MEMORANDUM

TO: Council, SSC and AP Members

FROM: Clarence G. Pautzke
Executive Director

DATE: December 3, 1992

SUBJECT: Miscellaneous Groundfish Issues

ACTION REQUIRED

(a) Review bycatch management planning.

(b) Review permit requests for experimental fishing.

(c) Review proposal for trawl mesh regulations.

(d) Receive preliminary report on subdividing the Aleutians management district.

BACKGROUND

(a) Review bycatch management planning

The Bycatch Cap Committee held its second meeting November 5 and 6, 1992 in Anchorage. John Roos, Committee Chairman, will present the results of this meeting. A summary of this meeting is attached as Item D-5(a)(1).

Also attached as Item D-5(a)(supplemental) are three letters pertaining to bycatch management in the groundfish fisheries. Dr. Ellen Pikitch's letter summarizes her work on determining accurate estimates of relative survival rates of post-capture Pacific halibut. The second letter is from the Alaska Federation of Natives (AFN). At their 1992 convention, AFN adopted a resolution supporting the reduction of bycatch in the commercial fisheries. Lastly, Mark Lundsten has presented his comments on the existing bycatch management process, which were prompted by the last Bycatch Cap Committee meeting.

(b) Experimental fishing permits

In September the Council reviewed a draft request for an experimental fishing permit to be requested by Terra Marine Research and Education. If granted, the permit would allow for a limited pilot study to retain PSC species for distribution to needy persons through a network established by Terra Marine. The Council outlined some concerns they had with the proposal and provided feedback to the proposers so that they could finalize their application to the Regional Director. That application has been submitted and is currently under review by NMFS. Until that review is finalized, and the

proposers have a chance to resubmit their proposal to answer any concerns, it will not be available for Council review.

Regulations which implemented the experimental fishing permit authority (Amendment 17/22 approved by the Council last year) provide for an initial review of a proposal by the Regional Director. Any concerns with the experimental design described in the application would be relayed to the proposer so that they may resubmit their application for reconsideration. Only when the design is deemed adequate and the application complete will the Regional Director publish notice of the application in the FEDERAL REGISTER and initiate consultation with the Council. We expect that this process will be completed in time for the Council to review the finalized Terra Marine proposal at the January meeting. Staff of the IPHC have submitted a comment to the Council, included as Item D-5(b)(1), recommending that the permit request be denied.

Another permit request, submitted by the Alaska Fisheries Development Foundation (AFDF), is included in your notebook as Item D-5(b)(2). This permit request has been reviewed by the Regional Director, published in the FEDERAL REGISTER, and is before the Council for review at this time. The applicants are requesting a permit to harvest 750,000 pounds of arrowtooth flounder to demonstrate the feasibility of producing market-grade arrowtooth surimi under commercial circumstances. The fish would be harvested between January 3 and January 20, prior to the opening of other trawl fisheries. This harvest is estimated to require 9 mt of halibut mortality. The project is designed in coordination with All Alaskan Seafoods and the Alaska Draggers Association. The two vessels contracted for the project will employ observers throughout the harvest period. Representatives from AFDF are available to address the Council further on this permit request.

(c) Review proposal for trawl mesh regulations

Item D-5(c)(1) in your notebook is a memorandum from the Highliners Association proposing trawl mesh regulations be implemented in North Pacific fisheries. The proposal notes the high bycatch of undersized fish (pollock) associated with the use of small mesh, multi-layered codends and recommends regulations which would implement a larger, single-layer mesh in codends. The proposal notes that increasing mesh size and maintenance of open mesh in the upper portion of the codend is particularly essential for codend selectivity and reduction of the take of undersized fish.

(d) Subdivision of the Aleutian Islands management area

At the September meeting, the Council requested staff to develop an amendment to subdivide the Aleutian Islands management area into smaller areas for the purposes of management of rockfish, sablefish, and, particularly, Atka mackerel. This split would allow for the TACs for these species to be allocated more appropriately relative to their biomass distribution. Of immediate concern is the 1993 harvest of Atka mackerel. The preliminary ABC has been set at 32,100 mt, the amount that can safely be harvested from the eastern portion of the Aleutians. An additional 85,000 mt, worth about $30 million, could be harvested from the western portion of the Aleutians, but only if the proposed plan amendment is implemented for the 1993 fishery.

Staff from the Alaska Fisheries Science Center have begun work on this analysis and expect to have it completed in time for the January Council meeting. In order for the amendment to be in effect for 1993, the Council will need to review the analysis and take final action at the same meeting in January. Item D-5(d)(1) is a preliminary scoping of the issue which identifies the alternatives which will be analyzed. These include a subdivision of the Aleutian district into two districts, either at 178 W. longitude or at 178 E. longitude. The use of 180 W. longitude as the dividing line was rejected

because this would bisect the Petral Bank area, an important fishing area for Atka mackerel. Dividing the Aleutians into four management areas was also considered and rejected because it would likely result in unmanageably small TACs in some locations. The Center will also be looking at potential impacts to marine mammals under this proposal.

MEMORADUM

TO: Richard Lauber, Chairman
NPFMC

FROM: John Roos, Chairman
Bycatch Cap Committee

DATE: December 3, 1992

SUBJECT: Summary of the second meeting of the Bycatch Cap Committee

The Council's Halibut Bycatch Cap Committee held its second meeting on November 5 and 6, 1992, in Anchorage. All committee members were present, including:

John Roos (Chair)	Pacific Seafood Processors Assn.
Jim Beaton	Yukon Queen Fisheries
Chris Blackburn	Alaska Groundfish Databank
John Henderschedt (for Joe Blum)	American Factory Trawlers Assn.
Kate Graham	American High Seas Fisheries Assn.
Linda Kozak	Kodiak Longline Vessel Owners' Assn.
Denby Lloyd	Aleutians East Borough
Mark Lundsten	Queen Anne Fisheries, Fisherman
Jerry Nelson	Pot Fisherman
Janet Smoker	Fisheries Information Services
Arni Thomson	Alaska Crab Coalition

The second meeting of this Committee began with staff presenting information the Committee requested at its first meeting. Attachment 1 contains this information.

A lengthy discussion on the Committee's goals and objectives, and discussion on what the group hoped to accomplish during the meeting, followed the information presentation. This discussion indicated a broad spectrum of interests. The objectives of the Committee are to:

1. provide recommendations to the Council at the December 1992 meeting for 1993 halibut bycatch management, and

2. develop a management program that will consider target fishery management as the driving force for bycatch management rather than bycatch species management, assuming that bycatch limits will continue to exist. In other words, bycatch management should be a function of target species management rather than vise versa.

Interest centered around exploring how bycatch limits are apportioned among fisheries, although questions were raised on how this group's recommendations for apportionment would be interfaced with those of the AP during the December Council meeting.

Initial discussions centered around benefit/cost ratios of our current bycatch management program. There was general recognition that our current bycatch management program is very expensive. Bob

Trumble from the IPHC made informative presentations of 1) new analyses being developed to "fine-tune" IPHC's accounting of bycatch (yield loss) when setting annual halibut quotas and 2) estimation of halibut mortality rates for specified fisheries for 1993. The IPHC recommends the following discard mortality rates be applied for the specified fisheries in the absence of in-season monitoring of halibut discard condition in 1993:

Area	Gear	Fishery	Mortality Estimate
BSAI	Trawl	Mid-water pollock	80%
		Atka mackerel, rock sole, and other flatfish	60%
		P. cod, bottom trawl pollock, and rockfish	60%
		Arrowtooth flounder, turbot and "other species"	40%
BSAI	Hook & Line	All targets	20%
GOA	Trawl	Mid-water pollock	75%
		Rockfish, shallow water flatfish & "other species"	60%
		P. cod, bottom trawl pollock, & deep water flatfish	55%
GOA	Hook & Line	Pacific cod and rockfish	16%
		Sablefish	25%
Both	Pots	All targets	5%

The Committee accepts the IPHC's discard mortality estimates, subject to Plan Team review and approval. The group questioned the two year lag time in basing mortality estimates (1991 observer data). The IPHC recommends using in-season data from the Observer Program to reflect more timely estimates of halibut discard mortality. If the Observer Program can produce in-season data upon which to base mortality estimates, the Committee recommends priority for adjusting halibut mortality in-season to the following fisheries: flatfish and rockfish for the GOA; longline Pacific cod, rocksole and other flatfish in the BSAI.

