ALASKA STATE LEGISLATURE
HOUSE SPECIAL COMMITTEE ON FISHERIES
February 10, 2009
10:09 a.m.

MEMBERS PRESENT

Representative Bryce Edgmon, Chair
Representative Craig Johnson
Representative Wes Keller
Representative Charisse Millett
Representative Cathy Engstrom Munoz
Representative Robert L. "Bob" Buch
Representative Scott Kawasaki

MEMBERS ABSENT

All members present

OTHER LEGISLATORS PRESENT

Representative Peggy Wilson
Representative Bill Thomas

COMMITTEE CALENDAR

SOUTHEAST ALASKA HERRING MANAGEMENT ISSUES:

-KETCHIKAN HERRING ACTION COMMITTEE
-SITKA TRIBE
-ALASKA DEPARTMENT OF FISH & GAME

- HEARD

PREVIOUS COMMITTEE ACTION

No previous action to record

WITNESS REGISTER

ANDY RAUWOLF, Representative
Ketchikan Herring Action Group
Ketchikan, Alaska
POSITION STATEMENT: Testified during the hearing on Southeast Alaska herring management issues.

THOMAS THORNTON, Ph.D.
Associate Professor of Anthropology

Portland State University
Portland, Oregon
Senior Research Fellow
Environmental Change Institute
Oxford University
Oxford, England
POSITION STATEMENT: Testified during the hearing on Southeast Alaska Herring management issues.

EVELYN BROWN, Ph.D.
Flying Fish Ltd.
Husum, Washington
POSITION STATEMENT: Testified during the hearing on Southeast Alaska herring management issues.

VINCENT PATRICK, Ph.D.
Cordova, Alaska
POSITION STATEMENT: Testified during the hearing on Southeast Alaska herring management issues.

MIKE MILLER, Council Member
Sitka Tribe of Alaska
Sitka, Alaska
POSITION STATEMENT: Testified during the hearing on Southeast Alaska herring management issues.

CLARENCE JACKSON, Director
Sealaska Corporation
Kake, Alaska
POSITION STATEMENT: Testified during the hearing on Southeast Alaska herring management issues.

CHIP TREINEN, Representative
Sitka Herring Association
Anchorage, Alaska
POSITION STATEMENT: Testified during the hearing on Southeast Alaska herring management issues.

KYLE HEBERT, Biologist
Division of Commercial Fisheries
Alaska Department of Fish & Game
Juneau, Alaska
POSITION STATEMENT: Testified during the hearing on Southeast Alaska Herring management issues.

JOHN HILSINGER, Director
Division of Commercial Fisheries

Alaska Department of Fish & Game
POSITION STATEMENT: Testified during the hearing on Southeast Alaska herring management issues.

ACTION NARRATIVE

10:09:17 AM

CHAIR BRYCE EDGMON called the House Special Committee on Fisheries meeting to order at 10:09 a.m. Representatives Edgmon, Munoz, Buch, Millett, Kawasaki, Johnson, and Keller were present at the call to order. Representatives Wilson and Thomas were also present.

SOUTHEAST ALASKA HERRING MANAGEMENT ISSUES

10:10:26 AM

CHAIR EDGMON introduced the herring fishery topic, stating that the fisheries management model in Alaska is regarded as one of the best in the world because it relies on science as well as input from the general public. He urged a constructive exchange of information at today's hearing.

10:11:44 AM

ANDY RAUWOLF, Representative, Ketchikan Area Herring Action Group, paraphrased from the following prepared statement [original punctuation provided, but some formatting changes included]:

> Thank you each for allowing us the opportunity to testify on the issue of depleted herring stocks throughout Southeast Alaska and other parts of the State.
>
> This issue is of grave concern to thousands of residents in our coastal communities. Scientists agree that along with Washington State and British Columbia, the entire ecosystem of Southeast Alaskan waters is dependent on the health of local herring stocks.
>
> During the 1980s, many of us began to be concerned about local stocks targeted in unregulated bait fisheries and early sac roe fisheries that were not recovering. Our concerns grew when the large stock in

Lynn Canal crashed in 1983 and did not recover. Later on in the 1980s, a pilot who owned a lodge near Kah Shakes expressed concern that what was once twenty miles of spawning grounds along the Kah Shakes shore was getting steadily smaller each year under pressure from the gillnet fishery. Letters were sent to politicians and meetings were held with ADF&G and assurances were given that the herring stocks were being well managed. After the crash of the historic Kah Shakes stock in 1990, we formed an organization called the Herring Coalition. By this time, it was apparent to everyone that herring populations were not recovering under ADF&G's management plan.

In 1993, we joined with the Annette Island Reserve in a law suit in an effort to prevent the state from targeting a herring stock that was also being targeted by the Reserve that had moved just outside the Annette Island boundary. This action was settled with the Reserve when the state offered them fishing jurisdiction over a disputed island not related to the case. Locals could not afford to continue the lawsuit on their own. Kah Shakes did not recover.

Since 1993, citizens not related to this fishery have participated in advisory committees and submitted numerous proposals to the Board of Fish in an effort to raise the level of conservation of our herring stocks. Although the mission of fish and game is supposed to be to "protect, maintain, and improve the fisheries" and the Board's main role is supposed to be "to conserve and develop" fisheries resources, conservative herring proposals submitted by the public have been largely ignored. The "public participation" that ADF&G encourages on the surface only works well when the public involved is a commercial interest and is in agreement with the department. The Board of Fish has proven to be dysfunctional, with many of board members being stakeholders in the fisheries after being appointed by the governor following a heavy lobbying effort financed by the industry. Stakeholders rarely if ever vote to reduce a fishery. The system has been broken for years. Fish and Game has failed to achieve the third goal in its mission statement which is to "increase public knowledge and confidence that wild populations of fish and wildlife are responsibly managed." In the case of herring

management, there is no public confidence unless you are a herring fisherman. In the case of the Kah Shakes fishery, four of the seven board members that we were asking to adopt more conservative measures were herring permit holders. All these measures failed unanimously, and herring were depleted from Kah Shakes the following year.

