gull Point, Rugged Island, Point Elrington, Cape Ikolik, Needles, Mitrofanina, and Sea Lion Rocks. Based on the above criteria, NMFS has decided to implement a 1 year phase-in period for these locations. For 1999, NMFS has decided not to implement exclusion zones at these locations, and anticipates phasing-in 10 nm exclusion zones for 2000 and beyond. The extension of exclusion zones for Cape Sarichef and

the eight locations in the GOA would be accomplished through separate rulemaking.

Although the Council's recommended measures included pollock trawl exclusion zones in the Aleutian Islands Subarea, implementation of these exclusion zones becomes unnecessary with the closure of the Subarea to directed fishing for pollock. This emergency rule does not affect existing no-trawl and no-entry zones that apply to all groundfish fisheries. The new exclusion zones established by this emergency rule prohibit directed fishing for pollock only.

Bering Sea Management Measures

1. Fishing Seasons

This emergency rule establishes new fishing seasons for the four sectors of the Bering Sea pollock fishery that are defined in the American Fisheries Act (AFA). These new fishing seasons are summarized in Table 1. This emergency rule also repeals existing fair start provisions that required vessels fishing for pollock in the Bering Sea Subarea to cease fishing for groundfish during the week leading up to each pollock season or face a mandatory stand down period during the first week of the pollock season. The Council has determined that these fair start requirements are no longer necessary given the protections for other fisheries that are contained within the AFA.

TABLE 1.—BSAI POLLOCK FISHING SEASONS BY SECTOR

Fishing season ¹	Industry sector		
	Inshore and catcher/processor	Mothership	Community development quota (CDQ)
A1 Season	Jan. 20–Feb. 15 ...	Feb. 1–April 15	Jan. 20–April 15.
A2 Season	Feb. 20–April 15 ...	Feb. 1–April 15	Jan. 20–April 15.
B Season	Aug. 1–Sept. 15 ...	Aug. 1–Sept. 15 ...	April. 15–Dec. 31.
C Season	Sept. 15–Nov. 1 ...	Sept. 15–Nov. 11 ..	April 15–Dec. 31.

¹ The time of all openings and closures of fishing seasons, other than the beginning and end of the calendar fishing year, is 1200 hours, Alaska local time (A.l.t.).

2. Seasonal Apportionment of TAC

The pollock TAC allocated to each industry sector will be apportioned to the fishing seasons previously identified

according to the following formula set out in Table 2. Overages and underages may be "rolled over" to subsequent fishing seasons during the same year,

except that the combined fishing activities of all sectors during a fishing season may not exceed 30 percent of the annual TAC.

TABLE 2.—BSAI SEASONAL APPORTIONMENTS OF POLLOCK TAC

Fishing Season	Industry Sector (in percent)		
	Inshore and Catcher/processor	Mothership	CDQ
A1 Season	27.5	40	45
A2 Season	12.5	40	45
B Season	30	30	55

TABLE 2.—BSAI SEASONAL APPORTIONMENTS OF POLLOCK TAC—Continued

Fishing Season	Industry Sector (in percent)		
	Inshore and Catcher/processor	Mothership	CDQ
C Season	30	30	55

3. Critical Habitat/Catcher Vessel Operational Area (CH/CVOA) Conservation Zone

This emergency rule establishes a combined CH/CVOA conservation zone for the purpose of regulating total removals of pollock. This CH/CVOA conservation zone includes the portion of Bering Sea critical habitat known as the Bogoslof foraging area and the

portion of the CVOA that extends eastward from the Bogoslof foraging area. The CH/CVOA conservation zone consists of the area of the Bering Sea Subarea between 170°00' W long. and 163°00' W long., south of straight lines connecting the following points in the order listed:

55°00' N lat. 170°00' W long.;
55°00' N lat. 168°00' W long.;

55°30' N lat. 168°00' W long.;
55°30' N lat. 166°00' W long.;
56°00' N lat. 166°00' W long.;
56°00' N lat. 163°00' W long.

This emergency rule restricts pollock harvests within the CH/CVOA conservation zone during the A1 and A2 seasons to a percentage of each sector's seasonal TAC apportionment according to the percentages displayed in Table 3.

TABLE 3.—TAC LIMITS WITHIN THE CH/CVOA CONSERVATION ZONE

Fishing season	Industry sector (in percent)			
	Inshore	Catcher/processor	Mothership	CDQ
A1 Season	70	40	50	100
A2 Season	70	40	50	100
B Season		[reserved]		
C Season		[reserved]		

NMFS will monitor catch by each industry sector and close the CH/CVOA conservation zone to directed fishing for pollock by sector when NMFS determines that the specified CH/CVOA limit has been reached. The Council intended that inshore catcher vessels less than or equal to 99 ft (30.2 m) length overall (LOA) would be exempt from CH/CVOA closures from September 1 through March 31 unless the 70 percent cap for the inshore sector has been reached. NMFS will announce the closure of the CH/CVOA conservation zone to catcher vessels over 99 ft (30.2 m) LOA before the inshore sector 70 percent limit is reached. NMFS will implement the closure in a manner intended to leave remaining quota within the CH/CVOA that is sufficient to support directed fishing for pollock by vessels less than or equal to 99 ft (30.2 m) LOA for the duration of the current inshore sector opening.

An emergency rule implemented pursuant to the Magnuson-Stevens Act must not remain in effect for more than 180 days. This emergency rule will expire on July 19, 1999, and does not specify a spatial distribution of pollock TAC for the B and C seasons in the Bering Sea Subarea. NMFS has determined that the spatial dispersion scheme recommended by the Council for the B and C seasons does not adequately meet the principles for reasonable and prudent alternatives outlined in the BO. If the Council submits revised recommendations in a timely manner, NMFS will consider implementing them. In the absence of further recommendations by the Council that provide protections equivalent to or exceeding the principles contained in the BO, NMFS anticipates implementing through subsequent emergency rule the B and C season spatial allocation scheme contained in the BO. Under this scheme, the B and C season TAC allocations would be apportioned

among the following three areas based on distribution of exploitable biomass as determined by summer surveys: (1) CH/CVOA conservation zone, (2) east of 170° W long. and outside of the CH/CVOA conservation zone, and (3) west of 170° W long. and north of 56° N lat.

Gulf of Alaska Management Measures

1. Fishing Seasons and TAC Apportionments

This emergency rule establishes new fishing seasons and pollock TAC apportionments in the Western and Central (W/C) Regulatory Areas of the GOA. These new fishing seasons are summarized in Table 4. The TAC for pollock in the combined W/C Regulatory Areas will continue to be apportioned among Statistical Areas 610, 620, and 630 in proportion to the distribution of the pollock biomass as determined by the most recent NMFS surveys. The pollock fishing season in the Eastern Regulatory Area will be unchanged.

TABLE 4.—POLLOCK FISHING SEASONS AND SEASONAL TAC APPORTIONMENTS FOR THE WESTERN AND CENTRAL REGULATORY AREAS OF THE GULF OF ALASKA

Fishing season	TAC apportionment (percent)	Dates ¹	
		From	To
A Season	30	January 20	April 1.

TABLE 4.—POLLOCK FISHING SEASONS AND SEASONAL TAC APPORTIONMENTS FOR THE WESTERN AND CENTRAL REGULATORY AREAS OF THE GULF OF ALASKA—Continued

Fishing season	TAC apportionment (percent)	Dates ¹	
		From	To
B Season	20	June 1	July 1.
C Season	25	September 1	The date of closure of a statistical area (610, 620, 630) to directed fishing, or October 1, whichever comes first.
D Season	25	Five days after the date of closure of a statistical area (610, 620, 630) to directed fishing in the C season.	November 1.

¹ The time of all openings and closures of fishing seasons, other than the beginning and end of the calendar fishing year, is 1200 hours, A.I.T.

2. Limits on Pollock Catch Within Shelikof Strait

To prevent localized depletions of pollock within Shelikof Strait, an important winter foraging area for Steller sea lions, the emergency rule limits removals from within Shelikof Strait during the A season. For the purpose of this emergency rule, a Shelikof Strait conservation zone is defined as the area bound by straight lines and shoreline connecting the following coordinates in the following order:

58°51' N lat. 153°15' W long.;
58°51' N lat. 152°00' W long.; and, the intersection of 152°00' W long. with Afognak Island; aligned counterclockwise around the shoreline of Afognak, Kodiak, and Raspberry Islands to

57°00' N lat. 154°00' W long.;
56°30' N lat. 154°00' W long.;
56°30' N lat. 155°00' W long.;
56°00' N lat. 155°00' W long.;
56°00' N lat. 157°00' W long.; and, the intersection of 157°00' W long. with the Alaska Peninsula.

This area overlaps portions of statistical areas 620 and 630. The Shelikof Strait conservation zone catch limit is not a separate TAC for this area, but a limit on allowable removals from this area. Either one or both of the statistical areas could be closed to directed fishing upon attainment of the specific TACs before the Shelikof Strait catch limit is reached.

NMFS will determine the A season catch limit for the Shelikof Strait conservation zone by calculating a ratio equal to the most recent estimate of pollock biomass in Shelikof Strait divided by the most recent estimate of

total pollock biomass in the GOA. NMFS will then multiply by the overall pollock TAC for the GOA and further multiplied by the A season apportionment of 30 percent. For 1999, NMFS has specified an interim Shelikof Strait catch limit of 15,857 mt (see the revised 1999 interim specifications below). When NMFS determines that the A season pollock removals from within the Shelikof Strait conservation zone have reached this specified limit, NMFS will prohibit directed fishing for pollock in Shelikof Strait.

3. W/C GOA Trip Limits

The Council recommended that NMFS establish a 300,000 lb trip limit for catcher vessels harvesting pollock in the directed pollock fisheries of the Western or Central Regulatory Areas of the Gulf of Alaska (W/C GOA). However, NMFS' recordkeeping and reporting requirements currently require that catch and landings be reported in metric tons (mt). NMFS is, therefore, rounding the Council's recommended 300,000 lb trip limit to the nearest equivalent in mt and establishing a trip limit of 136 mt. The emergency rule prohibits the operator of a catcher vessel fishing for groundfish in the W/C GOA from retaining on board more than 136 mt of pollock harvested in the W/C GOA. In addition, to prevent the large scale use of tender vessels to avoid the trip limit restriction, this rule also prohibits vessels operating as tenders from retaining on board more than 272 mt (the equivalent of 2 fishing trips) of unprocessed pollock that was harvested in the W/C GOA. This 136 mt trip limit does not exempt vessels from existing regulations that require 100 percent retention of pollock when directed

fishing for pollock is open. A vessel operator must cease fishing for pollock during a fishing trip before the 136 mt trip limit is reached in order to avoid a violation of either the 136 mt trip limit or the 100 percent retention requirement for pollock.

Revised 1999 Interim Harvest Specifications for Pollock in the BSAI and GOA

The regulatory changes in this emergency rule require revision of the 1999 interim specifications of pollock TAC for the BSAI and GOA. Existing regulations at 50 CFR 679.20(c)(2) do not require that interim harvest specifications for pollock in the BSAI and GOA be temporally or spatially dispersed. However, the BO concluded that the current program for managing the BSAI and GOA pollock fisheries could jeopardize Steller sea lions or their critical habitat. Therefore, to allow the Bering Sea and GOA pollock fisheries to commence on January 20, 1999, this emergency rule also adjusts the 1999 interim specifications for pollock to comport with the reasonable and prudent management measures outlined above.

The specifications for Bering Sea Subarea pollock in Table 1 of the 1999 interim harvest specifications (64 FR 50, January 4, 1999) are replaced by the following Table 6. The interim specifications for pollock were changed for two reasons: (1) To comport with the temporal and spatial dispersions required by the BO, and (2) to incorporate the Council's final 1999 TAC recommendations for pollock, which are reduced from the 1999 proposed specifications.

TABLE 6.—REVISED INTERIM 1999 TAC AMOUNTS FOR POLLOCK IN THE BERING SEA SUBAREA

Species and component	Area	A1 Season ¹		A2 Season	
		Interim TAC	CH/CVOA limit	Interim TAC	CH/CVOA limit
Pollock:					
Inshore	BS	115,394	² 80,776	52,452	² 36,716
Offshore catcher/processor and catcher vessel total	BS	92,316	36,926	41,962	16,785
Listed catcher/processors ³	BS	84,469	33,787	38,395	15,358
Listed catcher vessels ³	BS	7,847	3,139	3,567	1,427
Mothership	BS	33,569	16,785	n/a	n/a
CDQ	BS	44,640	44,640	n/a	n/a

¹ The mothership and CDQ sectors have a single A season apportionment equal to 40 and 45 percent of their annual TAC allocations, respectively.

² Under the emergency rule, NMFS will close the CH/CVOA conservation zone to inshore vessels greater than 99 ft (30.2 m) LOA while maintaining a sufficient CH/CVOA allowance to support fishing activities by inshore catcher vessels under 99 ft (30.2 m) LOA for the duration of the current opening. However, once the specified CH/CVOA limit is reached, all inshore vessels will be prohibited from engaging in directed fishing for pollock inside the CH/CVOA conservation zone.

³ Section 210(c) of the AFA requires that not less than 8.5 percent of the directed fishing allowance allocated to listed catcher/processors shall be available for harvest only by eligible catcher vessels delivering to listed catcher/processors.