Next, the Committee agreed to explore immediate, intermediate, and long term management measures to address the bycatch problem.

IMMEDIATE ACTIONS

Time/area closures

A confrontational discussion ensued between trawl and non-trawl gear interests on the appropriateness of seasonal closures without adequate consideration of allocative effects (i.e., the Pacific cod issue). The Committee recognized that an analysis was being developed for the seasonal apportionment of Pacific cod TAC and the allocation of TAC among gear types, and delayed making a recommendation on this issue until the analysis could be reviewed.

Careful release of halibut

Bob Trumble presented a summary of the EA/RIR prepared for the proposed action to require mandatory careful release of halibut in the hook-and-line fisheries. He strongly argued for in-season adjustments to assumed mortality rates based on in-season observer data on condition factors. Russ Nelson has concerns on whether adequate resources exist within the Observer program to support Trumble's suggestion. The Committee supported implementation of a careful release amendment for 1993, as defined by the IPHC for the BSAI Pacific cod fishery, and recommended that similar regulations for careful release of halibut be considered in the GOA fisheries if observer coverage is adequate. Sue Salveson had a question on what procedures NMFS would need to follow to implement an in-season change of assumed mortality rates. These rates could become controversial if in-season adjustments raise assumed rates or are perceived to have an allocation effect among fisheries. She suggested that she would review this issue with NOAA General Counsel prior to the December Council meeting.

Slower tow speed in trawl fisheries

The Committee viewed this as unenforceable and decided not to recommend such a proposal.

Ban night trawling in the Pacific cod fishery

The Committee viewed this as unenforceable because other trawl activities could be ongoing during the night, but did recommend the Council investigate the possibility of a ban on trawling for Pacific cod and pollock as night.

Implement measures to facilitate on deck sorting of catch

There was general support for any research on methods to reduce handling mortality. Minimizing time on deck is generally recognized as a major factor in increasing survival rates of halibut. The Committee urged that a pilot project go forth in the 1993 Pacific cod trawl fishery to help determine ways to reduce time on deck for halibut.

Quicker turn around of observer data

As mentioned previously, there was strong support for in-season adjustment of assumed mortality rates. The Committee feels priority should be given to the following fisheries for adjusting halibut mortality in-season: flatfish and rockfish for the GOA; and longline P. cod, rocksole and other flatfish in the BSAI.

Develop and monitor fishery specific assumed mortality rates

The Committee supported this concept (see notes above).

INTERMEDIATE ACTION

Base the VIP bycatch rates on retained catch

This concept was supported and the Committee recommended that it be analyzed, particularly in view of ongoing gear research that enhances gear selectivity. The purpose of a retention based vessel incentive program (VIP) bycatch rate is to remove a presently existing disincentive to make trawl gear more selective for usable groundfish. The committee felt the VIP based on total catch, in an effort to decease a vessel's VIP bycatch rate below the VIP rate standard, leads to increased catch and discard of groundfish. Implementation concerns were presented to the Committee and although NMFS can explore this approach, they felt observer estimates of retained portions of sampled hauls would be difficult to determine. Interest was expressed on the progress of NMFS to implement measures to collect accurate measurements of total catch weight (volumetric measuring or total weighing of the catch).

In-season penalty action under the VIP

In general, the Committee supported efforts to enhance the enforceability of the VIP, such as increasing the accuracy of catch estimates and consideration of changes to legal standards of proof as presented in the Magnuson Act. The Committee intends to request NOAA General Counsel to draft language for a Magnuson Act amendment that would support and facilitate in-season enforcement actions under the VIP program, similar to the JV flatfish penalty box program.

APPORTIONMENT OF THE 1993 PSC LIMITS

The Committee, as a whole, generally supported existing apportionments (seasonally and by fishery) of halibut mortality PSCs, as amended by new IPHC mortality estimates. The Committee's limited discussion is presented below.

GOA Trawl

Fisheries with high bycatch needs are the trawl cod, deepwater flatfish and rockfish fisheries (this latter fishery should be less of a problem with the July 1 season delay. High bycatch in the deepwater flatfish fishery primarily results from a seasonal influx of inexperienced fishermen. The Committee generally is happy with the Council's proposed seasonal apportionments. Regarding the 2,000 mt halibut limit, the Committee cautioned that once the industry has gone as far as it can to reduce mortality and bycatch rates, industry petitions to increase the PSC limit will likely occur to allow for greater harvest of available groundfish (e.g., arrowtooth). When this occurs, the economic tradeoffs of the halibut cap may need to be analyzed.

GOA Hook-and-line

Discussion centered on enforceability and practicality of depth restrictions for the sablefish fishery. In general, depth restrictions to reduce halibut bycatch rates were viewed as impractical given enforcement questions, tides, currents and drifting of gear. The underlying problem is too many fishermen crowd the fishing grounds and force fishing effort into undesirable shallow water. The

Committee intends to consider possible actions in the future to reduce halibut bycatch in these GOA fisheries. The Committee sees no problems with halibut bycatch in the groundfish pot fishery.

BSAI Trawl and Hook & Line

Much discussion ensued on seasonal apportionment of halibut apportioned to the trawl and hook-and-line Pacific cod fisheries to reduce bycatch rates in summer months. At a minimum, longliners wanted the trawl fishery to have the same schedule for seasonal apportionments as the hook-and-line fishery (i.e. change the proposed date for the second seasonal trawl apportionment from June 29 to June 1). The Committee believes there may be merit to consider a summer restriction on the Pacific cod fisheries. Members of the Committee representing industry groups felt the necessity to consult with their members before endorsing a particular recommendation on a change in the trawl seasons.

Hook-and-line industry representatives on the Committee would like NMFS to increase the directed fishing standard for the Turbot fishery. A bycatch allowance of 15 - 20 percent reflects true bycatch rates in the sablefish fishery.

LONG TERM MEASURES

In general, most Committee members agreed that the establishment of harvest rights would address the bycatch problem and reduce waste and foregone harvest opportunities. Some support was voiced for development of an IFQ-type program for groundfish, probably under the auspices of the Comprehensive Rationalization Program.

In the interim, the Committee believes it serves a valuable function for the gathering and discussion of bycatch information between various industry interests and government agencies. Future work by the Committee will center upon dissemination of information and calm discussion of issues among industry representatives.

SUMMARY STATEMENTS:

- Keep pressure on Council to advocate reduction of waste (just short of endorsing IFQ program for all groundfish).

- Allocation issues have prevented conservation issues from being addressed. The Committee strongly, and unanimously, believes that allocation issues and disputes among the various fleets inhibit, and sometimes prohibit, meaningful discussion and agreement on conservation measures. A committee forum cannot successfully deal with allocation issues -- conservation issues, such as reduction of waste and bycatch, could be dealt with by committees if the Council would adequately deal with overriding allocation issues.