Our herring stocks are but a fraction of historic levels. As a result, species that depend on them are showing signs of stress. There are now both fewer and smaller halibut and king salmon in recent consecutive years, and the problem is getting progressively worse. Fifty-three percent of the diet of halibut and sixty-two percent of the diet of king salmon is herring according to research by the Canadian dept. of fisheries. Last year's winter king salmon fishery decreased by 53 ½% over the previous year. This might not be a cause for alarm were it not for the fact that king salmon are now listed as endangered in Washington, Oregon, and California. The fish from Washington spend a large part of their life cycle feeding in OUR waters. The herring stock in Puget Sound has crashed. The anchovy stocks that salmon fed on in California and Oregon were over-fished and crashed years ago. Prior to the crash of the New England Cod fisheries, Atlantic herring stocks crashed. The crash of the New England Cod fisheries put 20,000 people out of work. According to figures recently released by the Environmental Defense Fund, about 72,000 jobs have been lost because of dwindling salmon stocks in the Pacific Northwest alone.

Orca whales are now listed as endangered in Puget Sound and in southern British Columbia, and are listed as threatened right on our doorstep in northern British Columbia. Scientific studies show that the problem is starvation! The main diet of Orcas is Chinook salmon. The main diet of Chinook salmon is herring! Scientists in Puget Sound are connecting these dots. We need to connect the same dots if we are going to head off a similar disaster here in Alaskan waters.

Since the sac roe fishery began, the humpback whale population has increased from less than 300, to about 4,000 whales migrating in just Southeast Alaska each

year due to a federal recovery program. Fish and Game data shows that "Humpback whales in Alaska feed principally on herring, other small fish, and schools of krill." Each adult humpback consumes between 800 and 3,500 pounds of feed daily. Their total consumption of feed is between 3,200,000 and 14,000,000 lbs. daily. The steady decline observed in the herring population seems to correspond with the increase in the humpback whale population. Did the feds take this into consideration? We doubt it, and neither does ADF&G.

Had ADF&G and the Board of Fish listened to the public's concerns years ago, our fisheries resources would be much healthier than they are today. Instead, we are faced with the possibility of a federal take over of our fisheries. As we speak, the National Marine Fisheries Service is considering listing Southeast Alaska's herring stocks as threatened or endangered. This could be a catastrophe for our coastal communities. As Representative Paul Seaton said, this could affect mining, logging, and municipal wastewater discharge standards to the detriment of our economies at a cost of millions of dollars and a loss of hundreds of jobs in industries already suffering from heavy-handed environmental restrictions. This threat is real and we cannot afford to ignore it.

In spite of all of this, the Alaska Department of Fish and Game is planning on yet another consecutive RECORD harvest of one of the last great herring stocks left anywhere in the world, near Sitka Sound this spring. The value of this fishery is less than 2% of the overall value of combined fisheries in the state and is providing a supplementary income for the 52 permit holders who participate in these other fisheries. With the prices of herring roe falling, and herring stocks depleted throughout the world does this make any sense?

To illustrate why this is a bad idea, and how this problem can possibly be fixed, I yield the floor to my colleagues [Dr. Thornton, Dr. Brown, Dr. Patrick, and Mike Miller].

10:22:19 AM

DR. THOMAS THORNTON, Ph.D., Associate Professor of Anthropology, Portland State University, Portland, Oregon; Senior Research Fellow, Environmental Change Institute, Oxford University, paraphrased from the following prepared statement [original punctuation provided]:

I am pleased to have the opportunity to report on an ongoing research project undertaken by me and several colleagues (beginning in 2007, to be completed in 2009), entitled "Herring Synthesis: Documenting and Modeling Herring Spawning Areas within Socio-Ecological Systems over Time in the Southeastern Gulf of Alaska." This project, funded by the North Pacific Research Board, was conceived in response to numerous comments and concerns I have documented about the status of herring in Southeast Alaska during the course of my anthropological research in the region over the past 20 years. The aim of the project is to better understand broad trends in the ecology of herring in Southeast Alaska by synthesizing historical and local sources of knowledge not widely consulted by fisheries managers at present in order to improve our collective understanding and management of these precious fish stocks.

PROJECT OVERVIEW

1) Background: Pacific herring (Clupea pallasii) is a foundation and bellwether species for North Pacific marine ecosystems but productive spawning areas (and times) in Southeast Alaska are limited and historical population of dynamics and ecology of the species are not well understood.

Communities with local and traditional knowledge (LTK) of herring fisheries claim that historical stocks were larger and spawning areas more numerous earlier in their lifetimes.

While shifts in stocks and spawning have been documented since 1980, no synthesis of the deeper archaeological, historical, and ethno-ecological records on herring spawning areas has been carried out.

The lack of deep historical knowledge in fisheries management is [a] growing issue of concern. As marine biologist Callum Roberts puts it in his recent book The Unnatural History of the Sea (2007:xiv-xv): "A collective amnesia surrounds changes that happened more than a few decades ago, as hardly anyone reads old books or reports." This in turn can lead to a problem of "shifting environmental baselines" in management in which "we come to accept the degraded condition of the sea as normal. Those charged with looking after the oceans set themselves un-ambitious management targets that simply attempt to arrest declines, rather than rebuild to the richer and more productive states that existed in the past. If we are to break out of this spiral of diminishing returns and diminished expectations of the sea, then it is vital that we gain a clearer picture of how things have changed and what has been lost."

Our objective is to synthesize existing archaeological, ethnological, historical and biological records with data from interviews (60+) with herring fishers with significant long-term observations and local and traditional knowledge (LTK) of herring populations to build a historical and spatial database to: 1) identify the extent of historic and prehistoric herring spawning and massing areas; 2) link changes in herring spawn extent and intensity to environmental and human factors in the socio-ecological system; and 3) identify sensitive areas for protection and potential restoration of herring spawning.