The first seasonal allowances for W/ C GOA pollock in Table 1 of the 1999 Interim Harvest Specifications (64 FR 46, January 4, 1999) are replaced by the following Table 7:

TABLE 7.—REVISED FIRST SEASONAL ALLOWANCES OF POLLOCK IN THE WESTERN (W) AND CENTRAL (C) REGULATORY AREAS OF THE GULF OF ALASKA (GOA)

Species and area	Interim TAC
Pollock:	
W (610)	6,936
C (620)	11,652
C (630)	9,156
W/C Subtotal	27,744
Shellkoff Strait Subtotal ¹	15,857

¹ The pollock catch limit for the Shellkoff Strait conservation zone is determined by calculating the ratio of the most recent estimate of pollock biomass in Shellkoff Strait (489,900 mt) divided by the most recent estimate of total pollock biomass in the GOA (933,000 mt). This ratio will then be multiplied by the overall pollock TAC for the GOA (100,920 mt) and multiplied by the A season apportionment of 30 percent.

Technical Amendment to Steller Sea Lion No-Trawl Zones

This emergency interim rule also makes technical changes to the existing no-trawl zones set out in Tables 4 and 6 50 CFR part 679 by suspending them and by adding Tables 13 and 14 to 50 CFR part 679.

Classification

The Assistant Administrator for Fisheries, NOAA (AA), has determined that this emergency interim rule is necessary to respond to an emergency situation and that it is consistent with

the Magnuson-Stevens Act and other applicable laws.

This emergency interim rule has been determined to be not significant for purposes of E.O. 12866.

Failure to have the measures contained in this rule in place by January 20, 1999, would force delay of the start of the pollock fisheries of the BSAI and GOA with significant costs to industry. This would occur because without these measures, the December 16, 1998, BO would require that to protect Steller sea lions, no pollock fishing occur. Thus, notice and comment procedures for this rule would prevent NMFS from performing its necessary function of allowing the fishery to be prosecuted while protecting this endangered species. As such, NMFS finds that the immediate need to effect the provisions of this rule by January 20, 1999, constitutes good cause to waive the requirement to provide prior notice and an opportunity for public comment pursuant to authority set forth at 5 U.S.C. 553(b)(B), as such procedures would be impracticable and contrary to the public interest. The need for these measures to be in place by January 20, 1999, as explained above, constitutes good cause under authority contained in 5 U.S.C. 553(d)(3) to waive the requirement for a 30-day delay in effective date.

Because prior notice and opportunity for public comment are not required for this rule by 5 U.S.C. 553, or any other law, the analytical requirements of the Regulatory Flexibility Act, 5 U.S.C. 601 et seq., are inapplicable.

The President has directed Federal agencies to use plain language in their communications with the public, including regulations. To comply with that directive, we seek public comment on any ambiguity or unnecessary

complexity arising from the language used in this emergency interim rule.

List of Subjects in 50 CFR Part 679

Alaska, Fisheries, Recordkeeping and reporting requirements.

Dated: January 15, 1999.

Andrew A. Rosenberg,
Deputy Assistant Administrator for Fisheries,
National Marine Fisheries Service.

For reasons set out in the preamble, 50 CFR part 679 is amended as follows:

50 CFR CHAPTER VI

PART 679—FISHERIES OF THE EXCLUSIVE ECONOMIC ZONE OFF ALASKA

1. The authority citation for part 679 continues to read as follows:

Authority: 16 U.S.C. 773 et seq., 1801 et seq., and 3631 et seq.

2. In § 679.7, paragraph (b) is suspended and paragraph (i) is added to read as follows:

§ 679.7 Prohibitions.

* * * * *

(i) *Prohibitions specific to the GOA (applicable through July 19, 1999)—(1) Southeast Outside trawl closure (applicable through July 19, 1999). Use any gear other than non-trawl gear in the GOA east of 140° W long.*

(2) *Western/Central GOA Pollock trip limit (applicable through July 19, 1999). Retain on board a catcher vessel at any time, more than 136 mt of unprocessed pollock, or retain on board a tender vessel at any time, more than 272 mt of unprocessed pollock, harvested in the Western or Central Areas of the GOA.*

3. In § 679.20, paragraphs (a)(5)(i)(A) and (a)(5)(ii)(B) are suspended, and new paragraphs (a)(5)(i)(C) and (a)(5)(ii)(C) are added to read as follows:

§ 679.20 General limitations.

* * * * *

(a) * * *

(5) * * *

(i) * * *

(C) *BSAI seasonal allowances (applicable through July 19, 1999)*—(1) *Inshore*. The portion of the Bering Sea Subarea pollock TAC allocated to the inshore component under Section 206(b) of the American Fisheries Act will be divided into four seasonal allowances corresponding to the four fishing seasons set out at § 679.23(e)(4)(i), as follows: A1 Season, 27.5 percent; A2 Season, 12.5 percent; B Season, 30 percent; C Season, 30 percent. Within any fishing year, underage or overage of a seasonal allowance may be added to or subtracted from subsequent seasonal allowances in a manner to be determined by the Regional Administrator provided that overall pollock removals from all sectors during a fishing season do not exceed 30 percent of the combined annual TAC of pollock.

(2) *Catcher/processor*. The portion of the Bering Sea Subarea pollock TAC allocated to the catcher/processor component under Section 206(b) of the American Fisheries Act will be divided into four seasonal allowances corresponding to the four fishing seasons set out at § 679.23(e)(4)(ii), as follows: A1 Season, 27.5 percent; A2 Season, 12.5 percent; B Season, 30 percent; C Season, 30 percent. Within any fishing year, underage or overage of a seasonal allowance may be added to or subtracted from subsequent seasonal allowances in a manner to be determined by the Regional Administrator, provided that overall pollock removals from all sectors during a fishing season do not exceed 30 percent of the combined annual TAC of pollock.

(3) *Mothership*. The portion of the Bering Sea Subarea pollock TAC allocated to the mothership component under Section 206(b) of the American Fisheries Act will be divided into three

seasonal allowances corresponding to the three fishing seasons set out at § 679.23(e)(4)(iii) as follows: A Season, 40 percent; B Season, 30 percent; C Season, 30 percent. Within any fishing year, underage or overage of any seasonal allowance may be added to or subtracted from subsequent seasonal allowances in a manner to be determined by the Regional Administrator provided that overall pollock removals from all sectors during a fishing season do not exceed 30 percent of the combined annual TAC of pollock.

* * * * *

(ii) * * *

(C) *GOA seasonal allowances (applicable through July 19, 1999)*. Each apportionment established under paragraph (a)(5)(ii)(A) of this section will be divided into four seasonal allowances corresponding to the four fishing seasons set out at § 679.23(d)(3) as follows: A Season, 30 percent; B Season, 20 percent; C Season, 25 percent; D Season, 25 percent. Within any fishing year, underage or overage of a seasonal allowance may be added to or subtracted from subsequent seasonal allowances in a manner to be determined by the Regional Administrator, provided that a revised seasonal allowance does not exceed 30 percent of the annual TAC apportionment.

* * * * *

4. In § 679.22, paragraphs (a)(7) and (b)(2) are suspended and (a)(11) and (b)(3) are added to read as follows:

§ 679.22 Closures.

(a) * * *

(8) * * *

(iv) *Pollock closure (applicable through July 19, 1999)*. Directed fishing for pollock is prohibited at all times within the Aleutian Islands Subarea.

* * * * *

(11) *Steller sea lion protection areas, Bering Sea Subarea and Bogoslof District (applicable through July 19, 1999)*—(i) *Year-round trawl closures*. Trawling is prohibited within 10 nm of

each of the eight Steller sea lion rookeries shown in Table 12 to this part.

(ii) *Seasonal trawl closures*. During January 1 through April 15, or a date earlier than April 15, if adjusted under § 679.20, trawling is prohibited within 20 nm of each of the four Steller sea lion rookeries shown in Table 12 to this part.

(iii) *Pollock closures (applicable through July 19, 1999)*. Directed fishing for pollock is prohibited within 10 or 20 nm of each of the 25 Steller sea lion haulout and rookery sites shown in Table 12 to this part. The radius in nm and time period that each closure is in effect are shown in Table 12 to this part.

(iv) *Critical Habitat/Catcher Vessel Operational Area (CH/CV/OA) conservation zone (applicable through July 19, 1999)*—(A) *General*. Directed fishing for pollock by vessels catching pollock for processing either by the inshore, offshore catcher processor, or mothership component is prohibited within the CH/CVOA conservation zone for the duration of a fishing season when the Regional Administrator announces by notification in the **Federal Register** that the criteria set out in paragraph (a)(7)(iv)(C) of this section have been met by that industry component.

(B) *Boundaries*. The CH/CVOA conservation zone consists of the area of the Bering Sea Subarea between 170°00' W long. and 163°00' W long., south of straight lines connecting the following points in the order listed:

55°00' N lat. 170°00' W long.;
55°00' N lat. 168°00' W long.;
55°30' N lat. 168°00' W long.;
55°30' N lat. 166°00' W long.;
56°00' N lat. 166°00' W long.; and,
56°00' N lat. 163°00' W long.

(C) *Criteria for closure*—(1) *General*. The directed fishing closures identified in paragraph (a)(7)(iv)(A) of this section will take effect when the Regional Administrator determines that the harvest of a seasonal allowance of pollock reaches a percentage specified in the following table:

Fishing season	Industry component (in percent)		
	Inshore	Catcher/processor	Mothership
A1 Season	70	40	50
A2 Season	70	40	50
B Season		[reserved]	
C Season		[reserved]	

(2) *Inshore catcher vessels greater than 99 ft (30.2 m) LOA*. The Regional Administrator will close directed fishing to inshore catcher vessels greater than 99 ft (30.2 m) LOA prior to

reaching the inshore CH/CVOA limit to accommodate fishing by vessels less than or equal to 99 ft (30.2 m) LOA inside the CH/CVOA conservation zone for the duration of the inshore seasonal

opening. During the A1 and A2 seasons, the Regional Administrator will estimate how much of the inshore A1 and A2 seasonal allowance is likely to be harvested by catcher vessels less than

or equal to 99 ft (30.2 m) LOA and reserve a sufficient amount of the inshore CH/CVOA allowance to accommodate fishing by such vessels after the closure of the CH/CVOA conservation zone to vessels greater than 99 ft (30.2 m) LOA. The CH/CVOA conservation zone will be closed to directed fishing for all inshore catcher vessels when the inshore limit specified in paragraph (a)(7)(iv)(C)(I) of this section has been met.

(b) * * *

(3) *Steller sea lion protection areas—(applicable through July 19, 1999)—(i) Year-round trawl closures.* Trawling is prohibited in the GOA within 10 nm of the nine Steller sea lion rookeries shown in Table 13 to this part.

(ii) *Pollock closures (applicable through July 19, 1999).* Directed fishing for pollock is prohibited within 10 nm of each of the 45 Steller sea lion haulout and rookery sites shown in Table 13 to this part. The radius in nm and time period that each closure is in effect are shown in Table 13 to this part.

(iii) *Shelikof Strait conservation zone (applicable through July 19, 1999).*—(A) *General.* Directed fishing for pollock is prohibited within the Shelikof Strait conservation zone during the A season defined at § 679.23(d)(3) when the Regional Administrator announces through notification in the **Federal Register** that the A season catch of pollock from within the Shelikof Strait conservation zone reaches the amount determined by paragraph (b)(2)(iii)(C) of this section.

(B) *Boundaries.* The Shelikof Strait conservation zone consists of the area bound by straight lines and shoreline connecting the following coordinates in the following order:

58°51' N lat. 153°15' W long.

58°51' N lat. 152°00' W long.

and the intersection of 152°00' W long. with Afognak Island; aligned

counterclockwise around the shoreline of Afognak, Kodiak, and Raspberry Islands to

57°00' N lat. 154°00' W long.

56°30' N lat. 154°00' W long.

56°30' N lat. 155°00' W long.

56°00' N lat. 155°00' W long.

56°00' N lat. 157°00' W long.

and the intersection of 157°00' W long. with the Alaska Peninsula.

(C) *Determination of catch limit.* The pollock catch limit for the Shelikof Strait conservation zone will be published in the annual specifications under § 679.20(c) and is determined by calculating a ratio equal to the most recent estimate of pollock biomass in Shelikof Strait divided by the most recent estimate of total pollock biomass in the GOA. NMFS will then multiply by the overall pollock TAC for the GOA and further multiplied by the A season apportionment of 30 percent.

* * * * *

5. In § 679.23, paragraphs (d)(2) and (e)(2) are suspended, and new paragraphs (d)(3) and (e)(4) are added to read as follows:

§ 679.23 Seasons.

* * * * *

(d) * * *

(3) *Directed fishing for pollock (applicable through July 19, 1999).* Subject to other provisions of this part, directed fishing for pollock in the Western and Central Regulatory Areas is authorized only during the following four seasons:

(i) *A season.* From 1200 hours, A.I.t., January 20, through 1200 hours, A.I.t., April 1;

(ii) *B season.* From 1200 hours, A.I.t., June 1, through 1200 hours, A.I.t., July 1;

(iii) *C season.* From 1200 hours, A.I.t., September 1, within a statistical area until the date of closure of the statistical area to directed fishing, or 1200 hours, A.I.t., October 1, whichever comes first.

(iv) *D season.* From 1200 hours, A.I.t., five days after the closure of the C season in a statistical area until 1200 hours, A.I.t., November 1.

(e) * * *

(4) *Directed fishing for pollock in the Bering Sea Subarea (applicable through July 19, 1999).*—(i) *Inshore and offshore catcher/processor components.* Subject to other provisions of this part, directed fishing for pollock by vessels catching pollock for processing by the inshore component and by the offshore catcher processor component in the Bering Sea Subarea is authorized only during the following four seasons:

(A) *A1 season.* From 1200 hours, A.I.t., January 20, through 1200 hours, A.I.t., February 15;

(B) *A2 season.* From 1200 hours, A.I.t., February 20, through 1200 hours, A.I.t., April 15;

(C) *B season.* From 1200 hours, A.I.t., August 1, through 1200 hours, A.I.t., September 15; and,

(D) *C season.* From 1200 hours, A.I.t., September 15, through 1200 hours, A.I.t., November 1.