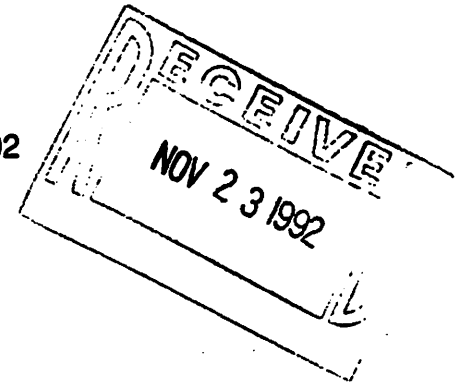
- Major result of the Committee meeting has been to diffuse divisiveness among different gear groups over bycatch allocations and mortality estimates and generate a more cooperative spirit to address bycatch issues.

- Chinook salmon bycatch problem is potentially explosive. Need innovative solution beyond Time/Area closures.

- The industry has more to gain by focussing on how to reduce mortality rather than fighting for a reduction in bycatch rates.

AGENDA D-5(a)
DECEMBER 1992
Supplemental

Alaska Federation of Natives, Inc.



November 19, 1992

Mr. Clarence Pautzke, Executive Director
North Pacific Fisheries Management Council
Post Office Box 103136
Anchorage, Alaska 99510

Dear Mr. Pautzke:

As part of our follow-up on the resolutions adopted by last month's AFN Convention, I want to call to your personal attention one that deals with commerical bottom fish by-catch. It expresses a critical concern of Alaska's village people:

> RESOLUTION 92-97. Starting from the fact that considerable waste of valuable subsistence resources occurs in the dumping of commercial fisheries by-catch, particularly of bottom fish, this resolution urges state and federal regulatory agencies to use every appropriate means to reduce such waste and to set up methods of distributing unwanted commercial by-catch.

I appreciate your consideration of this resolution and hope that your office will be able to support it during the coming year.

Sincerely,

Julie E. Kitka
President

1577 "C" Street, Suite 100 □ Anchorage, Alaska 99501 □ Ph.(907) 274-3611 FAX(907)276-7989

ALASKA FEDERATION OF NATIVES, INC.

1992 ANNUAL CONVENTION

RESOLUTION 92 - 97

TITLE: REDUCTION OF WASTE OF EDIBLE SEAFOOD IN THE GULF OF ALASKA AND THE BERING SEA

WHEREAS: Alaska Native people derive substantial benefit from marine resources and a gross waste of those resources occurs with the discard of bottom fish by catch; and

WHEREAS: this wonton waste can and does have an impact on subsistence resources shared by Alaska Natives; and

WHEREAS: regulations exist which allow the dumping of commercial fisheries by-catch;

NOW THEREFORE BE IT RESOLVED by the delegates to the 1992 Annual Convention of the Alaska Federation of Natives, Inc., that state and federal regulatory agencies be encouraged to do all within their power to reduce the waste of marine food sources; and

BE IT FURTHER RESOLVED that said delegates request these agencies review their policies and assess the feasibility of distribution of unwanted commercial fisheries by-catch.

SUBMITTED BY: JoAnn Holmes

COMMITTEE RECOMMENDATIONS: Do Pass

CONVENTION ACTION: Do Pass

FISHERIES RESEARCH INSTITUTE

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NOV 23 1992

DATE: 18 November 1992

TO: North Pacific Bycatch Survival Study Distribution List

FROM: Ellen K. Pikitch EKP

SUBJECT: Meeting on 27 October

This is to summarize the proceedings of the North Pacific Bycatch Survival Study meeting held at Northwest Fisheries Science Center's Montlake Lab on 27 October 1992. Twenty-eight people representing a wide range of interests attended and made many useful comments and suggestions. Background information on the North Pacific Bycatch Survival Study was presented and discussed at this meeting, as were results of the pilot study we conducted in the Gulf of Alaska during August and September. Results of the pilot study, funded by Alaska Fisheries Science Center of the National Marine Fisheries Service, the American Factory Trawler Association, and Pacific Seafood Processors Association, indicate that the sea-bed cage methodology employed by our research team is an effective and efficient method for obtaining relative survival rates of post-capture Pacific halibut. With further development, this methodology may yield estimates of absolute survival.

Primary objectives of the pilot study were to (1) test blood chemistry and sea-bed cage methodology, (2) evaluate the effects of halibut densities within cages (2 vs. 6 halibut) and cage soaking durations (1 vs. 5 days) on halibut post-release survival, and (3) evaluate tagging effects on halibut survival. Data were collected and analyzed from 10 trawl tows; 32 cages containing a total of 124 halibut were deployed and retrieved. Attempts were made to standardize towing duration (1 hour), halibut size (40-80 cm), and deck exposure time (15-20 minutes). We found no difference in halibut survival between the two cage densities or between tagged and untagged individuals, which will simplify future work. We did, however, find significantly lower survival for halibut left in cages on the sea-bed for 5 days relative to 1 day. This difference implies either (1) it requires more than 1 day to account for all trawl-related mortality (i.e., mortality is delayed), (2) cages cause mortality, or (3) some combination of these two factors. Development and application of cage controls are included in our plans for future work to account for potential cage-induced mortality. This will be done by modifying some cages to function as fish traps. Any cage-induced mortality then will be quantified by comparing survival of halibut caught in traps with survival of halibut placed in cages.

Deck exposure times (i.e., amount of time halibut remained out of water) observed in the pilot study ranged from 13 to 23 minutes. Even over this short range of exposure times, we found a statistically significant (negative) relationship between deck exposure time and survival.

A comparison was made between the effectiveness of using qualitative body condition factors (e.g., cuts, hemorrhaging, whether specimens could close their

operculum tightly) and measurable factors (e.g., cage soaking duration and deck exposure time) for predicting the fate of post-capture halibut. We found body condition factors were not very useful for predicting survival. However, a model (i.e., an equation) containing only deck exposure time and cage soaking duration as independent variables was extremely accurate in predicting survival.

Results of the pilot study were encouraging. The sea-bed cage methodology efficiently obtained relative survival rate estimates with relatively little effort (i.e., we obtained significant results with only 10 trawl tows sampled) and limited deck space (i.e., cages were stackable), and the blood sampling methodology was easily carried out. Future plans include three additional field studies (one during 1993 and two during 1994). Cage controls (discussed above) will be used during these sampling trips. If this form of control proves effective, then results using the cage methodology will provide estimates of absolute survival as well as relative survival rates. A portion of the first field season will be devoted to determining the optimal cage soaking duration (between 1 and 7 days). Subsequent cage work will be dedicated to evaluating the effects of other measurable variables on halibut survival (e.g., towing speed, depth, catch size, handling methods). A model containing significant explanatory variables will be developed to obtain predictions of survival; the predictive performance of this model will be evaluated and compared with the current method of predicting post-release halibut survival (i.e., observers qualitatively evaluating halibut condition when released). Finally, we plan to tag and release halibut with sonic transmitters. This will provide an independent control group and will provide an independent estimate of absolute survival.

Questions and comments from attendees varied. Many questions were raised regarding funding for further work. We expect to hear soon regarding Washington Sea Grant funding. The International Pacific Halibut Commission made it clear that they fully support this study, and that they are quite interested in its findings; however, limitations on the 1993 IPHC budget make direct financial support problematic. Further funding from NMFS is also anticipated; however, the level of funding is uncertain at present. It is clear that additional support is needed from industry in order for this study to succeed.

We thank those of you who attended for your helpful comments and suggestions. We also appreciate the interest indicated by many of you who were unable to attend. A manuscript describing results of the pilot study is in preparation and will be distributed to you following sufficient review.