2) Key hypotheses for the project include: 1. Present herring stocks, even in highly productive areas such as Sitka Sound, are essentially being managed in a "depleted status," representing a fraction of their historical abundance and distribution; 2. Significant long-term impacts to Southeast herring stocks distribution and abundance have been anthropogenic, in particular over-exploitation of the species by commercial herring fisheries in the last century (e.g., for herring reduction plants), but also disturbance, contamination, and degradation of critical spawning habitats; 3. Human dependence on herring as a food resource evolved through interactions with key

spawning areas with abundant substrates for egg deposition (such as macrocystis kelp, rockweed, and eelgrass), with which many aboriginal settlements are associated, and was later enhanced through the development of engineered marinescapes (e.g., placement of hemlock boughs in intertidal areas), techniques for conserving herring stocks by regulating human harvests and disturbances to critical spawning habitat, and by the development of new technologies (such as the herring rake) for capturing whole herring in quantity.

3) Preliminary results:

Our interviews have documented numerous herring spawning areas not previously identified in state and territorial management records (see Maps 1 & 2, compiled by Jamie Herbert). These spawning areas are represented by the green lines on the accompanying draft maps. Some of these sites still may be viable for herring spawning, and some local fishers report having experimented with transplanting herring spawn to historically productive areas in order to revitalize stocks.

In addition we have been able to verify the spawning areas identified in state and observations about the qualities and changing status of these spawning areas (black dots and red triangles). Most of the green areas and many of the yellow ones are/were not major spawning areas. (Note: not all data has been entered/vetted in GIS)

The interviews we have analyzed to date reveal a complex picture of herring stocks (in light of the first two hypotheses above), with many areas of historical spawning observed to be in decline or even barren, but some also displaying rebounding or cyclical trends. It is not clear to what extent decreasing numbers of herring in one spawning area may represent a shift to other areas.

Sitka stocks are recognized as a uniquely large and relatively stable in producing quality spawn for subsistence, but other smaller stocks are also highly valued by local communities for subsistence and

personal uses as well as their foundational role in supporting the marine ecosystem.

Integration of LTK observations and select historical and environmental data layers in Geographic Information Systems (GIS) mapping is being carried to analyze potential causal factor[s] contributing to changes in contemporary herring stocks, including anthropogenic impacts (e.g., fishing habitat degradation), as hypothesized, but also non-anthropogenic ones, such as marine mammal and salmon predation and climate change. In most communities, multiple factors are cited as contributing to changes in local herring stocks.

There are not estimates of herring biomass in the pre- and early commercial fishing eras. However, historical analysis of the fisheries conducted by Fritz [F]unk for our project shows a long period of more-or-less constant catch, ranging from 4,000 to 10,000 tons, from 1880 through 1918, when only one herring reduction plant operated at Kilisnoo, near Angoon. With intensive capitalization in the early 1920s, there followed 3 waves of “boom-and-bust”, where peak catches exceeded 40,000 tons annually. By the 1940s, the paucity of herring during the bust cycles attracted federal regulators, and quotas were enacted to preserve herring for other uses (food, bait, prey for other species). Note that the quotas always lag the catch in the declining phase of each cycle. Fishermen are first unable to find enough fish to catch the quota, then the quota is lowered in the subsequent year. There was no stock assessment focused on abundance estimation, so quotas merely reflected fishing experience from the prior year. The number of operating plants peak[ed] in 1928; as the efficiency of factory processes and vessels increased, fewer plants, fishermen, and vessels could attain the same production as in the earlier, more labor-intensive era. The last plant closed in the mid 1960s. Overall fishing impacts associated with these plants were concentrated in central Southeast Alaska, especially South Baranof Island, Frederick Sound and Chatham Strait.

As of January 2009, records from 228 archaeological sites have been reviewed by colleagues Madonna Moss,

Virginia Butler, and J. Tait Elder. Only 25 of these sites were excavated and studied using methods appropriate for documenting small-bodied herring. Of this sub-set, 21 (84%) contain herring bones, which highlights the consistent use of the fish in the past. The earliest herring remains are about 8,000 radiocarbon years old and from the Chuck Lake Site (49-CRG-237) on Heceta Island. Most of the records date to the last 4,000 years. Many long-standing Native community settlements appear to be associated with important historical herring stocks. We are assessing patterns in herring use over time and space, comparing them with known cultural changes in settlement patterns, social organization, and technology, as well as environmental forces (e.g., changing climate, sea-level changes).

Our project website, contains additional details on the progress and results of our research.

4) Preliminary conclusions:

Better historical and local understanding of herring populations and their role in marine ecosystems is critical for assessing the long-term trends and health of these stocks and other species that rely on them for food. A precautionary principle toward management may be called for until broad-based historical-ecological studies assess the overall health and trends of herring stocks in southeast Alaska and adjacent waters.

Our research in the communities of Angoon, Craig, Hoonah, Juneau, Kake, Ketchikan-Saxman, Klawock, and Sitka is not comprehensive for the region, but indicates the value of local and traditional knowledge, combined with broader historical ecological enquiry, for assessing key herring impacts, relationships, and trends over time. Our data show that many herring spawning areas have declined resulting in increasing fragmentation and vulnerability of remaining stocks.

Herring have shown vulnerability and resilience since the advent of commercial exploitation more than a century ago; however, many local residents in communities with historically significant stocks are

concerned about their present status. They are acting in their own ways to conserve them, including "reseeding" historical spawning areas. However, a broader, ecosystem-level strategy is needed to balance herring stocks.

10:35:21 AM

EVELYN BROWN, Ph.D., Flying Fish Ltd., said she spent over 10 years with the Alaska Department of Fish & Game (ADF&G), with much of her latter years in Prince William Sound as a herring biologist. She was the principle investigator for damage assessment studies on herring after the 1989 Exxon Valdez oil spill. She subsequently received her Ph.D. from the University of Alaska Fairbanks. Her Ph.D. dissertation was entitled, "Stock Structure and Environmental Effects on Year Class Formation and Population Trends of Pacific Herring in Prince William Sound, Alaska".