(ii) *Mothership component.* Subject to other provisions of this part, directed fishing for pollock by vessels catching pollock for processing by the offshore mothership component in the Bering Sea Subarea is authorized only during the following three seasons:

(A) *A season.* From 1200 hours, A.I.t., February 1, through 1200 hours, A.I.t., April 15;

(B) *B season.* From 1200 hours, A.I.t., August 1, through 1200 hours, A.I.t., September 15; and,

(C) *C season.* From 1200 hours, A.I.t., September 15, through 1200 hours, A.I.t., November 1.

* * * * *

6. Tables 4 and 6 to 50 CFR part 679 are suspended and Tables 12 and 13 are added to read as follows:

TABLE 12 TO 50 CFR PART 679

[Steller sea lion protection areas¹ in the Bering Sea Subarea² are identified in the following table. Where two sets of coordinates are given, the baseline extends in a clock-wise direction from the first set of geographic coordinates along the shoreline at mean lower-low water to the second set of coordinates. Where only one set of coordinates is listed, that location is the base point.]

Management area/island/site	Boundaries to				Directed fishing for pollock prohibited within . . . (nm)		Trawling prohibited within . . . (nm)	
	Latitude (N)	Longitude (W)	Latitude (N)	Longitude (W)	Nov. 1 through April 31	May 1 through Oct. 31	Jan. 1 through April 15	Year-round
Bering Sea								
Walrus	57°11.00'	169°56.00'	.....	.....	20	20	.....	10
Ullaga	53°04.00'	169°47.00'	53°05.00'	169°46.00'	.....	20	.....	.....
Chuginadak	52°46.50'	169°42.00'	52°46.50'	169°44.50'	.....	20	.....	.....
Kagamil	53°02.50'	169°41.00'	.....	.....	.....	20	.....	.....
Samalga	52°46.00'	169°15.00'	.....	.....	.....	20	.....	.....
Adugak	52°55.00'	169°10.50'	.....	.....	20	20	.....	10
Umnak/Cape Aslik	53°25.00'	168°24.50'	.....	.....	20	20	.....	.....

TABLE 12 TO 50 CFR PART 679—Continued

[Steller sea lion protection areas¹ in the Bering Sea Subarea² are identified in the following table. Where two sets of coordinates are given, the baseline extends in a clock-wise direction from the first set of geographic coordinates along the shoreline at mean lower-low water to the second set of coordinates. Where only one set of coordinates is listed, that location is the base point.]

Management area/island/site	Boundaries to				Directed fishing for pollock prohibited within . . . (nm)		Trawling prohibited within . . . (nm)	
	Latitude (N)	Longitude (W)	Latitude (N)	Longitude (W)	Nov. 1 through April 31	May 1 through Oct. 31	Jan. 1 through April 15	Year-round
Ogchul	53°00.00'	168°24.00'	.....	.....	20	20	.....	10
Bogoslof/Fire Island	53°56.00'	168°02.00'	.....	.....	20	20	.....	10
Emerald	53°17.50'	167°51.50'	.....	.....	.....	20	.....	.....
Unalaska/Cape Izigan	53°13.50'	167°39.00'	.....	.....	20	20	.....	.....
Unalaska/Bishop Pt	53°58.50'	166°57.50'	.....	.....	20	20	.....	.....
Akutan/Reef-lava	54°07.50'	166°06.50'	54°10.50'	166°04.50'	20	20	.....	.....
Old Man Rocks	53°52.00'	166°05.00'	.....	.....	20	20	.....	.....
Akutan/Cape Morgan	54°03.50'	166°00.00'	54°05.50'	166°05.00'	20	20	20	10
Rootok	54°02.50'	165°34.50'	.....	.....	.....	20	.....	.....
Akun/Billings Head	54°18.00'	165°32.50'	54°18.00'	165°31.50'	20	20	20	10
Tanginak	54°12.00'	165°20.00'	.....	.....	20	.....	.....	.....
Tigalda/Rocks NE	54°09.00'	164°57.00'	54°10.00'	164°59.00'	20	20	.....	.....
Unimak/Cape Sarichef	54°34.50'	164°56.50'	.....	.....	10	10	.....	.....
Alitak	54°11.00'	164°51.00'	.....	.....	20	.....	.....	.....
Ugamak	54°14.00'	164°48.00'	54°13.00'	164°48.00'	20	20	20	10
Round	54°12.00'	164°46.50'	.....	.....	.....	20	.....	.....
Sea Lion Rock (Amak)	55°28.00'	163°12.00'	.....	.....	20	20	20	10
Amak-rocks	55°24.00'	163°07.00'	55°26.00'	163°10.00'	20	20	.....	.....

¹ Three nm NO TRANSIT ZONES are described at 50 CFR 227.12(a)(2) of this title.

² Closure zones around many of these sites also extend into statistical area 610 of the Gulf of Alaska Management Area.

TABLE 13 TO 50 CFR PART 679 (EFFECTIVE THROUGH JULY 19, 1999)

[Steller sea lion protection areas¹ in the Gulf of Alaska² are identified in the following table. Where two sets of coordinates are given, the baseline extends in a clock-wise direction from the first set of geographic coordinates along the shoreline at mean lower-low water to the second set of coordinates. Where only one set of coordinates is listed, that location is the base point.]

Management area/island/site	Boundaries to				Directed fishing for pollock prohibited within . . . (nm)		Trawling prohibited within . . . (nm)	
	Latitude (N)	Longitude (W)	Latitude (N)	Longitude (W)	Nov. 1 through April 31	May 1 through Oct. 31	Jan. 1 through April 15	Year-round
Gulf of Alaska								
Bird	54°40.50'	163°18.00'	.....	.....	10	10	.....	.....
South Rocks	54°18.00'	162°41.50'	.....	.....	10	10	.....	.....
Clubbing Rocks	54°42.00'	162°26.50'	54°43.00'	162°26.50'	10	10	.....	10
Pinnacle Rock	54°46.00'	161°46.00'	.....	.....	.....	10	.....	10
Sushilnoi Rocks	54°50.00'	161°44.50'	.....	.....	.....	10	.....	.....
Olga Rocks	55°00.50'	161°29.50'	54°59.00'	161°31.00'	10	10	.....	.....
Jude	55°16.00'	161°06.00'	.....	.....	10	10	.....	.....
The Whaleback	55°16.50'	160°06.00'	.....	.....	10	10	.....	.....
Chemabura	54°47.50'	159°31.00'	54°45.50'	159°33.50'	10	10	.....	10
Castle Rock	55°17.00'	159°30.00'	.....	.....	.....	10	.....	.....
Atkins	55°03.50'	159°19.00'	.....	.....	10	10	.....	10
Spitz	55°47.00'	158°54.00'	.....	.....	.....	10	.....	.....
Kak	56°17.00'	157°51.00'	.....	.....	.....	10	.....	.....
Lighthouse Rocks	55°47.50'	157°24.00'	.....	.....	10	10	.....	.....
Sutwik	56°31.00'	157°20.00'	56°32.00'	157°21.00'	.....	10	.....	.....
Chowiet	56°00.50'	156°41.50'	56°00.50'	156°42.00'	10	10	.....	10
Nagai Rocks	55°50.00'	155°46.00'	.....	.....	10	10	.....	.....
Chirikof	55°46.50'	155°39.50'	55°46.50'	155°43.00'	10	10	.....	10
Puale Bay	57°41.00'	155°23.00'	.....	.....	10	10	.....	.....
Takli	58°03.00'	154°27.50'	58°02.00'	154°31.00'	.....	10	.....	.....
Cape Gull	58°13.50'	154°09.50'	58°12.50'	154°10.50'	.....	10	.....	.....
Sitkinak/Cape Sitkinak	56°34.50'	153°51.50'	.....	.....	10	10	.....	.....
Kodiak/Cape Ukat	57°52.00'	153°51.00'	.....	.....	10	10	.....	.....
Shakun Rock	58°32.50'	153°41.50'	.....	.....	10	10	.....	.....
Twoheaded Island	58°54.50'	153°33.00'	58°53.50'	153°35.50'	10	10	.....	.....
Cape Douglas	58°51.50'	153°14.00'	.....	.....	.....	10	.....	.....

TABLE 13 TO 50 CFR PART 679 (EFFECTIVE THROUGH JULY 19, 1999)—Continued

[Steller sea lion protection areas¹ in the Gulf of Alaska² are identified in the following table. Where two sets of coordinates are given, the base-line extends in a clock-wise direction from the first set of geographic coordinates along the shoreline at mean lower-low water to the second set of coordinates. Where only one set of coordinates is listed, that location is the base point.]

Management area/island/site	Boundaries to				Directed fishing for pollock prohibited within . . . (nm)		Trawling prohibited within . . . (nm)	
	Latitude (N)	Longitude (W)	Latitude (N)	Longitude (W)	Nov. 1 through April 31	May 1 through Oct. 31	Jan. 1 through April 15	Year-round
Latax Rocks	58°42.00'	152°28.50'	58°40.50'	152°30.00'	10	10	.....	.....
Ushagat/SW	58°55.00'	152°22.00'	.....	.....	.....	10	.....	.....
Ugak	57°23.00'	152°15.50'	57°22.00'	152°19.00'	.....	10	.....	.....
Sea Otter Island	58°31.50'	152°13.00'	.....	.....	10	10	.....	.....
Long	57°47.00'	152°13.00'	.....	.....	10	.....	.....	.....
Kodiak/Cape								
Chiniak	57°37.50'	152°09.00'	.....	.....	10	10	.....	.....
Sugarloaf	58°53.00'	152°02.00'	.....	.....	10	10	.....	10
Sea Lion Rocks (Marmot)	58°21.00'	151°48.50'	.....	.....	10	10	.....	.....
Marmot	58°14.00'	151°47.50'	58°10.00'	151°51.00'	10	10	.....	10
Peri	59°06.00'	151°39.50'	.....	.....	10	10	.....	.....
Outer (Pye) Island	59°20.50'	150°23.00'	59°21.00'	150°24.50'	10	10	.....	10
Steep Point	59°29.00'	150°15.00'	.....	.....	.....	10	.....	.....
Chiswell Islands	59°36.00'	149°34.00'	.....	.....	10	10	.....	.....
Wooded Island (Fish)	59°53.00'	147°20.50'	.....	.....	10	10	.....	.....
Glacier Island	60°51.00'	147°09.00'	.....	.....	10	10	.....	.....
Seal Rocks	60°10.00'	146°50.00'	.....	.....	10	10	.....	.....
Cape								
Hinchinbrook ..	60°14.00'	146°38.50'	.....	.....	.....	10	.....	.....
Hook Point	60°20.00'	146°15.50'	.....	.....	.....	10	.....	.....
Cape St. Elias ..	59°48.00'	144°36.00'	.....	.....	10	10	.....	.....

¹ Three nm NO TRANSIT ZONES are described at 50 CFR 227.12(a)(2) of this title.

² Additional closures along the Aleutian Island chain that extend into statistical area 610 of the Gulf of Alaska are displayed in Table 13 to this part.

[FR Doc. 99-1378 Filed 1-15-99; 5:01 pm]
BILLING CODE 3510-22-P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 679

[Docket No. 981021264-9016-02; I.D. 092998A]

RIN 0648-AL29

Fisheries of the Exclusive Economic Zone Off Alaska; Season and Area Apportionment of Atka Mackerel Total Allowable Catch

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Final rule; 1999 interim Atka mackerel specifications.

SUMMARY: NMFS issues regulations that divide the Atka mackerel total allowable catch (TAC) specified for the Aleutian Islands Subarea (AI) into two seasonal allowances; reduce the percentage of Atka mackerel TAC harvested from Steller sea lion critical habitat (CH) over

a 4-year period in the Western and Central Districts of the AI; and extend the seasonal no-trawl zone around Seguam and Agligadak rookeries in the AI Eastern District into a year-round closure. This action is necessary to avoid potential jeopardy to the continued existence of Steller sea lions due to fishery-induced localized depletions of Atka mackerel, a primary prey species for Steller sea lions. This action is intended to foster the recovery of Steller sea lions and to further the conservation goals of the Fishery Management Plan for the Groundfish Fishery of the Bering Sea and Aleutian Islands Area (FMP).

DATES: Effective January 19, 1999.

ADDRESSES: Copies of the Environmental Assessment/Regulatory Impact Review/Final Regulatory Flexibility Analysis (EA/RIR/FRFA) prepared for this action may be obtained from the Alaska Region, NMFS, P.O. Box 21668, Juneau, AK 99802, Attn: Lori J. Gravel, or by calling 907-586-7228.

FOR FURTHER INFORMATION CONTACT: Jay Ginter, 907-586-7228.

SUPPLEMENTARY INFORMATION: NMFS manages the groundfish fisheries in the

Bering Sea and Aleutian Islands Management Area (BSAI) pursuant to the FMP. General regulations governing U.S. fisheries appear at 50 CFR part 600. The FMP is implemented by regulations appearing at 50 CFR part 679 issued under authority of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). The North Pacific Fishery Management Council (Council) prepared the FMP under authority of the Magnuson-Stevens Act. Fishing for Atka mackerel (*Pleurogrammus monopterygius*) is governed by the FMP and its implementing regulations.