Attendees: Jim Brennan, Tuck Donnelly, Louie Echols, Lowell Fritz, Kate Graham, Jim Hastie, Steve Hughes, Bert Larkins, Rick Malsed, Richard Marasco, Ed Melvin, Roy Nakatani, Jerry Nelson, Russ Nelson, John Roos, Craig Rose, Thom Smith, Gary Stauffer, Clyde Sterling, Mike Szymanski, Joe Terry, Arni Thompson, Bob Trumble, Fred Utter, John van Amerongen, Gregg Williams, John Woodruff, Ed Wyman.

EKP:as

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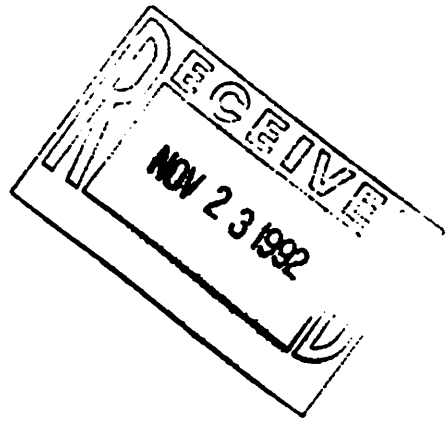

F/V Masonic
Mark S. Lundsten, Operator

11/10/92

Rick Lauber, NPFMC Chairman
321 Highland Drive
Juneau, Alaska 99801

Dear Rick,

After attending the Halibut Bycatch Committee meeting in Anchorage on November 5-6, I want to relay my frustration with the current management process under which I do not think we can solve the bycatch problem.

The main obstacle as I see it is the lack of any long-term, workable system of target species allocations. Olympic-style fisheries without this kind of allocation have left us with no leverage on this bycatch problem. Any bycatch solution for one segment of the fleet inevitably turns into a boon or penalty for some other segment of the fleet and, in the current system, is thus unacceptable for our committee's consideration. If any boat or fleet was allocated a right to fish regardless of the controls for bycatch placed on them or anyone else, the bycatch committee could try to figure out real solutions. Instead of limp, generic reccomendations and "band-aid therapy" for the whole fleet, bycatch could be worked out on a fleet-by-fleet, or even on a boat-by-boat basis.

An example of this problem is the fate of a suggestion at this last meeting by the freezer longliner fleet to close Pacific cod in the Bering Sea / Aleutian Islands in the summer. For market reasons and for reasons of conservation of halibut, it makes a lot of sense, <u>for that fleet</u>. It probably would help. But the pot boats don't want the fishery closed in the summer when they aren't crab fishing; the traditional longliners want another option in the summer after the Gulf closes for black cod; the traditional longliners also don't want a slug of big freezer boats descending on an already stressed black cod fishery; and the trawl fleet, with its ever-increasing complications of retention rates and prohibited species that change every week, wants to maintain whatever they can of their diminishing flexibility. So, a sound proposal for the factory longliners gets nowhere because that proposal's effect would be an allocation of fish - money would go to one group instead of another.

I want to stress the importance of resolving this problem

because of the absurd dimensions of waste under current management. By what I consider conservative estimates, NMFS says we lose an average of about $100 million per year for the last three years in halibut mortality by the groundfish fleet and groundfish foregone because of bycatch restrictions. If you consider fisheries virtually closed (Arrowtooth flounder in the Gulf, for example) and the "value-adding" not available to fisheries under Olympic-style management, the dollars lost are many, many more.

In my experience, the Bering Sea / Aleutian Island turbot fishery is the height of absurdity right now. Because of potential waste of halibut in the directed turbot trawl fishery, NMFS has determined that 20% bycatch is all that we longliners can take of turbot while fishing for black cod (or anything else, but the black cod grounds is where we find turbot). Our observers in that area regularly count two to three times as many individual turbot as black cod on the gear, at least, and they weigh at least twice as much apiece as black cod. Five pounds of turbot per pound of black cod is the minimum we catch. Yet the legal ratio is almost the opposite: one pound of turbot per four pounds of black cod. So, out of 20 turbot we get to keep one. Unlike black cod and halibut, which often come up with disfigured jaws and still in robust health, the turbot have a brittle jaw that almost always shatters, even with the most delicate shaking or hook-straightening procedure by the roller-man. Mortality is certainly almost 100%. In sum, for every eight pounds of black cod we catch, we keep two pounds of turbot (20% retention) and send thirty-eight pounds of dead turbot back to the bottom. At last years prices ($1.85 for black cod and $.50 for turbot), we keep <u>$15.80 worth of fish for every $19.00 worth of dead fish we throw back!</u> The final absurdity here is that <u>our</u> bycatch of halibut on these grounds is almost nothing. Fortuneately, for the nation, this is a small, low-volume fishery. But, clearly, the incentives here are upside down.

Ironically, the halibut fishery itself, and the resource we're trying to protect through bycatch regulation, is another prime example of this waste. Because of the derby-style (or Olympic) fishing and resultant glut of fish after each opening, we have lost almost all of our fresh markets to the Canadians. Our prices were under a dollar this year; the Canadians received two to three times that amount for their fish under a market-responsive IFQ system variation. We also lose millions of pounds of fish on gear lost because of overcrowding, improperly released (and killed) juveniles due to the ridiculously fast pace of our hauling, and sand flea infestation from having to set too much gear at once in order to have a "spot." The well-documented loss of lives and vessels in the derbies is another whole kind of waste that I won't go into here. I do think you know my assessment of this fishery very well by now.

As I am sure you will hear from John Roos' chairman's report of our meeting, we did accomplish some things. We heard an

enlightening report on the IPHC technique of figuring mortalities of halibut and lost yield of halibut to the target fishery due to mortality. The ruffled feathers of some of the trawl fleet were smoothed as they heard the full story and efforts of the freezer-longliner fleet to deal with bycatch of halibut after they were allowed to catch more than a soon-to-be-imposed cap. We received and worked over data from fisheries managers that broke down bycatch data fishery by fishery. We reccomended an alteration to the VIP program (a program we all agreed lacks "teeth") that should cut some waste of target species and encourage trawl technology. But in the face of the enormous loss of fish and money we suffer in the North Pacific, we hardly put a dent in the problem. And we spent two days worth of hotel and meeting rooms, staff time, our time, and airplane tickets to do it. Not exactly effecient, meaningful work. More than once I thought how our waste of effective effort in a meeting was analogous to our waste of fish on the grounds.

I believe the Council process supplies a strong incentive for the inaction of fishery association managers and advocates on critical issues. Because of the simple need to maintain harmony among their members, most managers are not very willing to express any potentially unpopular positions on these kinds of issues or to be very forthcoming with full information until every detail is ironed out. Insignificant progress towards the solution of a difficult fisheries problem in committee consistently is lauded by the committee itself as worthwhile (usually with the idea of keeping the committee going). This "Fishery Association Manager's Syndrome" is understandable enough - it supplies job security: and the incentive is simple - when fisheries are in chaos, managers are perceived as ever more necessary watchdogs by their members. Unfortuneately for the process, these watchdogs tend to lack a killer instinct for real solutions (change causes disruption; solving a problem may lessen the need for a manager or an advocate), and have a genius for justifying meetings.

Again, I'm not blaming individuals, I'm just saying that people without a livelihood on the line have a diminished incentive to solve problems and a clear, even if subconscious, incentive to perpetuate them. As I remarked earlier about fishermen, so it is here: these incentives are upside down. People should want to be <u>done</u> with these problems. An increasingly common remark I hear is how we should become proactive managers of our fisheries. Yet, when the vote is taken, most seem to cast their lot again and again for year-by-year allocations and emergency, reactive management. I won't extend this analysis to voting Council members.