DR. BROWN reported that in the early 1900s, [the Southeast Alaska] herring complex was huge and harvests were massive at over 100,000 tons [slide 2 of her PowerPoint presentation]. Fishermen often reported huge juvenile schools in bays and passes and the locations of these juvenile schools were used as harbingers for where to fish the next year, she related. Historically, herring harvest occurred all down the coast of Baranof Island, up into [Sitka Sound], and all the way over to Ketchikan. She stressed that it was a complex of herring, not bunches of little populations.

DR. BROWN explained that during this time, marine mammals were way down from commercial whaling. Sea birds, seals, and eagles were hunted and there were massive harvests of salmon. This cleaning out of herring predators may have allowed the stock to grow this large, she said. In addition, the Japanese and Koreans were fishing with 10-mile-long gill nets, catching tons of juvenile sharks that preyed on salmon and herring. The removal of predator species simplified the dynamics that controlled herring and man became the main predator and removal source for juvenile and adult herring during those days. By World War II, herring populations were reduced and the herring industry and markets began to collapse.

DR. BROWN noted that when the roe markets were developed in the 1970s, the herring population was at low levels and an order of magnitude smaller than what it was earlier in the century. The ADF&G stock assessment and monitoring began in earnest in the

late 1970s, she related. Thus, the frame of reference used today in management does not include the early years - today's measuring stick began with a depleted stock.

10:39:53 AM

DR. BROWN, in response to Chair Edgmon, explained that the frame of reference is from the historic fisheries at the turn of the century, the traditional knowledge from the late 1800s and the early 1900s when the reduction years started. She said the point she is making is that ADF&G's frame of reference starts in the 1970s with a depleted stock.

DR. BROWN continued with her presentation, pointed out that today's setting is much more complex [slide 3]. The herring population is a fraction of what it was and many of the localized spawning areas have disappeared, she said. This is called stock contraction. Marine mammal, sea bird, and shark populations have recovered, and along with enhanced salmon production there is an order of magnitude higher predation pressure on the herring stocks than there was at the turn of the century, and especially since the 1980s. Humans must now share the herring harvest with this host of other predator species. Humpbacks have recently been observed feeding on juvenile herring, she added, which is a change from adult herring.

DR. BROWN said climate change adds yet another twist. It will affect herring from the bottom up because it changes ocean conditions and plankton production, and it will affect herring from the top down with new predators moving into Alaska waters, such as tuna and whiting. Climate change will also affect herring from within because the changed ocean conditions put stress on the fish and diseases occur, which is already being seen in Prince William Sound, Puget Sound, and British Columbia.

DR. BROWN contended that grassroots management within the Alaska Department of Fish & Game has been systematically gutted with less money for assessments and research. The department has been forced to rely more and more on model outputs and these models are often based on a single population level index. The department is not equipped to adapt to the complex system dynamics and is instead forced to modify basic herring biology, such as the maturation rate, to make the data fit the expected shape of the model. Forecasted populations can be easily manipulated by using different indices and different maturity schedules, and by changing fecundity rates and mortality rates. However, fecundity has been measured only four times since the

1970s, she said, and mortality is never measured despite being an important piece of the model.

10:43:12 AM

DR. BROWN, in response to Chair Edgmon, defined fecundity as the number of eggs produced by a female, generally expressed as eggs per gram. This is important because the number of eggs counted during spawn deposition surveys is used to say how many herring produced those eggs. Yet, this is measured only rarely, she reiterated. The rate changes and it can change on the scale of 10 or 20 percent. Mortality is never measured, so modeling is being done without validation, which is irresponsible, she said.

DR. BROWN related that Dr. Vincent Patrick conducted an analysis which found that a different population number can result by using different indices in the same ADF&G model. Dr. Vincent came up with a lower number, but the number being used by ADF&G is the higher number. She further related that work she and Dr. Patrick have done has shown that the herring population occurs in two stable states - low or high - and not anything in between. There are dynamics that keep the population at one level or the other. She predicted that Sitka is about ready to be pushed to the low and like Prince William Sound it will take years and years for the population to come back. She said that she and Dr. Patrick feel that ADF&G's high number is very dangerous and the Southeast population is at extremely high risk for a collapse. Given the current predation pressure which includes the commercial harvest, the predation dynamics will keep the stock trapped at low density once it collapses. She added that she and Dr. Patrick also believe the fishery can change the herring distribution and affect spawning behavior.

10:44:50 AM

REPRESENTATIVE THOMAS asked how Dr. Brown can say that Sitka Sound's herring population will go down like it has in Prince William Sound when there has been no oil spill in Sitka Sound.

DR. BROWN replied that before the oil spill and just afterwards, the dynamics in Prince William and Sitka Sound operated similarly. The age structures are often similar when the two areas recruit together, she explained, and the bounds within which the two population go high and low are very similar. There are no other two populations in the entire state that appear to cohere together. The spill knocked Prince William Sound down, but the experts say the oil impact is gone. So, the

key question is, "Why is the stock still low in Prince William Sound?" There has been no successful recruitment in Prince William Sound since 1992. She said her point is that if Sitka Sound goes down, it will probably stay down.

10:46:16 AM

REPRESENTATIVE THOMAS noted that his district includes Prince William Sound and his constituents would probably argue with the statement that the oil is no longer there.

DR. BROWN responded that she was the injury person on herring and her studies were closed down in 1993 because the only impact being seen was on reproduction. There were political issues involved as well, she added.

REPRESENTATIVE THOMAS said he would like to know what those political issues were. After 20 years, sample bottles are still coming back with oil in them, he reported.

DR. BROWN answered that she and Dr. Vince Patrick have worked hard trying to show how the long-term damage affected the herring in Prince William Sound. However, they got nowhere because the National Marine Fisheries Service (NMFS) kept saying the oil was not there.

10:47:42 AM

REPRESENTATIVE THOMAS still questioned the oil spill disaster in Prince William Sound could be compared with Sitka Sound.

DR. BROWN agreed, but said comparison can be made to other populations of herring that declined. For example, in the Gulf of Maine it took 25 years to get recruitment back. She explained that the predator-prey dynamic is that the herring must replace themselves at a greater rate than they are predated upon. In order to have successful year classes the herring must swamp the predators. But, if the herring are down at low levels, they cannot break out of that. This predator-prey dynamic applies to all species, not just herring. Barring the oil spill, she said the only reason she brought up Prince William Sound is because those two populations can be used as measuring sticks against each other because they are so similar. In further response, she clarified that she is talking about similarities between the two prior to the oil spill. Because the stocks were coherent, scientists know that there are forcing mechanisms, such as climate, that are similar for both systems.