Background

The purpose and need for this action were described in the preamble to the proposed rule published on November 9, 1998 (63 FR 60288). That document and the EA/RIR/FRFA describe the conservation and management events leading to this action. In summary, the number of Steller sea lions (*Eumetopias jubatus*) west of 144°W. long. in the Gulf of Alaska (GOA) and the BSAI has declined severely during the last several decades. In 1997, NMFS recognized these animals as a separate and endangered population. NMFS has

**WRITTEN TESTIMONY FOR THE HOUSE SPECIAL COMMITTEE ON FISHERIES
MARCH 29 HEARING ON ENDANGERED STELLER SEA LIONS**

**SUBMITTED BY CHRIS BLACKBURN, DIRECTOR,
ALASKA GROUND FISH DATA BANK**

Thank you Mr. Chairman for the opportunity to represent Alaska's shoreside pollock industry. We appreciate the opportunity to inform the committee on the threat to the pollock dependent Alaska communities of Kodiak, Seward, Cordova, Sandpoint, King Cove, Dutch Harbor and Akutan as well as the many CDQ villages along the Bering sea coast.

As you undoubtedly know the ability for shorebased catcher vessels to catch pollock is in jeopardy as the result of a law suit filed by a consortium of environmental organizations. This is not the first time the Alaska pollock fishery has been attacked in court by the environmental community. In 1992 a suit was filed by Greenpeace alleging that National Marine Fisheries Service has failed to update its Environmental Impact Study and failed to take measures to stop the decline of the Steller sea lion in the Gulf of Alaska. Greenpeace requested a reduction of the Gulf pollock quota.

The community of Kodiak with the help of shorebased processors in Dutch Harbor and Akutan raised the money to hire a lawyer to intervene and did prevail in the courts -- in the 9th District court, in the Appeals Panel and before the full Appeals Court. The Court did recommend that National Marine Fisheries Service update its EIS which the agency failed to do.

Between 1992 and 1998 the Steller Sea Lions' status has changed from "threatened" to "endangered" which opened the way for the current lawsuit under the Endangered Species Act.

The pollock industry does not feel that National Marine Fisheries Service has been negligent. The cause of Steller sea lion decline remains elusive. The rate of decline has mitigated dramatically during the 1990's. There was no science to suggest a course of action other than the closure of rookeries and continued research. Research which has included the Department of Fish and Game and the University of Alaska Fairbanks as well as Andrew Trites, National Marine Fisheries Service and other scientists from outside Alaska to the degree budgets allowed.

The pollock industry itself has raised considerable funds to support research. Since the Endangered Species Act does not appear to require science but only that something be done that impacts humans since nature cannot be

controlled, I will move on to the impact on our pollock dependent Alaskan communities.

SAFETY OF OUR FLEET AND FISHERMEN

The new Steller Sea Lion protective measures close 10 mile areas around 44 sea lion rookeries, some which have not been used by sea lions for a decade. Restrictions on the amount of pollock which can be taken from the waters near Dutch Harbor also forces Bering Sea pollock catcher vessels offshore.

Pollock is a winter fishery. As all of you know, Alaskan winter weather is storm driven, wind blown and sprayed with ice. The smaller the vessel -- and in the pollock fishery a 99-foot vessel is considered small -- the greater the jeopardy to the boat and the crews -- the greater is the danger to our neighbors, our friends and our relations.

ECONOMICS OF THE FLEET

All catcher vessels face reduced income from pollock due to the additional cost in fuel, maintenance and lost fishing time due to having to run farther from port to find an area to fish pollock. Smaller vessels will have to choose whether to risk weather or lose fishing days and income.

EFFECT ON QUALITY

Currently pollock catcher vessels are required to return to port two to three days after the first fish is taken onboard. As the fleet is pushed further offshore and forced to hunt for pollock, it will become increasingly difficult to assure a quality product and a profit for the vessel.

ECONOMICS OF THE ALASKA POLLOCK DEPENDENT COMMUNITIES

Pollock built the Alaskan shorebased groundfish fishery. In Kodiak pollock provides most of the early winter fishery -- work that keeps the processing plants and their employees working year round and makes Kodiak the only Alaskan port with a year round resident processing workforce. Pollock put shorebased plants in Dutch Harbor and Akutan and created viable communities. Pollock gives winter work to the communities of Seward and Cordova.

Pollock money flows through the communities supporting a variety of small businesses. It is not just fishermen and processors who are impacted, but the whole community -- home owners concerned that the value of the home will be devalued, small businesses serving the community are concerned about a reduction in customers, municipalities worry about the effect on their tax base and the maintenance of the community infra-structure.

IMPACT ON OTHER FISHERIES

Boats unable to move offshore to fish pollock will look for other options. Alaska no longer has undeveloped fisheries. Any vessel that changes fisheries is impacting the traditional fishermen in those fisheries and reducing their income.

Over the years the pollock fleet has worked to reduce bycatch with pelagic trawls, by setting seasons when salmon are least likely to be taken as bycatch and by moving if they encounter salmon or herring. The reduction in pollock fishing areas jeopardizes the ability to practice "clean fishing".

SOCIAL IMPACTS

Every fishing dependent community has years when fishing is poor and the community is financially troubled. As a former City Council member I know the cost of these times in human terms -- alcoholism, divorce and the impact on the children. We cannot change what nature does, but to deliberately create the same problems seems unconscionable.

FISHING COMMUNITY ATTITUDE

Everywhere I go in Kodiak I hear from fishermen, business owners and employees "if we had any reason to think the pollock fishery was the cause of the sea lion decline we would do what we needed to do". We live here and care for our resources whether its a sculpin, a salmon or a sea lion. The animals, marine and terrestrial, are our legacy for our children and for their children. Kodiak is no different from any other fishery dependent community. There are sea lions on all our docks, killer whales coming by to teach their young to catch sea lions or just dropping in for a munch.

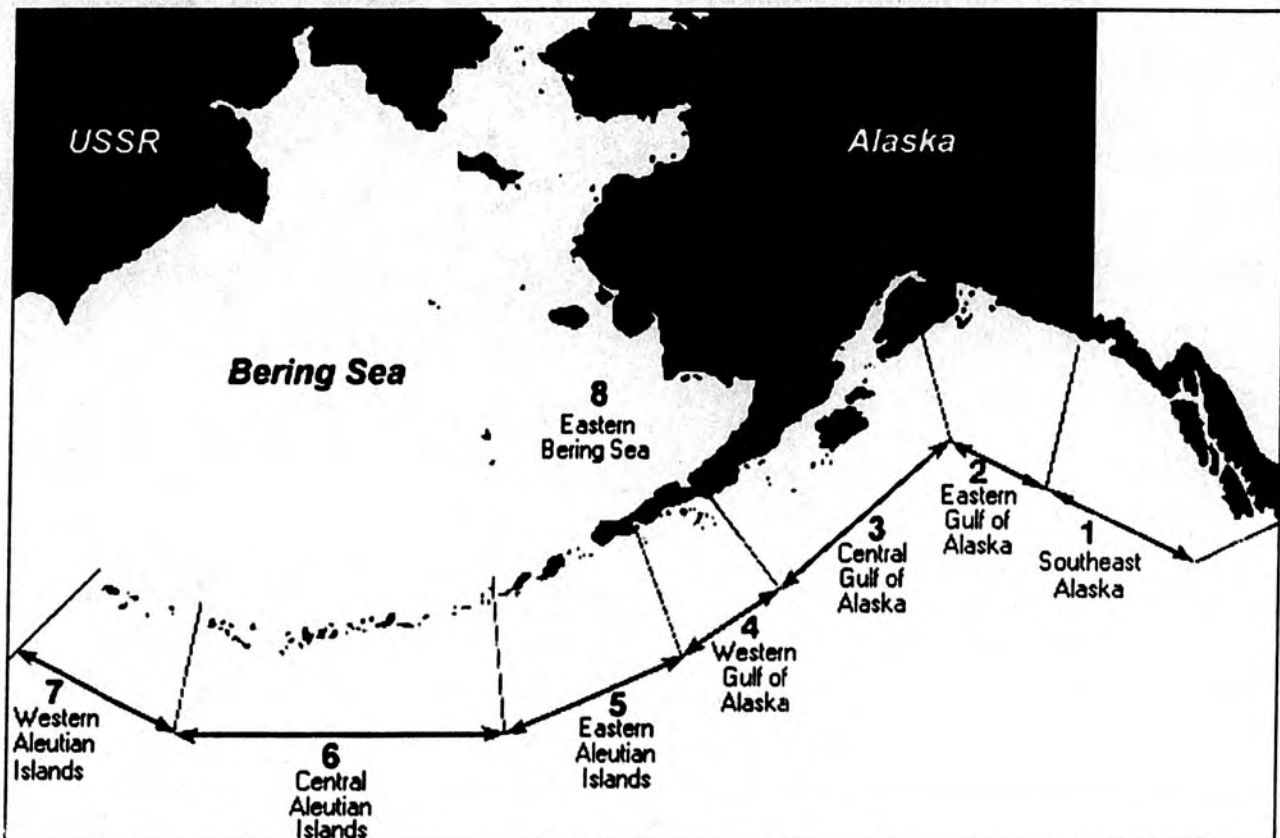
HOW CAN THE ALASKA LEGISLATURE HELP

Everyone I've talked to is pleased that the Alaska House of Representatives are paying attention and are concerned. If nothing else this hearing certainly boosts morale. We would like to see the State of Alaska play a large role in sea lion research. Alaska has wonderful facilities and institutions including the Seward Sea Life Center, the Prince William Sound Science Center, the University of Alaska Fairbanks School of Fisheries and Ocean Sciences and the Institute of Marine Science. and the new Kodiak Fisheries Research Building -- a research facility funded by the community of Kodiak with a lot of help from Senator Ted Stevens.

These facilities have been poorly funded and somewhat ignored. We would like to see all the institutions and facilities form a task force and research plan and the legislature assist with a portion of the funding needed to implement the plan.

Steller Sea Lion Distribution

The Steller sea lion is distributed around the North Pacific Ocean rim from northern Hokkaido, Japan through the Kuril Islands and Okhotsk Sea, Aleutian Islands and central Bering Sea, southern coast of Alaska and south to the Channel Islands, California.



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This page was last modified on Thursday, November 12, 1998.

Location of Sea Lion Rookeries

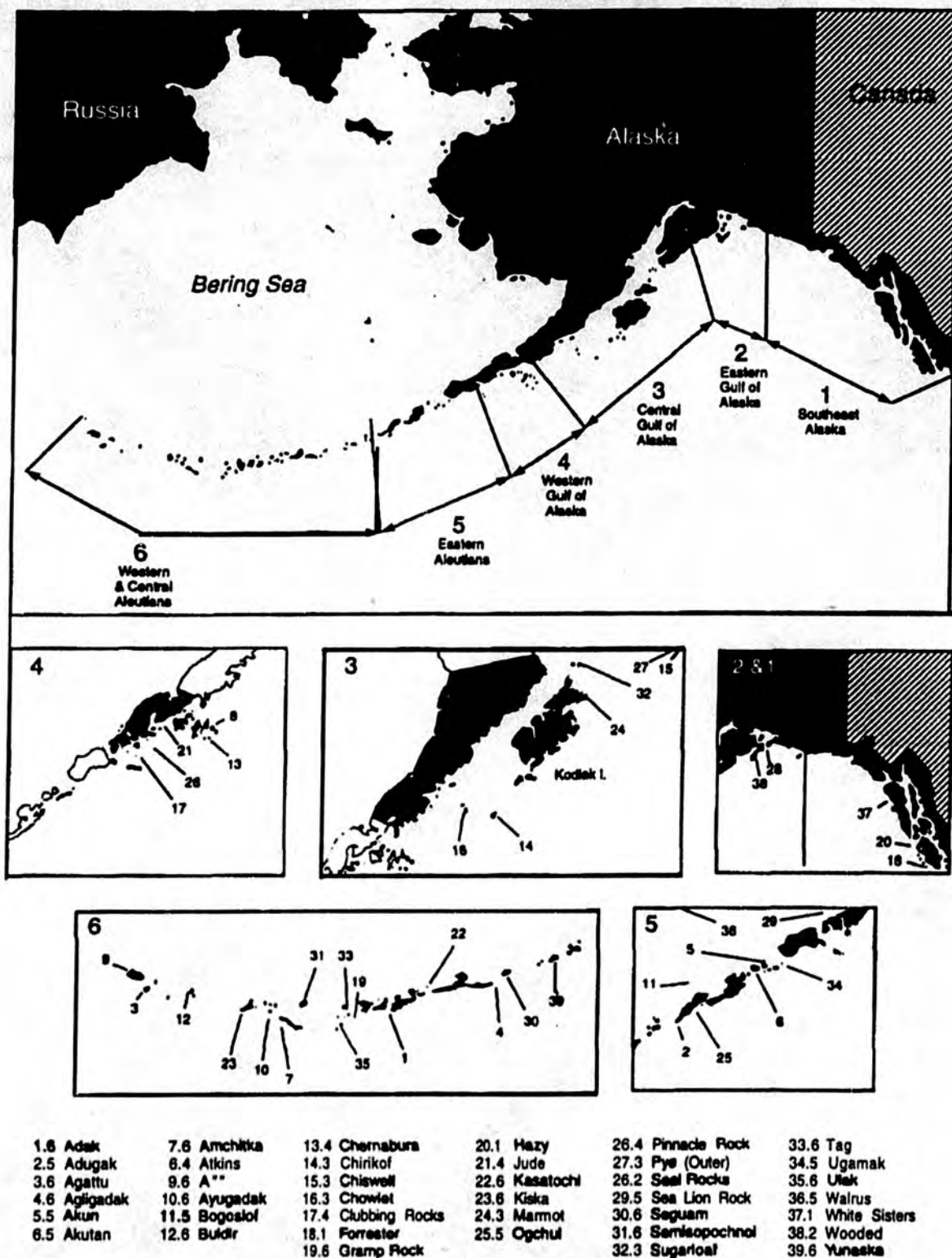


Figure 1. Steller sea lion rookeries in the six study areas of the Gulf of Alaska and Aleutian Islands (adapted from Merrick *et al.*, 1988, and Loughlin *et al.*, 1992). The geographic split between eastern and western stocks is shown by the line separating Areas 1 and 2. Number prefixes of names designate the rookery; suffixes identify the areas in which the rookeries are found.

from Trites, A. and Larkin, P "Changes in the Abundance of Stellar sea lions in Alaska from 1986 - 1992: how many were there?" 1996.