My point is as stated earlier. Without resolution of our annual allocation log-jam at the Council level and the establishment of some rational, long-term system, the Bycatch Committee's job is impossible. The Council's inability to allocate fish effectively for the long-term is crippling our ability to conserve, to harvest fully, and to maximize return on our fish,

not to mention our ability to keep fishing from being the deadly business it too often has become. As a frustrated member of that committee, I ask you to understand our predicament under present management techniques. Fisheries will continue to be shut down more and more by bycatch than by target catch and the Bycatch Committe will continue to be unable to do anything about it the more we delay. Most significantly, that $100 million per year that could pay for a lot of surveys, observers, and good data will remain out of our reach.

Sincerely,

Mark S. Lundsten

LINDA ALEXANDER
PARKSVILLE, B.C.
RICHARD J. BEAMISH
NANAIMO, B.C.
RICHARD ELIASON
SITKA, AK
STEVEN PENNOYER
JUNEAU, AK
ALLAN T. SHEPPARD
PRINCE RUPERT, B.C.
GEORGE A. WADE
SEATTLE, WA

INTERNATIONAL PACIFIC HALIBUT COMMISSION

ESTABLISHED BY A CONVENTION BETWEEN CANADA
AND THE UNITED STATES OF AMERICA

P.O. BOX 95009
SEATTLE, WA 98145-2009

TELEPHONE
(206) 634-1838

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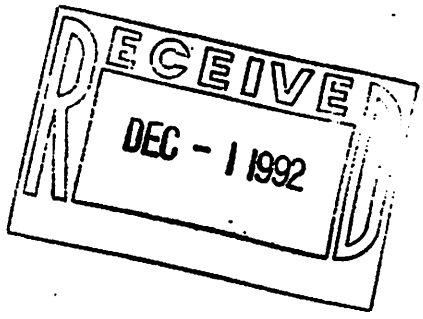
(206) 632-2983



December 1, 1992

Dr. Clarence Pautzke
Executive Director
NPFMC
P.O. Box 103136
Anchorage, AK 99510

Dear Clarence:

The Staff of the International Pacific Halibut Commission has received a copy of the application for an experimental fishing permit from Terra Marine Research & Education. If granted, this permit would allow retention for use by food banks of salmon and Pacific halibut caught by groundfish fishermen. Such retention of halibut is prohibited by Halibut Commission regulations. The Halibut Commission discussed this application at its Interim Meeting on November 23, 1992. The Commission did not take a position on the application, and will not until the 1993 Annual Meeting following review by the Conference Board. However, the Staff recommends that the Council and NMFS deny the application at this time.

The IPHC supports the concept of reducing waste in fisheries, and we have supported efforts to develop individual quotas, replacement for the Olympic system, and multispecies longline fisheries. The proposal for allowing retention of prohibited species for use by food banks has potential to reduce waste, but we have some concerns that must be addressed before we could support the plan. Our concern is for the results of the pilot and for implications of widespread retention for food banks.

1. Retention authority. Halibut is managed under the Halibut Act, not under the Magnuson Act. The IPHC has authority to specify legal gear, seasons, and sizes for retained halibut. Can an experimental fishing permit supersede the IPHC authority and responsibility?

DEC 1 '92 15:40 PAGE.004

2. Designation of "dead" halibut. The IPHC has a management focus of reducing halibut discard mortality. The observer cannot determine the condition factor of all halibut, and only dead halibut should be suitable for the experiment. About 10% of the fish classified dead will actually survive. Retention of these halibut will result in 100% mortality, and halibut PSC limits will be reached at lower groundfish harvest. Who will be designated to determine which fish are called dead? Will that person have a vested interest in designation of halibut as dead or not? A vested interest could include discarding dead halibut so the vessel will not have to process them, or keeping live halibut that could be part of an illegal operation. How much more halibut mortality will occur as a result of retention, and how much less groundfish can be harvested as bycatch limits are reached sooner?

3. Potential for illegal marketing. Retention for food banks puts otherwise illegal halibut in the system--fish that are undersized, trawl-caught, and out of season. Will enforcement be able to track halibut designated for food banks, keep illegal fish out of the market, and be certain of full reporting?

4. Future requests to sell halibut to offset expenses. At the November Bycatch Cap Committee meeting in Anchorage, Bob Trumble received a request from another food bank operation to retain limited amounts of halibut that would then be sold to offset expenses of providing to food banks fish not wanted by commercial vessels. This opens a multitude of problems. Will a full program of food bank supply be open to all interested groups, or restricted in some way?

The Halibut Commission Staff would support retention of halibut for food banks or other uses if Alaska bycatch mortality were at substantially reduced levels, perhaps in the vicinity of 8 million pounds (5,000 mt). I believe our efforts should be focused toward bycatch mortality reduction rather than developing another allocation of halibut that could be used to justify continued high bycatch mortality.

Sincerely,

Donald A. McCaughran
Director

cc. Commissioners
AK Region, NMFS

AGENDA D-5(b)(2)
DECEMBER 1992
DEC - 1 1992

AFDF
Alaska Fisheries Development Foundation, Inc.

December 1, 1992

Steven Pennoyer, Regional Director
National Marine Fisheries Service
Alaska Region
P.O. Box 21668
Juneau, AK 99802

Dear Mr. Pennoyer,

I am writing to resubmit our application to the National Marine Fisheries Service for an experimental fishing permit to harvest arrowtooth flounder in the Gulf of Alaska during 1993. We have included additional details to address questions from the review of our earlier application by the Alaska Fisheries Science Center. I have outlined our application below, closely following the guidelines of 50 CFR part 672.6 (b). Since we need to begin this project before January 20, 1993, and since we have been actively pursuing this application since June of 1992, I would appreciate your prompt attention to this request.

APPLICATION

1) Application date: December 1, 1992.

2) Applicant's name, address and telephone number:
Alaska Fisheries Development Foundation
508 West Second Avenue, Suite 212
Anchorage, AK 99516
(907) 276-7315
Contact: Paula Cullenberg or Mel Monsen

3) Purpose and goal of the experiment: The purpose of this project is to continue a long-standing effort by AFDF and National Marine Fisheries Service's Saltonstall- Kennedy Program to encourage the commercial harvest of the large arrowtooth flounder resource in the Gulf of Alaska and the Bering Sea. This phase of the project is to demonstrate the feasibility of producing market-grade arrowtooth flounder surimi under commercial circumstances. The project is funded by a Saltonstall-Kennedy grant under NMFS Cooperative Agreement number NA26F00126-01.

Arrowtooth flounder is one of the last, large seafood resources off Alaska that is currently underutilized. At present, only a small percentage of the ABC is utilized by the trawl fishery. If fully harvested, up to 300,000 metric tons of

arrowtooth flounder could be caught.

One major hurdle to the full scale utilization of arrowtooth flounder has been the deterioration of its flesh by a proteolytic enzyme when cooked. Work at NMFS Utilization Research Division, funded by the Alaska Science and Technology Foundation through AFDF, has indicated that properly applied food grade inhibitors can block all proteolytic activity in arrowtooth flounder.

With the removal of this major roadblock to the utilization of arrowtooth flounder, AFDF is initiating a demonstration project to illustrate the commercial production of high quality, market-grade arrowtooth flounder surimi.

AFDF will purchase 100,000 pounds of market-grade arrowtooth flounder surimi produced by All Alaskan Seafoods, Inc.. All Alaskan will contract with two vessels to harvest arrowtooth flounder solely for this project. Samples of the surimi will be forwarded by AFDF to a number of secondary analog processors for product and market testing. Following the project, information detailing all aspects of the results will be available openly to all sectors of the industry and the public as detailed below.

All Alaskan Seafoods will purchase and process all arrowtooth flounder and other non-prohibited species harvested during the project. Prohibited species will be discarded as required by National Marine Fisheries Service regulation.