This similarity can therefore be used to study how the oil spill affected the dynamics of Prince William Sound.

10:50:16 AM

DR. BROWN returned to her presentation and reviewed what Southeast Alaska would look like without herring [slide 4]. She said the impacts of a collapsed stock would extend beyond the direct impacts on commercial and subsistence herring stakeholders. These impacts would include lower average salmon sizes, which is already happening, and ultimately decreased marine survival, as well as reduced size of halibut and other herring fish predators. At-risk marine mammal populations would be created. The sport charter industry and wildlife watching tourism would be impacted. Jeopardy for marine mammals and subsistence harvest could result in a federal take-over [of fisheries] and research, she warned. The niches once occupied by herring would open up to non-commercial species like sand lance and juvenile pollock, thus changing the community structure. Herring populations would remain low for years to come due to the "trap" dynamics. The state would have huge expenditures due to environmental impact studies and response to lawsuits. The bottom line is increased economic hardships on local communities and zero income to the state, she said.

10:52:30 AM

DR. BROWN moved to slide 5 and identified the key questions and data needs that she thinks should be looked at: herring stock structure; effects of scale of fishery and predation on herring distribution and spawning behavior; herring recruitment; and modeling. Modeling is something that ADF&G can work on, she said. However, stock structure is something that has never been done. "Every other herring population in the world has a stock model," she pointed out. "Why doesn't Alaska?" Every other managed population of herring has spatial stock conservation in order to conserve the diversity of spawning area, but not Alaska. She said a main research question is whether the spawning distribution of the herring is being altered because the scale of fishing and whale feeding is now approaching the same scale as the herring population.

10:54:01 AM

DR. BROWN recommended a reduction in quota for this next year as one thing that could be done under a short-term action plan to help fix the problem [slide 6]. There should be a workshop to

discuss the issues because there have been problems with accessing [ADF&G's] data. There needs to be a bigger research budget for ADF&G so the department can deal with the complexity. She offered her opinion that ADF&G needs to be re-organized to make things happen.

DR. BROWN said a long-term action plan would include changing ADF&G's position from adversarial to cooperative, where the department works with local people and groups [slide 7]. The transparency of ADF&G's data sharing could be improved and made similar to what is done in Canada. The missions of ADF&G and the Board of Fisheries should be returned to conservation and away from harvest maximization, she said. There should be conservation of local spawning areas as is done in every other management plan in the world. A co-management structure could be established using Canadian models. "Everybody seems to spend all their money defending themselves right now, and it's not productive," she said. Once the stock is recovered, research quotas from the fishery can be used to pay for the assessment programs so that the research is free to the state government.

10:55:11 AM

REPRESENTATIVE MUNOZ asked how many sac roe and gillnet permits for herring are working in the Sitka Sound fishery.

DR. BROWN answered that there are 51 sac roe permits.

10:56:27 AM

REPRESENTATIVE THOMAS inquired which entities would be involved in co-management.

DR. BROWN replied that in Canada the fate of the herring fisheries is decided by a committee comprised of stakeholders, such as herring fishermen, subsistence users, environmental groups, and the Department of Fisheries and Oceans, the Canadian equivalent of ADF&G. This arrangement gives socio-economics a voice, she said. For example, one year the fish were small and the price low, so the committee decided not to fish and instead banked the fish for the next year. This is something that could not have been done by ADF&G, she added.

10:57:25 AM

REPRESENTATIVE THOMAS commented that assessing [a research fee] on the sport charter fleet, as suggested on slide 7 of Dr. Brown's presentation, would be next to impossible.

DR. BROWN responded that to fish in Alaska she must buy a license. Where does this money go, she asked.

REPRESENTATIVE THOMAS countered that assessing the sport fleet itself will never happen.

10:58:04 AM

REPRESENTATIVE MUNOZ asked what the effect has been on herring biomass in Sitka Sound since measurement began in the 1970s.

DR. BROWN noted that she has graphs she can show later on, but the biomass has vacillated between the two states of low and high. At the moment, the biomass is high. This has been determined by the spawn deposition as well as by flying. However, there is an increasing space between those indices, she said. No one actually goes out there with acoustics to measure the stock size, so there are real problems with the assessment.

10:59:17 AM

VINCENT PATRICK, Ph.D. began by noting that he has worked on fisheries issues since the 1990s, beginning with the Prince William Sound Science Center. He helped start the Prince William Sound Fisheries Research Applications and Planning, a loose coalition that worked to bring some of the research that was done on the spill to applications to the fisheries. Most recently he has been working in Southeast Alaska with Dr. Brown and Mr. Rauwolf.

DR. PATRICK directed his discussion away from Sitka Sound and back to the larger Southeast Alaska issue. Today's issue is not new, he said. It is part of Alaska's history and success story and it was pre-statehood. Statehood was all about fisheries and their recovery. He recited the following from Governor Egan's first statement to the First Alaska State Legislature in January 1960:

> On January 1 of this year, Alaska Department of Fish & Game was handed the depleted remnants of what was once a rich and prolific fishery. On these ruins of a once great resource, the department must rebuild. Our gain is that we can profit by studying the destructive

> practices, mistakes, and omissions of the past. In studying the history of the declines of the salmon runs, the actual reasons are often found to be changes in the environment of the salmon due to natural and unnatural manmade conditions. By profiting from the mistakes of the past, by cooperation of all parties, it should be possible to have new industries and still maintain our fisheries.

DR. PATRICK specified that the key part of rebuilding the salmon fisheries was optimal escapement management - a perspective on the early life cycle of salmon that went into the management strategy. He said it is legendary that [former ADF&G commissioner], Wally Noerenberg, personally walked the streams in Prince William Sound to map out the habitat needed for optimal escapement. Who is our Egan today and who is our Wally Noerenberg today for herring, asked Dr. Patrick.