Steller Sea Lions (*Eumetopias jubatus*): Causes for their Decline and Factors Limiting their Restoration

Andrew W. Trites

Marine Mammal Research Unit
Fisheries Centre, University of British Columbia
2204 Main Mall, Vancouver, B.C. Canada V6T 1Z4

Phone: (604) 822-8181, Fax: (604) 822-8180. E-mail: trites@zoology.ubc.ca

October 29, 1998

Introduction

Most researchers believe that food shortages are the most likely cause of the decline of Steller sea lions (ASG 1993 – "Is it Food? Conference"). Poor nutrition caused by a lack of abundance, availability or appropriateness of prey can reduce birth rates and increase mortality through disease, predation and starvation. Major changes in the quantity and quality of Steller sea lion prey appear to have been affected by natural changes in the ecosystem, not by fishing activities. Recent results from ecosystem models of the eastern Bering Sea, comparisons of sea lion diets across time and space, and environmental and biological time series data show the following:

- The composition of the Bering Sea changed from an ecosystem dominated by marine mammals, crabs, shrimp and pelagic fishes (e.g., herring and sandlance) in the 1950s to one now dominated by pollock and large flatfish.
- The diet of Steller sea lions changed between the 1950s and 1990s as their populations declined in the Aleutian Islands and Gulf of Alaska. The change in sea lion diet matches the reported change in prey species available in the Bering Sea and Gulf of Alaska.

- Steller sea lion population declines correlate with diet diversity. The greatest declines of Steller sea lions occurred in areas where sea lions consumed a low diversity of prey. Pollock dominate the diet in the Gulf of Alaska. The increasing Steller sea lion populations in southeast Alaska have the most diverse diet of all regions of Alaska.
- There is no evidence that sea lions are competing with fisheries for pollock. Juveniles, the most vulnerable segment of the Steller sea lion population, eat small immature pollock at shallow depths. In contrast, the fishery takes large mature pollock at deeper depths.
- Captive studies and other empirical evidence suggest that sea lions that eat too much pollock may suffer negative health consequences.
- Recovery of Steller sea lions appears linked to their eating a more diverse diet containing a higher proportion of fattier fishes.
- Environmental data suggest the abundance of key species of North Pacific fish was altered by a climatic regime shift that occurred in the mid to late 1970s. Ecosystem modeling supports this explanation. Regime shifts may occur every 18-60 years and may occur soon again. Such a regime shift is likely to restore the fattier fishes that sea lions seem to thrive upon.
- Pollock is currently an important prey in the Aleutians and Gulf of Alaska only because of its dominance in the ecosystem and the apparent lack of other prey types at this time.
- Juvenile Steller sea lions consume juvenile pollock and presumably benefit from the removal of adult pollock. Reducing the cannibalistic adult stock through fishing should result in more juvenile pollock being available to juvenile Steller sea lions.
- Changing the amount and timing of commercial catches of pollock can have unexpected and undesirable consequences for Steller sea lions. The most precautionary action for Steller sea lions may be to protect the fattier fishes and maintain a status quo on catching adult pollock.

The following provides details of these observations and conclusions. Information is presented on how the diets of Steller sea lions have changed over time as the species composition of the Bering Sea also changed. The survival and reproductive consequences for Steller sea lions of changing their diet from a diverse diet with fatty fishes to one dominated by pollock are discussed. The extent of direct competition between sea lions and fisheries is also examined. The review concludes

by considering measures that might restore Steller sea lions to their former level of abundance.

Changes in Steller Sea Lion Diets

Stomach contents and fecal analysis show that Steller sea lions eat a wide range of species such as walleye pollock, Pacific cod, octopus, squid, salmon, Pacific herring, Pacific sandlance, capelin, flatfish, rockfish and Atka mackerel (NMFS 1992). These analyses further suggest distinct regional differences in the diversity and types of prey currently being consumed. The most notable difference between Steller sea lion populations in the Bering Sea and Gulf of Alaska was the dominance of pollock in the diets of animals breeding in the Aleutian Islands, where the sharpest population declines have occurred. This contrasts with the high diversity of prey consumed in Southeast Alaska, where the population has increased (Lowry *et al.* 1989, Merrick and Calkins 1996, Merrick *et al.* 1997, Trites and Calkins - unpubl. data). Merrick *et al.* (1997) found a significant negative correlation between the diversity of diet and the rate of the Steller sea lion population decline across the Aleutian Islands and Gulf of Alaska ($r = -0.949$). They concluded that the sharpest population declines occurred in areas with the lowest diversity of diet, and that sea lions need a variety of prey.

Dietary information collected for half a century is summarized in Table 1. The occurrence of gadids (mostly walleye pollock) in stomachs and fecal remains (scats) from the declining sea lion population in the Kodiak Island area increased from 32% in 1976-78, to 60% in 1985-86, and 85% in 1990-93 (Merrick *et al.* 1997). Consumption of flatfish (another low fat fish) also increased in the same area from 0% to 13% from 1976-78 to 1990-93. The occurrence of small schooling fatty fishes (pelagics such as herring, sandlance, capelin and smelt) in scat and stomach samples decreased from 61% in 1976-78, to 18% in 1990-93 (Merrick *et al.* 1997). Looking back further in time to the 1950s and early 1960s shows that Steller sea lions consumed few if any pollock or flatfish (Wilke and Kenyon 1952, Mathisen *et al.* 1962, Thorsteinson and Lensint 1962, Tikhomirov 1964, Fiscus and Baines 1966). Instead, stomach contents reveal that the animals were eating a more diverse diet of capelin, sandlance, herring, smelt, rockfishes, greenlings, crabs, and squid (see review by Alverson 1992). It is these species, not pollock, that Steller sea lions were eating while their populations increased to the highest levels recorded in this century (Trites and Larkin 1996).

Seals and sea lions are generally thought to be good at sampling the marine environment. Thus, changes in the diet of seals and sea lions likely indicates the types and relative abundance of prey present. The story they are telling is that the pollock stock (followed by flatfish stocks) increased between the mid 1960s and late 1970s, while stocks of pelagic fishes (herring, sandlance, capelin, etc.) decreased. These conclusions are

consistent with stock assessments conducted by the Soviet Union and the U.S. National Marine Fisheries Service (see Alverson 1992, Trites *et al.* 1998a).

Table 1. Changes in the frequency of occurrence of major prey types in the diets of Steller sea lions in the Gulf of Alaska.

Years	Gadids	Flatfish	Pelagics
1950-60s	few	none	mostly
1976-78	32%	0%	61%
1985-86	60%	5%	20%
1990-93	85%	13%	18%

Except for herring, there were no commercial fisheries on other fatty pelagic fishes such as capelin, sandlance, and smelt. The decline of these pelagic fishes appears to be natural. Their reduction in the ecosystem may be linked to the rise in pollock and large flatfish that now dominate the Bering Sea and Gulf of Alaska.

Results from a recently completed ecosystem model of the Eastern Bering Sea (Figure 1) reflect the change in diversity of prey, which moved from fatty pelagic species to pollock and large flatfish. The model suggests that pollock consumed over 50% of the prey eaten by all mid-trophic level species¹ during the 1980s compared to only 10% during the 1950s (see Trites *et al.* 1998a for details). In contrast, pelagic fishes (such as herring, sandlance and capelin) contributed nearly 50% of the flow of energy at this level in the 1950s. Dominance of the mid-trophic level appears to have switched from pelagic fishes to pollock. At higher trophic levels (see Figure 1), large flatfish contributed over 60% of the total energy flow during the 1980s, compared to the 1950s when there was a more even distribution of consumption among the flatfish, seals, sea lions, and toothed whales.

Large flatfish and adult pollock may be significant competitors of seals and sea lions, given the large overlaps in their diets (38-50%). There are also significant overlaps in the diets of pollock and baleen whales (73-86%). Thus, competition for food with pollock and flatfish may be a factor impeding the recovery of seals and sea lions. Changes in the

¹ Trophic levels are a way of classifying organisms according to their feeding relationships in a food chain. As shown in Figure 1, the first trophic level includes plants, the second herbivores, and so on. Adult and juvenile pollock share the third trophic level with pelagics, small flatfish and jellyfish.

biomass of large flatfish and adult pollock may also influence the abundance of pelagic fishes.

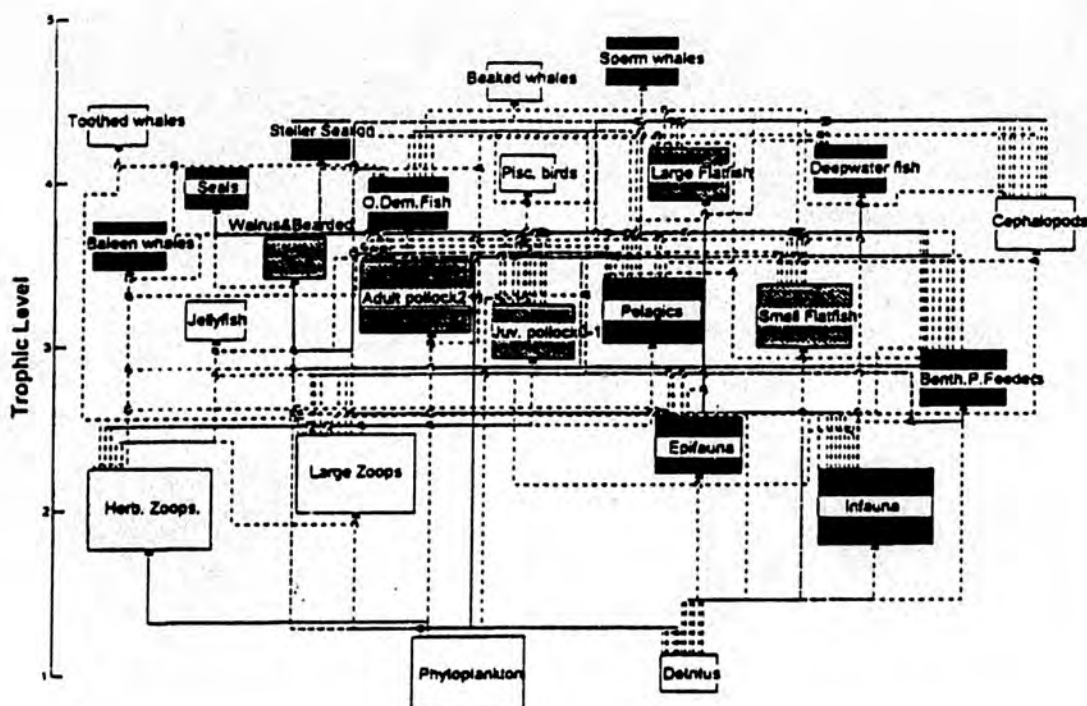


Figure 1. Flowchart of trophic interactions in the eastern Bering Sea during the 1980s. The black boxes indicate which groups declined in abundance between the 1950s and the 1980s, and the gray boxes show which species increased between the two time periods. Connecting lines show the major flows of energy between groups of species. Minor flows were omitted. From Trites *et al.* (1998a).

Competition?

There is no question that pollock is currently the most important prey of Steller sea lions in the Aleutian Islands in terms of numbers consumed. There is also no doubt that the pollock fishery is one of the most important fisheries in Alaska and harvests fish at sustainable levels. What is not clear is whether the fishery and the sea lions are competing in a manner that impedes the recovery of Steller sea lions.

The sizes (length distributions) of pollock eaten by Steller sea lions have been compared to the sizes of fish commercially caught in 1981 and 1985 (Fritz *et al.* 1995). That comparison shows that Steller sea lions consume primarily small pollock (mean size = 27.1 cm) while the fisheries take primarily large pollock (mean size = 33.7 cm). Mean size of all pollock in the population was 29.4 cm.

There is little overlap in the size of fish caught commercially and the size of fish eaten by juvenile sea lions. Greater overlap occurs between fisheries and adult sea lions. Adult sea lions can capture all sizes of pollock (9–56 cm), but seem to prefer the smaller juvenile sizes (Merrick and Calkins 1996). However, juvenile sea lions appear to rarely capture pollock longer than 25 cm and eat relatively more juvenile pollock than adult sea lions (see Figure 3 in Merrick and Calkins 1996). Average sizes eaten in 1985 were 20.8 cm (by juvenile sea lions) and 27.1 cm (by adult sea lions). Thus, the length-frequency data suggest limited competition between fisheries and juvenile sea lions (the segment of the sea lion population thought to be most at risk), but potentially greater competition with adult sea lions.

The fact that there is an overlap in the size of pollock taken by fisheries and adult sea lions does not necessarily mean that the two are competing. Competition occurs if the resource they are seeking is limited. There is no evidence to suggest that sea lions are not getting enough pollock to eat or that pollock stocks have been depleted by fisheries. There are no reports of sea lions stealing pollock from nets because they cannot capture fish on their own. Furthermore, modelling work by Shima (1996) has shown that the abundance of pollock is sufficient to feed the population of Steller sea lions, and that there is no lack of prey (pollock) biomass. This is consistent with the significant increases reported in the abundance of pollock in the Gulf of Alaska between 1984 and 1990 (Fritz *et al.* 1993). During this time, pollock increased and sea lions declined.