This phase of the development of an arrowtooth flounder commercial fishery is designed to create a market for this species. Still in question is whether arrowtooth flounder can be successfully targeted by the trawl fleet without incurring unacceptable levels of bycatch. Although AFDF's original S/K proposal included funding to analyze this question, it was deleted from the final package. Due to a lack of S/K funding, NMFS decided that it was more important to focus on the production phase of this project first. Observers will be on board each of the two vessels harvesting arrowtooth flounder throughout this project as well as in the plant and will follow the standard methodology of collection of catch statistics required by NMFS. However, bycatch questions, that must be answered before arrowtooth flounder becomes a commercial species, can only fully be addressed through a more comprehensive, year-round analysis. Creating the market is also essential to developing this fishery, and is the primary focus of this project. AFDF currently has a proposal before the Saltonstall Kennedy program for a full scale analysis of bycatch during a directed arrowtooth flounder commercial fishery.

4) Technical details:

(i) Amounts of each species to be harvested:

Arrowtooth flounder: 750,000 pounds (necessary to produce 100,000 pounds of arrowtooth flounder surimi, following established recovery rates as seen by the Fishery Industrial Technology Center and several seafood processors).

Halibut bycatch limitation proposed: 9 tons (based on a rate similar to the 1991 Gulf of Alaska DW flatfish fishery for halibut mortality).

In order to determine an estimate of the bycatch of species other than halibut for this project, we extrapolated from existing research data. Since arrowtooth flounder have not been the target species for bottom trawlers in the past, this estimate is a reasonable assumption, though probably an overestimate.

The 1990 triennial bottom trawl survey biomass estimates (Stock Assessment and Fishery Evaluation Report for the 1993 Gulf of Alaska Groundfish Fishery, NPFMC, November, 1992) provide the following information:

Arrowtooth flounder	1,889,922 mt
Flathead sole	247,247
Rock sole	159,452
Yellowfin sole	61,290
Rex sole	95,630
Dover sole	131,889
Starry flounder	10,907
Sablefish	227,400
Pollock	580,000
Cod	324,000
Slope rockfish	372,046
Pelagic rockfish	26,217
Demersal rockfish	48,366
Thornyhead rockfish	26,207

Based on conversations with the Alaska Draggers Association, we believe that the bycatch of yellowfin sole, starry flounder, sablefish, slope rockfish and pelagic rockfish should be virtually zero. In addition, we believe that thornyhead rockfish will be marginally exposed to harvest effort (estimated at 50%). Assuming all other species will be harvested at the proportionate rates listed above, we anticipate, at maximum, the following percentages and weights of each species during this project would be as listed.

AWT	54.2%	750,000	lbs
fh	7.1	98,247	
rs	4.6	63,653	
rex	2.7	37,362	
ds	3.8	52,583	
pol	16.6	229,705	
cod	9.3	128,690	
thy	0.4	5,535	
dem	1.3	19,373	

We believe that these figures for non-arrowtooth flounder bycatch are the maximum possible worst case scenario. Both the Alaska Draggers Association and All Alaskan plant employees estimate that a more reasonable figure would be about 10% bycatch of other species and every attempt will be made to fish as clean as possible.

All Alaskan will purchase and process all species harvested except for prohibited species. Prohibited species will be discarded as required by National Marine Fisheries Service regulation.

(ii) Area and timing of the experiment:
Area: Gulf of Alaska
Timing: a) January 3 to January 20, 1993.
b) May (following closure of flatfish harvest) to June 1, 1993.
* Experimental fishing in May will be predicated on whether the requested amount is harvested fully in January.

(iii) Vessel and gear to be used: All Alaskan Seafoods will contract with two trawl vessels - one with RSW capabilities, the other with ice. These two vessels will harvest the required amount of arrowtooth flounder. Vessel details are included below. Both vessels will employ modified Bering Sea Aleutian Combo Trawls. Each are 2 or 4 seam low rise nets, to avoid pollock and cod bycatch and will use tire gear to eliminate crab bycatch. Halibut bycatch will be avoided by area and towing speed considerations.

(iv) Experimental design: The purpose of the project is to produce 100,000 pounds of market-grade arrowtooth flounder surimi for product development and test marketing by surimi analog producers across the country. Over half of the twelve analog producers identified by AFDF (see attached) are interested in testing arrowtooth flounder surimi. At minimum, each requires a sample of at least 10,000 pounds. This resulted in a target amount of 100,000 pounds of arrowtooth flounder surimi for the project.

Vessels harvesting arrowtooth flounder will carry an observer full time, paid for by All Alaskan. Observers will follow standard NMFS experimental design for information collection, including location fished, harvest volumes per tow, species composition and relative amounts, size composition of arrowtooth flounder and bycatch. In addition, All Alaskan has a full time in-plant observer as per NMFS regulations.

Since this phase of the project is designed to produce and test market commercial grade arrowtooth flounder surimi and since the project will be undertaken during a short time period, the primary focus of the vessels will be to

successfully target on pure arrowtooth flounder stocks. Bycatch will be consistently recorded and analyzed and every attempt will be made to fish for arrowtooth as cleanly as possible.

All Alaskan's role in the project is to develop the methodology and means to produce market-grade arrowtooth flounder surimi. Arrowtooth flounder harvested by the two vessels will be kept separate to compare quality of surimi produced by RSW versus ice carrying vessels. Surimi production will take place immediately following harvest, using only fresh fish. In-plant, processing techniques will be refined, including: a comparison of surimi production from H&G fish versus filleted fish, a comparison of the use of a conventional surimi line versus the use of the decanter centrifuge, and experimentation with production outcomes from three food grade inhibitors. All Alaskan will work in conjunction with the Fishery Industrial Technology Center in detailing processing parameters including microbiological counts, effectiveness of food grade inhibitors and frozen storage characteristics.

The final product from this project will be a detailed analysis of production of market-grade arrowtooth flounder surimi including handling and quality control factors, processing line information, use of food grade inhibitors and resultant quality parameters of arrowtooth flounder surimi.

All Alaskan is well qualified to manage this project since they have been closely linked to earlier stages in the development of arrowtooth flounder surimi, both with AFDF, NMFS/URD and the FITC. In 1991 and 1992, they produced small quantities of high quality arrowtooth flounder surimi in conjunction with Dr. Jerry Babbit, Western Alaska Fisheries and Louis Kemp Seafoods.

AFDF will distribute 100,000 pounds of arrowtooth flounder surimi produced by All Alaskan Seafoods to secondary analog producers for product development, using its network developed during pollock surimi projects.

(v) Provision for public release of information and submission of reports: Results of the project from harvest to final product development will be published openly to the industry and the public in a final report, AFDF's newsletter, in newsletters and in appropriate public seminars. Saltonstall Kennedy-funded projects are required to submit quarterly and final narrative and financial reports. Those reports will be made available to the National Marine Fisheries Service Regional Office in Juneau and the NOAA Grants Management Division in Silver Springs, Maryland.

(5) Observer coverage: Observers will be on board the two vessels participating in this project throughout the harvest period.

Both vessels are accustomed to carrying observers on board during commercial seasons and have adequate accommodations to do so, including berth space, galley space and work area. In addition, All Alaskan will have an in-plant observer throughout the project, as required during the commercial season.

(6) Coordinating parties: The primary parties involved in the project include Alaska Fisheries Development Foundation and All Alaskan Seafoods, Inc. The two harvesting vessels will act under contract with All Alaskan and will be coordinated by the Alaska Draggers Association. Paula Cullenberg is project manager for AFDF; she will be responsible for overseeing that all parties meet the conditions of the project; Gary Taylor, plant manager, is supervising All Alaskan's efforts and will contract with vessels, direct sampling, testing and processing design, and Alvin Burch, director is coordinating involvement by the Alaska Dragger's Association.