DR. PATRICK stressed that the herring resource was stronger at statehood, and even during the period of the reduction fishery, than it is today. The legacy of statehood for herring has not been fulfilled like it was for salmon, he continued, and the same type of reconstruction mindset is needed today to restore the herring stock. This is not about whose quota is going to be cut back, he stressed, but about rebuilding the herring stock to what it was historically.

DR. PATRICK further specified that despite the many best efforts for salmon in the 1960s, something else was needed in management because the salmon stocks went down again in the 1970s. Thus began salmon hatcheries. It took a special push to get the hatcheries off the ground, and that was done by Governor Jay Hammond with the [Private Non-Profit Hatchery Act of 1974]. A Jay Hammond is needed for herring recovery today, he opined. The sustainable side of salmon must now be addressed. The salmon is the veneer, and the under-structure is what the salmon feed on.

DR. PATRICK noted that in addition to salmon recovery, the [Private Non-Profit Hatchery Act] brought historical precedents that are relevant to today - regional associations, private non-profit hatcheries, the Fisheries Rehabilitation and Enhancement Division (FRED) within the ADF&G, and regional planning teams. These precedents are also applicable to kicking off a herring recovery, and it is time to look at this as a recovery problem. The target and the roadmap of what that recovery would look like were provided by Dr. Thornton, he said. Contemporary modifiers

are needed - it is not just looking back at history because changes have occurred, such as marine mammal populations and climate. The tools for recovery are at hand and include the history since statehood, the science and technology since statehood, a strong Alaska Department of Fish & Game, grassroots organizations, and the sac roe fishermen.

DR. PATRICK said the reason for coming before the committee, and not the Alaska Board of Fisheries or the Alaska Department of Fish & Game, is because a new Governor Egan or Hammond is needed to bring herring recovery forward. He said he is happy that legislation is currently being drafted that would help provide for herring recovery. The issue at hand is more than just the fishery, he emphasized. It is food security. The issue is also the survival of Alaska's communities. A generation ago these fisheries were the underpinning of survival in Alaska communities, but not today.

11:10:26 AM

MIKE MILLER, Council Member, Sitka Tribe of Alaska, said that a dire situation is occurring in Sitka. This subsistence issue is also occurring across Alaska because the herring roe, collected on branches, finds its way around the state. He noted that he is a subsistence herring egg harvester with the Sitka tribe and that in three out of the last four years, subsistence harvesters took roughly 60 percent of the amount recognized by the state as minimally successful. These recent harvests are about 20 percent of the 2004 harvest, he reported. A concern exists that Sitka may be "the canary in the coal mine" regarding subsistence needs. If subsistence needs are not being met, then the question of why needs to be answered.

MR. MILLER related that various perceptions exist around the state and some people do not believe there is a herring problem and do not understand what subsistence is. This is also an economic concern for Sitka's tribal households because the most often reported income is $12,500, he said. It is not a matter of getting jobs to augment or replace subsistence needs by going to the store to buy Wonder Bread. There is the cultural importance of subsistence. The state's perception of the herring issue is different than the tribe's. The tribe believes it is definitely a crisis mode - this is not just one year of failure, it is three out of the last four. Yet, he related, at the most recent regional advisory council meeting, the state's only comment was that there is no new information. To subsistence users, this is a scary thing to hear after another

complete failure of the harvest. Therefore, the tribe is concerned about the state's perception of what is going on and whether anyone is listening to the tribe's wisdom.

MR. MILLER posed the question, "Who should you listen to in defining if there is a problem with subsistence?" He suggested listening to the subsistence users coming before the legislature at great expense to make their case. The system is failing subsistence users, he said, and Sitka is just one example. The Sitka tribe has not only had to convey that there is a subsistence issue, but it has also had to prove that the problem is real. It has had to conduct herring research and find solutions on its own. The tribe has been asked to prove that any solutions it offers will absolutely work and will not negatively impact commercial fisheries. The Sitka Tribe has spent in excess of $1 million on herring issues to protect herring subsistence, of which $75,000 was spent to help ADF&G conduct surveys. The tribe is asking for the legislature's assistance in fixing this serious issue. Progress has not been made and the burden to prove the need remains unheard.

11:17:44 AM

MR. MILLER addressed what happens when subsistence opportunities are prevented. Food is an essential part of both Native and non-Native culture in the rural communities, he pointed out. The whole social structure is compromised when subsistence harvest is reduced. Daily life, physical health, and mental health of the people are negatively affected, and addressing these subsequent problems results in expense to the state.

MR. MILLER said a solution has not been discovered, and that is why the tribe is asking the legislature to delegate authority to the Alaska Department of Fish & Game for the tribe to provide some direction on how to progress. At present, the system is failing. The department is failing to protect the herring egg harvest in Sitka, which means the legislative body is also failing to protect subsistence opportunity. He allowed that he and other subsistence representatives are failing as well to protect subsistence opportunities.

MR. MILLER, in response to Representative Buch, explained that the primary method for subsistence herring egg harvest in Sitka is thousands of years old and occurs in the exact same places in Sitka Sound. Small hemlock trees are felled and the branches are anchored by rocks in the intertidal areas where they then receive the herring spawn. In response to several more

questions, Mr. Miller said people used to walk out at low tide to put out the branches, but now boats must be used and this is limited to mostly small skiffs that can be brought ashore for collecting the branches. He said he thinks that during last year's harvest in March 2008, the price for boat fuel was about $4 per gallon for gas and in the mid-$3 range for diesel. The harvest occurs in a very short window around the end of March, he added.

11:23:06 AM

REPRESENTATIVE THOMAS inquired whether a complete shut down as recommended by some scientists would include the subsistence harvest.

MR. MILLER answered that the tribe would not support closure of the subsistence fishery. The amount of eggs gathered on the branches is very minimal in the equivalent amount of tons of fish. Even in the highest years the equivalent of fish is less than 500 tons, he said. So, the tribe believes the subsistence harvest has minimal impact.