It is also significant that commercial fisheries typically capture pollock at depths far deeper than Steller sea lions dive. Samples of fish caught in trawl fisheries show that pollock typically occurred at depths of 50–500 meters (Fritz *et al.* 1998). The frequency of occurrence of pollock was significantly less in trawls pulled at 1–49 meters. Adult Steller sea lions have been observed diving to a median depth of 21 meters in summer and 24 meters in winter (Merrick and Loughlin 1997). This is in sharp contrast to juvenile Steller sea lions that dove to a median depth of 9 meters. The deepest dive recorded for juvenile sea lions was only 72 meters, with 89% of their dives between 4–10 m and 11% at 10–50 m (Merrick and Loughlin 1997). Adult females had 35% of their dives at 4–10 m, 61% at 10–50 m, and 3% at >50 m. The deepest female dive recorded was over 250 m. Thus, these data suggest that juvenile sea lions do not dive as deep as adults, and that fisheries catch fish at deeper depths than sea lions, thereby limiting any potential direct competition between them.

Quantity versus Quality of Prey

Discussions of fisheries and Steller sea lions tend to only emphasise the quantities of individual fish species available to sea lions, or the quantity removed from their ecosystem. Little or no consideration is given to the diversity or quality of prey available.

Pollock appear to be abundant and available to Steller sea lions. However, pollock, the dominant prey being consumed in the areas of sharpest population decline of sea lions, are generally poor in energy and nutritional content. They have about half the energy content of herring (Perez 1994). They also have less usable energy due to the greater difficulty of digesting pollock (Rosen and Trites unpubl. data). The overall quantity of pollock present or removed by fisheries is, by itself, an inappropriate unit for distinguishing impacts of fisheries on Steller sea lions or other marine mammals.

As noted above, fatty fishes have traditionally been the dominant component of the diets of Steller sea lions and other pinnipeds. Fatty fishes provide higher food energy (per unit weight) than pollock or flatfish (Alverson 1992). Differences in energy content would require a Steller seal lion to consume 35–50% more pollock than herring to achieve the same gross energy intake (Rosen and Trites, unpubl. data). Moreover, captive feeding trials with pollock have shown that Steller sea lions lose three ways when they eat pollock and that the sea lions must actually compensate by eating 50–65% more pollock than herring to maintain similar net energy intakes. First, the pollock contain less energy than the herring. Second, the sea lions burn more energy digesting pollock than herring. Third, it costs a sea lion more energy to digest the larger quantity of fish needed to compensate for the lower energy content (Rosen and Trites 1997).

A further complication for Steller sea lions eating pollock, beyond the lower net energy gain they receive, is the possibility that gadid fish, such as pollock, hake or cod, adversely affect the health of pinnipeds if consumed in large amounts (Thompson *et al.* 1998). Anderson (1966) and Geraci (1975) have suggested that the composition of gadids (e.g, amino acids, vitamins and minerals) may lead to health problems in marine mammals, such as iron deficiency. Such abnormal blood chemistries have also been reported in harbor seal populations and are thought to be linked to gadid diets (Thompson *et al.* 1997). Similar phenomena were observed when another mammalian species, mink, were fed gadids (Stout *et al.* 1960). The gadid diet resulted in mink having poor quality fur, low birth rates and high mortality rates.

Questions about the composition of pollock and the nutrition that Steller sea lions can derive from it are under investigation at the Vancouver Aquarium and the University of British Columbia. Tests showed that feeding Steller sea lions (age 0.9 – 4.5 years) only pollock for short periods (9 – 23 days) caused them to lose an average of 0.55 kg per day (Rosen and Trites 1998). The 6 animals under study lost an average of 6.2% of their initial body mass over an average feeding trial of 14.5 days (initial mass averaged 125 kg). The animals were allowed to eat as much pollock as they wanted but did not increase their food intake to compensate for the low energy they were receiving. The sea lions that ate pollock showed progressive metabolic depression (i.e., they lowered their metabolism to survive longer) as they lost body mass and would have presumably eventually reached a steady but sub-optimal body mass on a pollock-only diet. This has serious implications for Steller sea lions that eat primarily pollock in the Aleutians and Gulf of Alaska.

The pollock fed to the Steller sea lions by Rosen and Trites (1998) had an energy density ranging from 4.54–4.72 kilojoules-per-gram (kJ/g). Fadely *et al.* (1994) found pollock with average lengths of 25.4 and 28.6 cm length had similar energy densities of 4.40 and 4.80 kJ/g, respectively. Smith *et al.* (1988) found that ripe, mature male and female pollock (93.6 and 96.2 cm, respectively) had energy densities of 3.68 and 4.03 kJ/g, respectively, while spent adult males and females had an energy density of 3.41 and 3.27 kJ/g. Thus, it would appear from these limited samples that young pollock may contain more energy than the roe bearing adults.

The feeding studies conducted to date, and observations from other species, suggest that a diet dominated by pollock may be unhealthy for Steller sea lions. It suggests that the problem facing Stellers is not that they cannot get enough pollock to eat, but that they may be consuming too much. This is not to say that Steller sea lions should not eat pollock, because it is clearly part of a balanced diet as shown by the range of species, including pollock, that are consumed by the increasing population of Steller sea lions in Southeast Alaska (Trites and Calkins, unpubl. data).

The high proportion of pollock in the diets of Steller sea lions in the Gulf of Alaska and Aleutian Islands suggests that pollock are readily available to them, but that other prey types are not. Unfortunately, eating too much pollock likely stunts growth, increases susceptibility to disease and predation, and raises the likelihood of reproductive failure (e.g., reabsorptions / abortions). Thus, the return of Steller sea lions to higher population levels in the Gulf of Alaska and Bering Sea is probably linked to consuming more fatty fishes and fewer pollock.

Ecosystem Change: What Happened?

Two useful approaches have been taken to glean some insight into the current state of the Gulf of Alaska and Bering Sea. The first constructed an ecosystem model of the eastern Bering Sea, explored how the system differed between the 1950s and 1980s, and considered the mechanisms that might have changed the ecosystem (Trites *et al.* 1998a). The second approach contrasted the Gulf of Alaska ecosystem to three other ecosystems in other parts of the world that supported large trawl fisheries, but also had large pinniped populations (Shima 1996). The goal of that approach was to understand what was different about the Gulf of Alaska.

Trites *et al.* (1998a) used their ecosystem models to test whether commercial whaling was responsible for the build up of pollock stocks (the theory being that pollock are eating the zooplankton and other prey once consumed by baleen whales). They also considered whether changes in the ecosystem were caused by fishing or natural environmental factors (i.e., a regime shift).

The models indicate that removing whales from the Bering Sea would have resulted in more pollock, but nothing near the magnitude of what was observed. Similarly, the model showed that fishing at commercial levels could not change the ecosystem from its 1950s state to its 1980s state. Overall, the simulations were unable to account for changes that occurred between the 1950s and the 1980s through trophic interactions alone (i.e., by manipulating the abundance of predators and prey). Instead, the most likely explanation for the build-up of flatfish and pollock, and the decline of pelagic fishes was environmental change. However, whaling or fisheries (such as for herring) may have intensified the speed and magnitude of the observed changes. Changes in the abundance of key species can in turn affect the abundance of other species in the food web, such as has been recently observed when killer whales began reducing sea otter populations following declines of their major prey – seals and sea lions (Estes *et al.* 1998).

The ecosystem models developed by Trites *et al.* (1998a) are based on the best available data and have been used in a simple and rigorous modeling framework (Ecopath) that has a number of checks and balances to ensure consistency (Christensen and Pauly 1993, 1995, Pauly and Christensen 1996, Walters *et al.* 1997). Thus, sound conclusions can be drawn about some of the general and fundamental properties of the Bering Sea, despite incomplete knowledge of the past and present (Trites *et al.* 1998b). For example, the models imply that the Bering Sea may be relatively resilient and resistant to change over long

periods of time compared to more tropical ecosystems (see Vasconcellos *et al.* 1997). However, the Bering Sea also appears to be a system that is susceptible to dramatic and sudden decadal shifts. The models further suggest that the Bering Sea is a system where the cumulative effects of changes in the abundance of one species on others are sluggish and may be small compared to the magnitude of change that the environment can produce on recruitment or primary production. They also provide a good means of contrasting the striking differences in the abundance of different fish and mammal species present in the 1950s and 1980s.

The second means of gaining insight into the Bering Sea and Gulf of Alaska ecosystems is to compare them to other ecosystems that have significant marine mammal populations and large trawl fisheries. Shima (1996) compared the Gulf of Alaska with three similar ecosystems – the Barents Sea (north of Norway), the California Current (California), and the Benguela Current (off the southwest coast of Africa). Seals are currently abundant in all of these ecosystems except in the Gulf of Alaska. It is also interesting to note that seals are abundant in Atlantic Canada (a system which she did not compare) where cod fish (another gadid) have declined due to over-fishing. Shima found harvest levels of groundfish were at the low end of the scale in the Gulf of Alaska compared to the Barents Sea and Benguela Current. She also found that direct interactions (shootings and entanglements) between Stellers and fishing boats in the Gulf of Alaska were negligible in comparison with the other ecosystems.

The most significant difference Shima found between the ecosystems she compared concerned the diversity of prey eaten by the pinnipeds in each system. Only in the Gulf of Alaska was the diet dominated by a single prey (pollock). Elsewhere, the pinnipeds consumed a variety of prey such as cod, herring and capelin in the Barents Sea. These findings further support the view that diversity of diet and consumption of fatty fishes are central to maintaining large pinniped populations.

Reduced Carrying Capacity

There is mounting evidence that the carrying capacity of Steller sea lions and other pinnipeds in the Bering Sea and Gulf of Alaska is considerably lower today than it was during the 1950s and 1960s. What appears to be limiting the size of their populations is a shortage of fatty pelagic fishes. The biomass of pollock is high but does not appear to be of sufficient quality to support large populations of pinnipeds.

Counts of sea lions at rookeries in the western Gulf of Alaska and eastern Aleutian Islands indicate that the population decline has slowed since

1989, and suggest that the population may be approaching a lower level of carrying capacity (Trites and Larkin 1996). Indications that the carrying capacity of Steller sea lions dropped through the 1980s come from reduced body growth, a drop in birth rates, and an apparent reduction in the survival of young sea lions. These changes are consistent with density dependent responses reported in several pinniped species (see review in Trites 1990). They are also consistent with the sequential changes that Eberhardt (1977) predicted would occur as populations rise and fall. He speculated that behavioral modification (feeding time, aggressive behavior) should be the first population characteristic altered by abundance, followed by individual characteristics (body growth, incidence of diseases and parasites), reproductive effects (birth rates, age of first reproduction), and finally population aspects (survival rates, distribution).

Calkins and Goodwin (1988), Castellini and Calkins (1993) and Calkins *et al.* (1998) concluded that Steller sea lions were physically smaller in the mid 1980s compared to sea lions sampled in the mid 1970s. Their conclusion was further supported by morphometric measurements (body lengths and weights) of sea lions caught in the Gulf of Alaska (Perez and Loughlin 1991). These studies indicate that sea lions may not have obtained adequate nutrition during the 1980s, and give credence to the hypothesis that Steller sea lions are limited by food.

Pregnancy rates, another density dependent response to lower carrying capacity, also dropped as the Steller sea lion population declined. Samples of sexually mature females shot in the 1970s and 1980s were nearly all (97%) pregnant during early gestation (Pitcher *et al.* 1998). However, by late gestation, pregnancy rates had declined due to abortions and re-absorptions. Birth rates were approximately 67% in the 1970s and dropped to 55% in the 1980s. Low pregnancy rates were associated with poor body condition (low weights and thin blubber layers). Pitcher *et al.* (1998) concluded that the drop in pregnancy rates was because the prey base was inadequate to support the Steller sea lion's "energetically expensive reproductive strategy". Steller sea lions presumably need to consume more of the scarcer, fattier pelagic fishes, and less of the abundant but nutritionally poor pollock.

The third significant change that appears to have occurred as the sea lion population declined concerns an increase in the mortality of young sea lions. York (1994) examined the difference in the age structure of the samples of sea lions taken in the 1970s and 1980s. She concluded that the most likely explanation for the change in age was due to a higher mortality of young sea lions during the 1980s compared to the 1970s.

The lowering of Steller sea lion birth and survival rates, and the stunting of body growth, are indicative of a population that is at the limit of the ability of the environment to support it (i.e., at carrying capacity). Steller sea lions are not alone in this regard. Northern fur seals and harbor seals also declined at the same time as Steller sea lions (Pitcher 1990, Trites 1992) and also appear to be at new and lower levels of carrying capacity (Figure 2). Interestingly, all three species declined at roughly the same time (Figure 2) suggesting they are linked by a common factor—the naturally occurring regime shift of the late 1970s (see below).

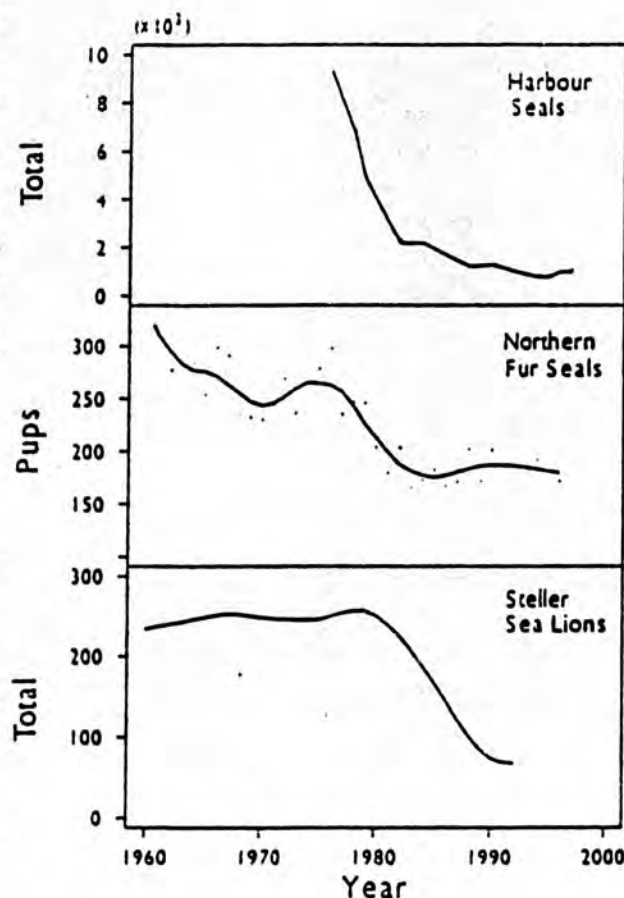


Figure 2. Pinniped population trends in the Gulf of Alaska. Numbers of harbor seals were counted on Tugidak Island by the Alaska Department of Fish and Game. Changes in the size of the western stock of Steller sea lions were estimated by Trites and Larkin (1996) from aerial survey data. Pup counts of northern fur seals are from the St. Paul Island and were estimated by the National Marine Fisheries Service.