Melvin J. Monsen, Jr.
Alaska Fisheries Development Foundation

Gary Taylor
All Alaskan Seafoods, Inc.

Alvin Burch
Alaska Draggers Association

(7) Vessel Information:

Vessel 1:

(i) Vessel name: Topaz

(ii) Owner and master: Mark Chandler
4934 Lake Shore Drive
Florence, OR 97439
(503) 997-3869

(iii) U.S. Coast Guard documentation: #57 54 28

(iv) Home port: Kodiak, Alaska

(v) Length of vessel: 80 feet

(vi) Net tonnage: 98

(vii) Gross tonnage: 134

Vessel 2:

(i) Vessel name: Dawn

(ii) Owner and master: Al Burch (owner)
P.O. Box 884
Kodiak, AK 99615
(907) 486-5238

Terry O'Neal (master)
Box 884
Kodiak, AK 99615
(907) 486-6998

(iii) U.S. Coast Guard documentation: #53 20 81

(iv) Home port: Kodiak, Alaska

(v) Length of vessel: 86

(vi) Net tonnage: 115

(vii) Gross tonnage: 153

(8) Signature of applicant:

Melvin J. Monsen, Executive Director
Alaska Fisheries Development Foundation

fish.

In-plant, a variety of processing techniques will be tested in acquiring the best information concerning use of inhibitors and production outcomes. All Alaskan will work in conjunction with the Fishery Industrial Technology Center in detailing processing parameters including microbiological counts, effectiveness of food grade inhibitors and frozen storage characteristics.

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Melvin J. Monsen, Jr.
Alaska Fisheries Development Foundation

Gary Taylor
All Alaskan Seafoods, Inc.

Alvin Burch
Alaska Draggers Association

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Melvin J. Monsen, Jr.
Alaska Fisheries Development Foundation

Gary Taylor
All Alaskan Seafoods, Inc.

Alvin Burch
Alaska Draggers Association

AFDF

Alaska Fisheries Development Foundation, Inc.

U.S. SEAFOOD ANALOG COMPANIES
Revised: 6/91

The Berelson Company
100 Pine Street, Suite 300
San Francisco, CA 94111
phone: (415) 956-2100
fax: (415) 956-7438
brand: Sea Legs
plant location: Anacortes, WA - Fife, WA

Connors Bros., Inc.
(Marketers for Terra Nova Fishery Co.)
35 Perwal Street
Westwood, MA 02090
phone: (508) 941-6900
fax: (508) 941-6995
brand: Seafood Ho!
plant location: Kilbride, Newfoundland

Fishking Processors, Inc.
1324 East 15th Street
Los Angeles, CA 90021
phone: (213) 746-1307
brand: Mrs. Friday's
plant location: Los Angeles, CA

Icicle Seafoods, Inc.
P.O. Box 79003
Seattle, WA 98199
phone: (206) 282-0988
fax: (206) 282-7222
brand: Icicle
plant location: Bellingham, WA

Jana Brands
17 Mercer Rd.
Natick, MA 01760
phone: (508) 620-0001
fax: (508) 651-3001
brand: Ocean Magic
plant location: Bellingham, WA

Kanimi (Shining Ocean)
2440 W. Commodore Way
Seattle, WA 98199
phone: (206) 284-2810
fax: (206) 283-7079
brand: Kanimi
plant location: Seattle, WA

HFI Foods
18368 Redmond - Fall City Rd.
Redmond, WA 98052
phone: (206) 869-6256
fax: (206) 883-1320
brand: Kibun
plant location: Redmond, WA

Louis Kemp Seafood Company (Division of Oscar Mayer Foods)
P.O. Box 16147
Duluth, MN 55816-0147
phone: (218) 728-5134
fax: (218) 728-6566
brands: Crab Delights, Ocean Master
plant location: Duluth, MN - Olympia, WA

Ono Fish Cake Co., Inc.
2017 Camfield Avenue
City of Commerce, CA 90040
phone: (213) 724-0522
fax: (213) 724-0836
brand: Copy Crab
plant location: Los Angeles, CA

Peter Pan Seafoods
Denny Building, Suite 1000
Seattle, WA 98121
phone: (206) 728-6000
fax: (206) 441-9090
brand: Sea Blends
plant location: Seattle, WA

SeaFest/JAC Creative Foods
P.O. Box 188
Motley, MN 56466
phone: (800) 325-4732
fax: (218) 352-6358
brands: SeaFest
plant location: Motley, MN

3050 E. 11th Street
Los Angeles, CA 90023
phone: (213) 263-3344, (800) 354-3746
fax: (213) 263-4012
brands: King Krab, Sea Scoops, Tasty Tails
plant location: Los Angeles, CA

Unisea, Inc.
P.O. Box 97019
Redmond, WA 98073-9719
phone: (206) 881-8181
fax: (206) 821-8416
brands: Unisea, Pride of Alaska
plant location: Redmond, WA

ENVIRONMENTAL ASSESSMENT/REGULATORY IMPACT REVIEW INITIAL REGULATORY FLEXIBILITY ANALYSIS FOR AMENDMENT TO THE FISHERY MANAGEMENT PLAN FOR GROUNDFISH OF THE BERING SEA AND ALEUTIAN ISLANDS

PURPOSE AND NEED

The domestic and foreign groundfish fisheries in the Exclusive Economic Zone of the BSAI are managed by the Secretary according to the BSAI FMP, which was prepared by the Council under the authority of the Magnuson Fishery Conservation and Management Act. The FMP is implemented by regulations for the foreign fishery at 50 CFR Part 611 and for the U.S. fishery at 50 CFR Part 672. General regulations that also pertain to the U.S. fishery are implemented at 50 CFR Part 620. At times, amendments to the FMP and /or its implementing regulations are necessary to respond to fishery conservation and management issues.

The purpose of the proposed amendment is to provide a mechanism for the Council to spatially allocate the harvest of fish species, specifically Atka mackerel, in the Aleutian Islands subarea of the BSAI. Yearly catch allocations for the Aleutian Islands are based on estimates of the available exploitable biomass of each species or complex within the entire subarea. In recent years, commercial fishery catches in the Aleutian Islands, particularly of Atka mackerel, have become concentrated in a relatively small portion of the subarea. Spatially concentrated harvests in the Aleutian Islands could lead to localized depletions of fish species that exhibit only limited movements, such as Atka mackerel. In turn, localized depletions of these fish stocks could have adverse biological consequences for these species, and for marine mammals that prey upon them. Presently, the FMP does not provide for apportioning Aleutian Islands TACs in any geographical units smaller than the entire subarea.

ALTERNATIVES

Alternative 1 - Status quo, no action:
Under this alternative, pollock, Atka mackerel, and Pacific ocean perch (POP) would continue to be managed in the Aleutian Islands subregion as single TACs with no spatial allocation.

Alternative 2: - Under this alternative, the Aleutian Islands subarea would be separated into two districts by dividing the region at 178° W longitude for the purpose of spatially allocating the TAC of Atka mackerel.

Alternative 3: - Under this alternative, the Aleutian Islands subarea would be separated into two districts by dividing the

region at 178° E longitude for the purpose of spatially allocating the TAC of Atka mackerel.

Alternatives Dropped from Further Consideration

Dividing the Aleutian Islands subareas into four management subdistricts (north and south of the island chain as well as an east/west subdivision) was rejected from further consideration. Four subareas would likely result in unmanagably small TACs in some locations, would greatly increase the NMFS's work load and could cause increased scheduling costs for the fishery. For these reasons, this alternative is currently considered impracticable.