11:24:14 AM

REPRESENTATIVE THOMAS understood that theft of subsistence branches is now a problem. He commented that in the three years he has been on the House Finance Committee's Fish & Game Subcommittee, no funding has been requested for herring research in Southeast Alaska. He said the subcommittee has never opposed enhancement projects and development. He urged that funding requests be submitted through ADF&G so the legislature can work with the tribe and others.

MR. MILLER agreed that theft of branches does occur and is getting worse as people have more and more difficulty meeting their basic needs. He noted that funding is an issue and that the tribe will be coming to the subcommittee in this regard. It is one of the reasons for being here as well, he added. He explained that the tribe has tried to work with ADF&G extensively since 2002 and has a Memorandum of Understanding (MOU) with the department. The tribe has been telling the department that there is a problem. He said he begged the department in 2006 to provide some solution that he could take back to the community, but no relief was received from the Board of Fisheries. Therefore, the reason for being here today is to promote working together on this.

11:27:23 AM

REPRESENTATIVE THOMAS acknowledged that continuity is lost when administrations and division directors change. He urged the tribe to come to the legislature with a funding proposal and to follow up with the director of the Division of Commercial Fisheries. He also urged the tribe to meet with the director of the Division of Subsistence because that budget will soon be coming before the subcommittee.

MR. MILLER responded that no progress toward a solution has been made by the bickering back and forth that has occurred. The tribe is encouraging change in how these issues are addressed. The tribe was told by the Department of Law that the MOU was a good document, but that it lacked the teeth necessary to make it work. He said he presumes this would be the same situation with the Division of Subsistence and that he hopes the Division of Subsistence can get dedicated funding and the ability to enforce subsistence priority. He urged the legislature to help promote this.

11:30:08 AM

CLARENCE JACKSON, Director, Sealaska Corporation, noted that he has been a herring egg collector since the 1960s. He recalled his childhood summers fishing on board his grandparents' boat beginning in 1938 when the herring stocks stretched from shore to shore in Chatham Strait, from the northern tip of Kuiu Island all the way to Baranof Island. It seemed like the water was boiling with herring and the herring boats cleaned up as fast as they could. Of course, the herring disappeared during his time as a youth, he said. During the 1960s he opposed a bait fishery that was proposed for the Kake area because that herring spawn took care of the people in Kake. But an opening was held one winter and since about 1965 there has not been another herring spawn. He said he began transplanting herring eggs when he started hauling eggs to give away, and now there are little spawns.

MR. JACKSON explained that he sends boxes of herring eggs, a prized food of his people, all over the country. He does not do this for pay, but to help the people who have lived off this food. He said he used to send anywhere from 100 to 160 boxes of eggs, but because the herring stock has gone so low he had to reduce the number of boxes to 40 two years ago, as well as reduce the weight of each box from 55 pounds to 30 pounds He said even this amount is a struggle to come by and it seems to

him that the stock is having a problem. Instead of herring boiling the water as far as the eye can see, he now has to travel a long way to find a patch of herring. Before the people of Kake had power boats, they would move to Port Houghton to put up herring eggs, he related. Further, his great-grandfather used to say that food is money and when there is food put up there is no problem. This is still true today, he stressed.

MR. JACKSON maintained that the solution is not to study this situation to death. The solution is to start taking steps to preserve the stock, to protect the herring that is there. Despite his 35 years of transplanting 500 pounds of herring roe annually, there is still not millions of herring in Kake. While herring are coming back to Kake, the numbers are so small that a spawn is hardly ever seen. This is of concern because the Kake people are not going to give up something that is in their culture, he said. While he is not necessarily opposed to studies, Mr. Jackson said he is worried that studies will be used to keep extending the status quo. The herring need to "boil" in the water again, he declared.

11:42:09 AM

CHIP TREINEN, Representative, Sitka Herring Association, first noted that he is a sac roe seine permit holder, so he has a vested interest in this fishery. He reported that there are now 50 sac roe permit holders because one was eliminated. He explained that the permits are for all of Southeast Alaska, not just Sitka Sound, but the fishing has occurred in Sitka Sound in recent years because the other stocks have been depressed. Previous sac roe fisheries took place in Lynn and Behm canals, but these stocks have not been fished for many years because they have not been above the threshold limit. Thus, the commercial fishermen cannot be blamed for any problem with the stocks not coming back, he opined. Even so, commercial fishermen are often the scapegoat for there being no herring in a given area. Two-thirds of the permit holders are Alaskan residents, and a little less than half of them live in Southeast, he related. There are also some small bait fisheries that occur on various stocks around the state. Those are stocks that can handle the harvest without jeopardy to the health of the stock.

MR. TREINEN pointed out that the Sitka fishery began in the 1970s in response to the development of the Japanese market. The herring are caught in the spring for their roe, he said. Prior fisheries were for reduction and industrial-type

activities, and the amount of herring taken in those fisheries was an order of magnitude greater. However, at this point, the guideline harvest level in Sitka will be about 15,000 tons, as compared to the historical harvests of 100,000 tons. This 15,000 tons is based on ADF&G assessments that indicate there is a large biomass available.

MR. TREINEN said the first-wholesale value of the Alaska fishery, based on a box-frozen price, is about $23 million. About one-third of that is the ex-vessel price to the fishermen, which is split between the vessel owners, crews, permit holders, pilots, and others assisting in the fishery. The remainder of that value goes to processors, taxes, transportation, storage, and fuel, and these are the things that drive the economic mix of those Alaskan communities. If the fishery is eliminated, the income will be lost. He said he thinks that to justify the ADF&G expenditure there needs to be some commercial activity, otherwise it becomes difficult to get funding to study those fish.

MR. TREINEN noted that commercial herring fishermen have specialized equipment - sonar, sounders, aerial support - that help to assess the stocks. The fishermen therefore have information that others would not normally be able to get. Herring are notoriously difficult to predict and may move to new spawning grounds, he said, but this does not mean there is no longer any herring.