Northern fur seals, like Steller sea lions, are showing signs of stunted growth not seen since the 1950s when the population had peaked at twice its current level (Trites 1998). Pollock biomass was low and fatty pelagic fish abundance was high in the 1950s compared to now when pollock dominate and pelagic fishes are relatively scarce. This presumably means that the North Pacific could support more northern fur seals in the 1950s than now. There are also reports from Alaskan native hunters that harbor seals have much thinner blubber layers now than in the past (Monica Riedel, Alaska Harbor Seal Commission, pers. comm.). Other evidence of reduced carrying capacity in the North Pacific comes from the stable isotope studies conducted on the baleen of bowhead whales, and the whiskers, tissues and bones of pinnipeds. (Hirons and Schell 1998a,b; Schell 1998).

The changes observed in Steller sea lions, northern fur seals and harbor seals suggest that the carrying capacity for these species has been

reduced by 50% or more in the Gulf of Alaska and Bering Sea. The timing of these changes corresponds to the mid to late 1970s and has not been related by any researchers to fishing. Instead, the available data have led an increasing number of researchers to conclude that cascading effects have occurred due to a major natural oceanic regime shift (Francis and Hare 1994, NRC 1996, Piatt and Anderson 1996, Springer 1998, Trites 1998, Pitcher *et al.* 1998) based on a long time series of oceanographic and atmospheric data (Kerr 1992, Ebbesmeyer *et al.* 1991, Trenberth and Hurrell 1995, Ware 1995).

In this regard, a variety of evidence, including air and water temperature, atmospheric dust levels, carbon dioxide concentrations, and ice cover suggests that the Gulf of Alaska and Bering Sea experienced a stepwise environmental shift sometime in the late 1970s. This has been referred to as a climatic regime shift. A number of studies (see the recently published review by Francis *et al.* 1998), have related environmental regime shifts to changes in most of the major components of the North Pacific marine ecosystem – primary and secondary producers, forage species and several levels of predators (Brodeur and Ware 1992, Beamish 1993, Polovina *et al.* 1995, Roemmich and McGowan 1995, Brodeur *et al.* 1996; forage species: Hollowed and Wooster 1992, 1995; McFarlane and Beamish 1992, Beamish and Bouillin 1993, Hare and Francis 1995, Wooster and Hollowed 1995 Anderson *et al.* 1997; and predators: Springer 1992, ASG 1993, Piatt and Anderson 1996, Hunt *et al.* 1996, Pitcher *et al.* 1998, Trites 1998).

Springer (1998), in summarizing recent research into regime shifts, notes a "recurring pattern of climate variability over the Pacific Ocean that includes an alternation of the Aleutian low pressure system between two quasi-stable states of intensity and location lasting between about 15-30 years. Transitions between regimes are rapid and are associated with a wide variety of equally rapid physical and biological responses in ecosystems." The strength and position of the Aleutian low may affect ocean properties and circulation, and create conditions that lead to more or less primary and secondary production across a broad region of the North Pacific. Sea surface temperature may also cycle between warmer and cooler conditions every 6-15 years and create another layer of environmental instability. Francis *et al.* (1998) note that "the kind of decadal-scale atmospheric forcing in the North Pacific that we have seen during the 20th century has probably persisted for centuries."

Mitigating the Sea Lion Decline

People would like to do something to reverse the decline of Steller sea lions. One of the means that has been proposed is to reduce the amount of pollock caught by fishermen if that would make more pollock available to Steller sea lions. Another is to alter fishing effort to produce more of the fatty fishes that sea lions seem to thrive on. There are few other options beyond altering or not altering fishing rates and/or the timing and location of fishing. Possible consequences of such actions can be explored with mathematical ecosystem models.

Ecosystem models can be used to consider what might happen to other species, such as sea lions or pelagic fishes, if fishing pressure on pollock was changed. They are tools to ask "What if?" questions. Trites *et al.* (1998a) explored what might happen to the eastern Bering Sea if the amount of pollock caught was changed. They considered how the ecosystem might respond if the proportion of adult pollock taken by fisheries was increased over a range of 10 – 50%. They also considered what might happen if pollock were over-fished to the point that all the juvenile and adult pollock were removed. Finally, they considered how the Bering Sea ecosystem might look if pollock were not caught at all. All simulations were run over 30 years.

The simulation results suggest that increased fishing pressure on pollock would have only a small effect on the future adult pollock biomass due to a continuous replenishment from the juvenile stock. Juvenile pollock benefit from reduced cannibalism (by removing adult pollock). System-wide effects are minimal because the size of the adult pollock stock does not change appreciably. However, the model predicts that seals, sea lions and fish-eating birds would respond favorably to an increase in the abundance of juvenile pollock.

Overfishing pollock to the point of extinction would lead to an increase in the abundance of pelagic (fatty) fishes, but a decline in seabirds consuming juvenile pollock if they did not switch to eating pelagic fishes. However, the model predicts that reducing the biomass of just adult pollock by 50% would have a positive effect on seals, sea lions and fish-eating birds because the abundance of juvenile pollock, which they consume, increases as cannibalism by adult pollock is reduced. It also results in a small increase in pelagic fishes because more zooplankton, previously consumed by pollock, would be available to them. Major system-wide effects are minimal because the adult pollock stock does not change appreciably.

Stopping pollock fishing results in a larger adult population and a smaller juvenile pollock population. Reducing the juvenile pollock

population has a negative effect on seabirds and a small negative effect on marine mammals.

Results from these three simulations highlight how changing fishing could have unexpected and unwanted results for Steller sea lions. It also provides some insight into how important cannibalism by adult pollock on juvenile pollock might be to the dynamics of pollock in areas designated as Steller sea lion critical habitat. The model gives credence to the view that high harvest rates of adult pollock in critical habitat areas should result in more prey being available to Steller sea lions. If depletion of adult pollock occurred, it should reduce cannibalism and increase the abundance of juvenile pollock that sea lions could consume. Attempts to create a better mix of prey species (i.e., more fatty fishes) for Steller sea lions by manipulating trophic interactions in the model through fishing failed to produce significantly more fattier fishes and fewer gadids (Trites *et al.* 1998a). It appears that the most powerful operating force in the Bering Sea is nature, not man.

None of the evidence suggests that the availability of pollock to Steller sea lions is limited, or that adding more pollock to the system will improve things for Steller sea lions. The environmental shift that is thought to be responsible for the high abundance of pollock and large flatfish, and the low abundance of fattier pelagic fishes, may flip in the next few years. If the theories are correct, the species composition will change again in favor of Steller sea lions and other mammals.

Trawling for pollock at greater depths than those used by juvenile sea lions is one means of ensuring minimal competition between the two. Steller sea lions would also presumably benefit by actions that increase the abundance and availability of fattier fishes, such as herring. Ultimately, however, the solution to restoring the numbers of Steller sea lions is probably out of human control.

It is important that people do not make the situation worse by tinkering with things we do not understand. The most precautionary action that we could take might be to maintain the status quo. Moving fisheries in time and space might, for example, lead to high by-catches of herring and other fattier fishes that are more critical to sea lion survival than pollock. It is thus important to consider the other components of the ecosystem and the uncertainty that our actions may produce. As noted by Boyd (1995), management measures have as much chance of being harmful to Steller sea lions as they do of aiding recovery. It is, therefore, important to proceed cautiously.

Conclusions

Hatch, quoted by Francis *et al.* (1998), states that "the principal factor responsible for unfavorable trends in marine birds and pinnipeds in the Gulf of Alaska is availability of suitable food resources. Food limitation, in turn, may be caused by recent climatically driven ecosystem shifts forcing increased production of pelagic and demersal predatory fish (e.g., adult pollock, cod, salmon, and various flatfishes, especially arrow tooth flounder and halibut) at the expense of forage species (capelin, sandlance, juvenile pollock, herring, and myctophids) on which marine bird and mammal species depend." Reviewing the available information concerning Steller sea lions supports this view and provides no indication that Steller sea lions are limited because they cannot get enough pollock to eat. The data indicate the following:

- The composition of major predator and prey populations in the Gulf of Alaska and Bering Sea underwent a rapid change beginning in the mid 1970s.
- The diet of Steller sea lions reflects this change in prey available to them and shows a relationship between high rates of decline and consumption of large amounts of pollock.
- There is no evidence that pollock are in short supply for either fisheries or sea lions, or that the two are competing. Catching adult pollock appears to reduce cannibalism and results in more juvenile pollock being available to Steller sea lions and other top predators.
- There appear to be negative health consequences for Steller sea lions if they eat primarily pollock.
- Recovery of Steller sea lions will probably occur if they can obtain a more diverse diet of fattier fishes. This appears to be a function of natural changes in the marine environment and not something that can be controlled by humans.
- Changes that people can invoke by altering amounts of pollock caught in time and space can have unexpected and undesirable results.

Literature Cited

- ASG [Alaska Sea Grant]. 1993. Is it food?: Addressing marine mammal and sea bird declines. Workshop Summary, Alaska Sea Grant Report 93-01, University of Alaska Fairbanks, Fairbanks, AK.
- Alverson, D.L. 1992. Commercial fisheries and the Steller sea lion (*Eumetopias jubatus*): the conflict arena. *Rev. Aquat. Sci.* 6:203-256.
- Anderson, P.J., J.E. Blackburn, and B.A. Johnson. 1997. Declines of forage species in the Gulf of Alaska, 1972-1995, as an indicator of regime shift. In *Forage fishes in marine ecosystems*. Alaska Sea Grant, University of Alaska Fairbanks, Fairbanks, AK, pp. 531-543.
- Anderson, S. 1966. The physiological range of the formed elements in the peripheral blood of the harbour porpoise, *Phocoena phocoena* (L) in captivity. *Nord. Veterinarmed.* 18: 51-65.
- Beamish, R.J. 1993. Climate and exceptional fish production off the west coast of North America. *Can. J. Fish. Aquat. Sci.* 50: 2270-2291.
- Beamish, R.J. and Bouillin, D.R. 1993. Pacific salmon production trends in relation to climate. *Can. J. Fish. Aquat. Sci.* 50: 1002-1016.
- Boyd, I.L. 1995. Steller sea lion research - A report prepared for the U.S. National Marine Fisheries Service, National Marine Mammal Laboratory, Seattle.
- Brodeur, R.D. and D.M. Ware. 1992. Long-term variability in zooplankton biomass in the subarctic Pacific Ocean. *Fish. Oceanogr.* 1: 32-38.
- Brodeur, R.D., B.W. Frost, S.R. Hare, R.C. Francis, and W.J. Ingraham Jr. 1996. Interannual variations in zooplankton biomass in the Gulf of Alaska, and covariation with California current zooplankton biomass. *California Cooperative Oceanic Fisheries Investigations Reports*. 37: 80-99.
- Calkins, D.G. and E. Goodwin. 1988. Investigation of the declining sea lion population in the Gulf of Alaska. Unpubl. Rep., Alaska Dep. Fish and Game, 333 Raspberry Road, Anchorage, AK 99518. 76 pp.
- Calkins, D.G., D.C. McAllister, K.W. Pitcher, and G.W. Pendleton. 1998. Steller sea lion status and trend in Southeast Alaska: 1979-1997. *Marine Mammal Science*. *in press*.
- Castellini, M.A., and D.G. Calkins. 1993. Mass estimates using body morphology in Steller sea lions. *Marine Mammal Science* 9: 48-54.
- Christensen, V. and D. Pauly (Editors). 1993. Trophic models of aquatic ecosystems. *ICLARM Conference Proceedings No. 26*, 390 p.
- Christensen, V. and D. Pauly. 1995. Fish production, catches and the carrying capacity of the world oceans. *Naga, the ICLARM Quarterly* 18(3):34-40.
- Ebbesmeyer, C.C., D.R. Cayan, D.R. McLean, F.H. Nichols, D.H. Peterson, and K.T. Redmond. 1991. 1976 step in the Pacific climate: forty environmental changes between 1968-1975 and 1977-1984. P. 115-126. In J.L. Betancout and V.L. Tharp (eds.). *Proc. Seventh Annual Pacific Climate*

- (PACLIM) Workshop, April 19980. Edited by Calif. Dep. Water Resour. Interagency Ecol. Stu. Program Tech. Rep. No. 26.
- Eberhardt, L.L. 1977. "Optimal" management policies for marine mammals. Wild. Soc. Bull. 5: 425-428.
- Estes, J.A., M. T. Tinker, T. M. Williams, and D. F. Doak. 1998. Killer whale predation on sea otters linking oceanic and nearshore ecosystems Science 282: 473-476.
- Fadely, B. S., Zeligs, J. A., and Costa, D. P. 1994. Assimilation efficiencies and maintenance requirements of California sea lions (*Zalophus californianus*) fed Walleye pollock (*Theragra chalcogramma*) and herring (*Clupea harengus*). National Marine Mammal Laboratory, National Marine Fisheries Service, Final report
- Fiscus, C.H., and G.A. Baines. 1966. Food and feeding behavior of Steller and California sea lions. J. Mammal. 47:195-200.
- Francis, R.C., and S.R. Hare. 1994. Decadal-scale regime shifts in the large marine ecosystems of the Northeast Pacific: A case for historical science. Fisher. Oceanog. 3: 279-291.
- Francis, R.C., and S.R. Hare, A.B. Hollowed, and W.S. Wooster. 1998. Effects of interdecadal climate variability on the oceanic ecosystems of the NE Pacific. Fish. Oceanogr. 7: 1-21.
- Fritz, L.W., V.G. Wespestad, and J.S. Collie. 1993. Distribution and abundance trends of forage fishes in the Bering Sea and Gulf of Alaska. Pp. 30-43. In Is it food?: addressing marine mammal and sea bird declines. Workshop Summary, Alaska Sea Grant Report 93-01, University of Alaska Fairbanks, Fairbanks, AK.
- Fritz, L.W., R.C. Ferrero, and R.J. Berg. 1995. The threatened status of Steller sea lions, *Eumetopias jubatus*, under the Endangered Species Act: effects on Alaska groundfish fisheries management. Marine Fisheries Review 57: 14-27.
- Fritz, L.W., A. Greig, and R.F. Reuter. 1998. Catch-per-unit-effort, length, and depth distributions of major groundfish and bycatch species in the Bering Sea, Aleutian Islands, and Gulf of Alaska regions based on groundfish fishery observer data. NOAA Tech. Memo. NMFS-AFSC-988.
- Geraci, J. R. 1975. Pinniped nutrition. Rapports et Proces-verbaux des Reunion Conseil International pour l'Exploration de la Mer. 165: 312-323.
- Hare, S.R. and R.C. Francis 1995. Climate change and salmon production in the northeast Pacific Ocean. In Climate Changes and Northern Fish Populations. R.J. Beamish (ed.). Can. Spec. Publ. Fish. Aquat. Sci. 121: 357-372.
- Hirons, A.C., and D.M. Schell. 1998a. A 47-year record of isotope ratios in North Pacific pinnipeds: evidence of environmental change. World Marine Mammal Science Conference, Monaco (January 20-24, 1998). [abstract]. p. 64.

- Hirons A. C. and D. M. Schell. 1998b. Temporal variation in the $\delta^{13}C$ of North Pacific pinnipeds: indication of environmental change? pp 55-64 in *Testing Conceptual Models of Marine Mammal Trophic Dynamics Using Carbon and Nitrogen Stable Isotope Ratios*. Final Report to the University of Alaska Coastal Marine Institute, OCS Study MMS 98-0031. Available from the U.S. Minerals Management Service, 949 E. 36th Ave, Anchorage AK 99508-4363.
- Hollowed, A.B. and W.S. Wooster. 1992. Variability of winter ocean conditions and strong year classes of Northeast Pacific groundfish. *ICES Mar. Sci. Symp.* 195: 433-444.
- Hollowed, A.B. and W.S. Wooster. 1995. Decadal-scale variations in the eastern Subarctic Pacific: 2. Response of northeast Pacific fish stocks. In *Climate Changes and Northern Fish Populations*. R.J. Beamish (ed.). *Can. Spec. Publ. Fish. Aquat. Sci.* 121: 373-385.
- Hunt, G.L., M.B. Decker, and A. Kitaysky. 1996. Fluctuations in the Bering Sea ecosystem as reflected in the reproductive ecology and diets of kittiwakes on the Pribilof Islands, 1975 to 1990. In *Aquatic Predators and their Prey*. S.P.R. Greenstreet and M.L. Tasker (eds). Oxford: Fishing News Books.
- Kerr, R.A. 1992. Unmasking a shifty climate system. *Science* 255: 1508-1510.
- Lowry, L.F., K.J. Frost, and T.R. Loughlin. 1989. Importance of walleye pollock in the diets of marine mammals in the Gulf of Alaska and Bering Sea and implications for fishery management. *Proc. Int. Symp. Biology and Management of Walleye Pollock*.
- McFarlane, G.A., and R.J. Beamish. 1992. Climatic influence linking copepod production with strong year-classes in sablefish, *Anoplopoma fimbria*. *Can. J. Fish. Aquat. Sci.* 49: 743-753.
- Mathisen, O.A., R.T. Baade, and R.J. Lopp. 1962. Breeding habits, growth, and stomach contents of the Steller sea lion in Alaska. *J. Mammal.* 43:464-477.
- Merrick, R., P. Gearin, S. Osmek, and D. Withrow. 1988. Field studies of northern sea lions at Ugamak Island, Alaska during the 1985 and 1986 breeding seasons. NOAA Tech. Memo. NMFS F/NWC-143.
- Merrick, R.L., and T.R. Loughlin 1997. Foraging behavior of adult female and young-of-the-year Steller sea lions in Alaskan waters. *Can. J. Zool.* 75: 776-786.
- Merrick, R.L. and D.G. Calkins. 1996. Importance of juvenile walleye pollock in the diet of Gulf of Alaska Steller sea lions. In *Ecology of juvenile walleye pollock (Theragra chalcogramma)*. Edited by R.D. Brodeur, P.A. Livingston, R.R. Loughlin, and A.B. Hollowed. U.S. Dep. Commer., NOAA Tech. Rep. NMFS 126.
- Merrick, R.L., T.R. Loughlin, and D.G. Calkins. 1987. Decline in abundance of the northern sea lion, *Eumetopias jubatus*, in Alaska, 1956-86. *Fish. Bull.*, U.S. 85:351-365.
- Merrick, R.L., M.K. Chumbley, and G.V. Byrd. 1997. Diet diversity of Steller sea lions (*Eumetopias jubatus*) and their population decline in Alaska: a

- potential relationship. *Canadian Journal of Fisheries and Aquatic Science* 54: 1342-1348.
- NMFS [National Marine Fisheries Service]. 1992. Recovery Plan for the Steller sea lion (*Eumetopias jubatus*). NMFS, 120 pp.
- NRC [National Research Council]. 1996. The Bering Sea ecosystem. National Academy Press, Washington DC.
- Pauly, D. and V. Christensen (Editors). 1996. Mass-Balance Models of North-Eastern Pacific Ecosystems. Fisheries Centre Research Reports 4(1), 131 p.
- Perez, M.A. 1994. Calorimetry measurements of energy value of some Alaskan fishes and squids. U.S. Department of Commerce, NOAA Technical Memorandum. NMFS-AFSC-32, 32 p.
- Perez, M.A. and T.R. Loughlin. 1991. Incidental catch of marine mammals by foreign and joint venture trawl vessels in the U.S. EEZ of the north Pacific, 1973-88. U.S. Dept. Comm., NOAA Tech. Rep. NMFS 104, 57 pp.
- Piatt, J.F., and P. Anderson. 1996. Responses of common murrelets to the Exxon Valdez oil spill and long-term changes in the Gulf of Alaska marine ecosystem. *Am. Fish. Soc. Symp.* 18: 720-737.
- Pitcher, K.W. 1990. Major decline in number of harbor seals, *Phoca vitulina richardsi*, on Tugidak Island, Gulf of Alaska. *Mar. Mamm. Sci.* 6: 121-134.
- Pitcher, K.W., D.G. Calkins and G. Pendleton. 1998. Reproductive performance of female Steller sea lions: an energetics-based reproductive strategy? *Canadian Journal of Zoology*. *in press*.
- Polovina, J.J., G.T. Mitchum, and G.T. Evans. 1995. Decadal and basin-scale variation in mixed layer depth and the impact on biological production in the Central and North Pacific, 1960-88. *Deep-Sea Res.* 42: 1701-1716.
- Roemmich, D. and J.A. McGowan. 1995. Climatic warming and the decline of zooplankton in the California Current. *Science* 267: 1324-1326.
- Rosen, D. A. S., and Trites, A. W. 1997. Heat increment of feeding in Steller sea lions, *Eumetopias jubatus*. *Comp. Biochem. Physiol.* 118A: 877-881.
- Rosen, D. A. S., and Trites, A. W. 1998. Scope of metabolic depression in Steller sea lions, *Eumetopias jubatus*. World Marine Mammal Science Conference, Monaco (January 20-24, 1998). [abstract]. p. 117.
- Schell, D. M. 1998. Isotope ratio evidence of declining primary productivity in the Bering Sea. pp.65-71. *in* Testing Conceptual Models of Marine Mammal Trophic Dynamics Using Carbon and Nitrogen Stable Isotope Ratios, Final Report to the University of Alaska Coastal Marine Institute, OCS Study MMS 98-0031. Available from the U.S. Minerals Management Service, 949 E. 36th Ave, Anchorage AK 99508-4363.
- Shima, M. 1996. A study of the interaction between walleye pollock and Steller sea lions in the Gulf of Alaska. Ph.D. thesis, University of Washington, Seattle, WA, 196 pp.

- Smith, R. L., Paul, A. J., and Paul, J. M. 1988. Aspects of energetics of adult walleye pollock, *Theragra chalcogramma* (Pallas), from Alaska. *J. Fish. Biol.* **33**: 445-454.
- Springer, A.M. 1992. A review: Walleye pollock in the North Pacific -- how much difference do they really make? *Fisher. Oceanog.* **1**:80-96.
- Springer, A.M. 1998. Is it all climate change? Why marine bird and mammal populations fluctuate in the North Pacific. *In* Biotic impacts of extra tropical climate change in the Pacific. 'Aha Huliko'a proceedings, University of Hawaii. *In press*.
- Stout, F. M., J.E. Oldfield, and J. Adair. 1960. Nature and cause of the "cotton fur" abnormality in mink. *J. Nutr.* **70**: 421-426.
- Thompson, P.M., D.J. Tollit, H.M. Corpe, R.J. Reid and H.M. Ross. 1998. Fish induced anemia in Scottish harbour seals; a clue to declines in Bering Sea pinniped and seabird populations? World Marine Mammal Science Conference, Monaco (January 20-24, 1998). [abstract]. p. 133.
- Thompson, P.M., D.J. Tollit, H.M. Corpe, R.J. Reid and H.M. Ross. 1997. Changes in haematological parameters in relation to prey switching in a wild population of harbour seals. *Functional Ecology* **11**: 743-750.
- Thornsteinson, F.V. and C.J. Lensint. 1962. Biological observations of Steller sea lions taken during an experimental harvest. *J. Wild. Manage.* **26**:353-359.
- Tikhomirov, E.A. 1964. Distribution and biology of pinnipeds in the Bering Sea. From materials of first expedition in Soviet Investigations in the Northeast Pacific, Part III. U.S. Dept. Interior. Translation 1968.
- Trenberth, K.E., and J.W. Hurrell. 1995. Decadal coupled atmospheric ocean variation in the North Pacific Ocean. *in*. Climate changes in northern fish populations. *edited by* R.J. Beamish. Canadian Special Publication Fisheries and Aquatic Science **121**: 15-24.
- Trites, A.W. 1990. The northern fur seal: biological relationships, ecological patterns and population management. Ph.D. thesis, University of British Columbia, Vancouver Canada. 330 pp.
- Trites, A.W. 1992. Northern fur seals: Why have they declined? *Aquat. Mamm.* **18**:3-18.
- Trites, A.W. 1998. Northern fur seals: changes in body length and carrying capacity in the Bering Sea and Gulf of Alaska. World Marine Mammal Science Conference, Monaco (January 20-24, 1998). [abstract]. p. 136.
- Trites, A.W., and P.A. Larkin. 1996. Changes in the abundance of Steller sea lions (*Eumetopias jubatus*) in Alaska from 1956 to 1992: how many were there? *Aquat Mamm.* **22**:153-166.
- Trites, A.W., P. Livingston, M.C. Vasconcellos, S. Mackinson, A.M. Springer, and D. Pauly. 1998a. Ecosystem change and the decline of marine mammals in the Eastern Bering Sea: testing the ecosystem shift and commercial whaling hypotheses. Fisheries Centre Report. Under review.

- Trites, A.W., P. Livingston, M.C. Vasconcellos, S. Mackinson, A.M. Springer, and D. Pauly. 1998b. Ecosystem considerations and the limitations of ecosystem models in fisheries management: Insights from the Bering Sea. Proceedings of the Lowell Wakefield Symposium: Ecosystem Considerations in Fisheries Management. (submitted October 1998).
- Vasconcellos, M., S. Mackinson, K. Sloman and D. Pauly. 1997. The stability of trophic mass-balance models of marine ecosystems: a comparative analysis. *Ecological Modelling* 100:125-134.
- Walters, C. V. Christensen and D. Pauly. 1997. Structuring dynamic models of exploited ecosystems from trophic mass-balance assessments. *Rev. Fish Biol. Fish.* 7:139-172.
- Ware, D.M. 1995. A century and a half of change in the climate of the NE Pacific. *Fisher. Oceanog.* 4: 267-277.
- Wooster, W.S., and A.B. Hollowed 1995. Decadal-scale variations in the eastern subarctic Pacific. 1. Winter ocean conditions. *In* *Climate Changes and Northern Fish Populations*. R.J. Beamish (ed.). Can. Spec. Publ. Fish. Aquat. Sci. 121: 81-85.
- Wilke, F. and K.W. Kenyon. 1952. Notes on the food of fur seals, sea lions and harbor porpoises. *J. Wildlife Management* 16: 396-397.
- York, A.E. 1994. The population dynamics of northern sea lions, 1975-85. *Mar. Mamm. Sci.* 10:38-51.