11:49:03 AM

MR. TREINEN said it is unclear as to why the Lynn Canal stock has not recovered; however, whale populations in that area have increased substantially. He related that herring fishermen engaged in other Lynn Canal fisheries have reported substantial herring biomasses. He offered his opinion that there are herring around, but the assessment program is inadequate to observe all of the herring stocks. The Sitka stocks are prospering under ADF&G management, he maintained. A high guideline harvest level is anticipated for the March 2009 season.

11:51:12 AM

CHAIR EDGMON surmised that Mr. Treinen is speaking from the perspective of the Sitka sac roe fishery while the previous testimony has been about all of Southeast Alaska.

MR. TREINEN replied that he was discussing the Lynn Canal stocks. He added that the fleet respects the subsistence users and has worked hard to assist them. The fleet often hears that subsistence users want something done, but it cannot figure out what the subsistence users want outside of destroying the fleet's opportunities to harvest the herring stocks that are available according to ADF&G.

11:52:09 AM

KYLE HEBERT, Biologist, Division of Commercial Fisheries, Alaska Department of Fish & Game (ADF&G), condensed a 16-page overview of the commercial herring program overseen by the department. He began with a map showing the primary herring stocks in Southeast Alaska [slide 3]. The red triangles depict the main stocks actively monitored by the department each year and generally indicate areas of commercial harvest, he explained. Enough information is collected in these areas to estimate population abundance. The black circles indicate areas that have had smaller-scale fisheries or small amounts of spawn in the past, and the department does not collect much information on those. He pointed out that Annette Island is depicted on the map because it is a significant spawning area; however, Annette Island is not within the state's management authority and the department receives minimal information on that stock.

MR. HEBERT displayed a graph of the herring harvests over the past century [slide 4]. In the early years of the fishery, which was mainly a reduction fishery, the management was fairly passive and the harvests were high. Over the past couple of decades [1980-2007], management has become more active and the Board of Fisheries has established a management plan and has set target harvest levels which are believed to be sustainable. During this period of time the harvest levels have increased because the population size has increased.

11:55:40 AM

MR. HEBERT reviewed the Southeast Alaska herring harvest by fishery from 1980-2007 [slide 5]. Several fisheries have developed over the past couple of decades, he explained. These include a herring sac roe fishery with both purse seine and gill net gear types, a bait fishery primarily by purse seine, and a spawn-on-kelp fishery. The Sitka Sound sac roe fishery has been the dominant fishery; however, in recent years the spawn-on-kelp fishery has become a significant herring fishery. He displayed a graph depicting the ex-vessel values of the entire Southeast

Alaska herring fishery from 1978-2008, and noted that the 2008 value was a record high of nearly $18 million [slide 6].

11:56:46 AM

MR. HEBERT discussed the herring management plan adopted by the Board of Fisheries for Southeast Alaska, which has been in regulation since 1994 [slide 7]. He reviewed four of the six actions that the department is required to take under the plan: 1) identify and manage herring stocks based on spawning locations, 2) establish minimum spawning biomass thresholds below which fishing will not occur, 3) assess the biomass for each stock prior to commercial fisheries, and 4) set a harvest rate that is between 10 percent and 20 percent when the stocks are above the threshold.

MR. HEBERT explained that the thresholds are a main element of the management plan [slide 8]. No commercial harvest will be allowed in an area where the forecast is below the threshold, he said. Thresholds have two primary goals: 1) maintain adequate spawning populations that are buffered against possible recruitment failure, and 2) maintain adequate herring population levels for the many predator species.

11:59:00 AM

CHAIR EDGMON summarized the information provided by the day's speakers: Mr. Rauwolf said the state's harvest formula is outdated, especially given the dramatic increase in humpback whales; Dr. Thornton pointed out that ADF&G does not use historical and traditional knowledge in its considerations; Dr. Brown noted that predator-prey dynamics are overwhelming the fishery, there is a lack of transparency from ADF&G, the department needs a bigger budget and re-organization, and there needs to be a return to conservation and away from harvest; Dr. Patrick said a Jay Hammond is needed to bring the herring back like what was done with salmon; Mr. Miller stressed that this is the canary in the coal mine, the subsistence fisheries were a failure these last 4 years, there is no new information from the state, and the MOU with the state has no teeth; Mr. Jackson explained why studies worry him; and Mr. Treinen maintained that there is no overfishing of this very valuable fishery and that the commercial fishermen do not want to be the scapegoat. Chair Edgmon asked that ADF&G respond to this testimony.

12:00:31 PM

JOHN HILSINGER, Director, Division of Commercial Fisheries, replied that the department does take this extremely seriously. It spends all the resources it can muster to monitor and manage the herring fisheries, he said. There is an extensive public process through the Board of Fisheries and there are numerous advisory committees in Southeast Alaska. The management is pretty conservative with harvest rates between 10 and 20 percent depending on the stock status. In addition, the thresholds are set fairly conservatively. For example, in the Sitka Sound fishery, the actual calculation of the threshold would be about 16,000 tons, but to be conservative the Board of Fisheries increased that to 20,000 tons. He acknowledged that changes in the environment have been noted, but it is unknown whether this is part of overall global climate change or more localized changes. The department has noticed that the herring are spawning in different areas than they have historically and this has been clearly seen in the Sitka Sound fishery. Management is being adapted to meet the changes, he said. The department is cognizant of the subsistence fishery and the state priority to provide reasonable subsistence opportunity. Further, ADF&G does seriously consider the need to communicate with all the user groups, both commercial and subsistence.

12:03:30 PM

REPRESENTATIVE JOHNSON commented that he is looking forward to Dr. Thornton's report because he finds the concept of managing fish and game based on archeology, anthropology, and second-hand stories an interesting approach. He said he does not see how this type of science will translate into how to manage today's problems at the Board of Fisheries meeting next month.

12:04:14 PM

REPRESENTATIVE MUNOZ requested that the Alaska Department of Fish & Game address the comment that was made regarding the herring decline in Prince William Sound being a harbinger of what could happen in Sitka Sound.

MR. HILSINGER said the department will do that.

12:05:00 PM

ADJOURNMENT

There being no further business before the committee, the House Special Committee on Fisheries meeting was adjourned at 12:05 p.m.