Dividing the Aleutian Islands subarea into two districts at 180° W longitude was also considered and rejected. It was determined that the impacts of a division at 180° W longitude are similar to those resulting from a division at 178° W longitude, which was specifically requested as an alternative by the North Pacific Fisheries Management Council (NPFMC). Furthermore, a division at 180°W divides Petral Bank, an important fishing area for Atka mackerel. This would unnecessarily complicate the reporting requirements for the fishery and would separate what is most likely a single fish stock into two management districts.

THE HIGHLINERS ASSOCIATION

4055 21st Avenue West, Suite 200
Seattle, Washington 98199

Phone: (206) 285-3480
Fax: (206) 283-8263

9/21/1992

President
Sam Hjelle
Glacier Fish Co.
(206) 782-0118

Vice President
Stanley J. Hovik
Fury Group, Inc.

Technical Representative
Dr. Dayton L. Alverson
Natural Resources Consultants, Inc.

Members

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Michael "Spike" Jones
Snowking, Inc.

H. A. Larkins

Francis L. Miller
Ronald R. Jensen
Arctic Alaska Fisheries Corp.

Rudy A. Petersen
North Pacific Fishing, Inc.

Marvin Stone
F/V Pacific Fury

Konrad S. Url
K Fisheries, Inc.

Robert L. Watson
F/V Sea Wolf

MEMORANDUM

DATE: September 17, 1992

TO: North Pacific Fishery Management Council

FROM: The Highliners Association, Technical Advisor

SUBJECT: Reduction in Unmarketable Small Pollock Taken in Directed Pollock Fishery - A Proposal

It has become increasingly obvious to all sectors of the Alaska fishing community that small mesh, multi-layer codends have led to significant levels of bycatch in the pollock fisheries conducted in the Bering Sea and Gulf of Alaska. According to the National Marine Fisheries Service figures, pollock discard (bycatch) constituted 7% and 8% in these two areas, respectively, in 1991 and is expected to reach levels of 10% and 14% in these respective areas in 1992. The high bycatch levels in 1992 apparently reflect a strong increase in age-two recruits, coupled with continued use of multi-layer codends by elements of the pollock fleet.

The undersized pollock bycatch in 1992 constitutes an economic loss to the fishing industry, but the perception of wastage in fisheries also presents a growing threat--not just to the pollock fishery, but also to all sectors of our industry.

The nature and character of the undersized pollock bycatch problem has been increasingly discussed by many groups within the trawl industry. Earlier, The Highliners Association wrote to all elements of the trawl industry encouraging operators not to use double mesh, particularly on the upper portions of the codends. Although we received a number of positive comments regarding this proposal, many vessels could not respond before the pollock "B" season fishery began (1992) because of the lateness of our communiqué.

The theoretical basis for eliminating undersized fish taken in trawl fisheries through the use of mesh size regulation is well founded in the literature. In most instances mesh size regulations have been adopted to (1) maximize yield per recruitment and/or (2) minimize waste. Obviously at times these goals are not mutually exclusive. In order to deal with the consequences of bycatch losses in terms of Council-established TAC quotas, bycatch is added to the total retained catch. Although this practice may deal effectively with the conservation aspects of management, it does not deal with the underlying economic and waste losses generated by current fishing practices.

As Council members well know, mesh rulings are used to regulate a variety of world fisheries. Large mesh sizes are most often fostered by management agencies when there is evidence that fishing practices are harvesting too many fish before cohorts reach critical size or when a significant harvest of unwanted, undersized, and unmarketable fish occurs. The adaptation of mesh regulations has as its primary assumption that most of the fish passing through the net survive. Although this has not in all instances been supported by experiments designed to test this hypothesis, in most cases survival of roundfishes (hake, cod, and Atlantic pollock) subjected to such tests has been very good (Carr et al. 1992, Main and Sangster 1991, Jacobson and Thomsen 1992.)

Recent underwater observations of trawls in action have shown that the vast majority of fish escaping from codends escape through the upper portion of the codend and for the most part just forward of fish captured in the codend (Wardle 1992, Castro and DeAlteris 1992). This escapement pattern is apparently enhanced by both water flow and visual stimuli. Regardless of the nature of the stimuli, increasing the mesh size and the maintenance of open mesh in the upper portion of the codend is now considered essential for codend selectively and reduction in number of undersized fish taken.

Currently two large markets provide for Alaska pollock--the surimi market in Japan and the fillet/block market in the U.S. and Europe. A much smaller but viable market for pollock also exists in Korea and Japan for headed and gutted product. These market outlets and product forms result in a spectrum of lower sizes generally acceptable to buyers. Surimi trawlers will generally process fish 12" and greater, while vessels targeting on fish for the fillet (block) and H&G market prefer somewhat larger fish (> 14"). Thus for all practical purposes regardless of market destination of the fish, most trawlers discard or make meal out of pollock less than 31 to 32 cm in length. The greatest portion of the current discard appears to be two- and three-year-old fish ranging from 20 to 30 cm in length. Hence, in terms of minimizing current discard waste, a mesh regulation designed to significantly reduce catches of pollock less than 31 cm long seems highly desirable.

At the present time codend mesh used in the pollock fishery ranges from 3.5" to 4.5" (89 mm to 114 mm). Codend design may include either single or double mesh with various amounts of "hang in" on the riblines. As currently measured, stretch measure includes one knot, so actual "between knot" (BK) mesh size will vary depending on twine diameter and net material used. Escapement will depend on mesh size

used, twine size, twine configuration, "hang in," and codend net geometry during fishing operations.

The consequence to industry of the current bycatch levels may be related directly to the discarded catch. These values can be estimated using NMFS figures for 1991 and estimated losses for 1992 based on bycatch rates recorded through June 1992. Based on an estimated bycatch of 95,130 mt in the Bering Sea and 7,520 mt in the Gulf of Alaska for 1991 and 135,000 mt in the Bering Sea and 11,200 mt for the Gulf for 1992, and an average ex-vessel price of 10 cents for 1991 and 12 cents for 1992, the loss for these years is estimated at $22.6 million for 1991 and $38.7 million for 1992.

Not a great deal of information has been collected on the size spectrum and net selectivity of current codends used in the Northeast Pacific pollock fisheries. Early studies on U.S. foreign joint ventures showed that most pollock designated for surimi trawlers ranged from less than 29 cm to about 50 cm. As noted earlier, current practices lead to catch ranges from about 20 cm to 55 cm. Data collected by the NMFS would seem to confirm observations that early joint venture and domestic fisheries (1978-1980) caught or retained smaller fish than is the current practice (1984-1990). However, these data should not be confused with actual net selectivity studies because the samples do not include discards (Exhibits 1a, 1b, and 1c) and mesh sizes are undefined. The curves reflect the proportion of fish at various lengths taken by various fisheries during the years noted.

We are aware that several experimental U.S. codend net selectivity studies for Alaska pollock which will help to address this issue are underway. The results are not yet available. However, in a cooperative study carried out by Japanese and Soviet investigators, selection curves for Alaska pollock based on 45 mm[1] diamond single mesh (trouser codend), 45 mm single-layer, double-twine, diamond mesh (standard codend), 45 mm square (trouser codend), and 55 mm square mesh standard codend have been described. Note that these mesh designations are "bar" measure and should be doubled to convert to stretch mesh measurements commonly used in the Pacific Northwest and Alaskan fisheries.

Details of the selectivity experiment and results are shown in Exhibits 4 and 5. The 90 mm (45 mm bar measure) diamond single mesh trouser codend selection occurred between about 18 cm and 32 cm with a 50% retention of pollock about 25 cm in length. It is perhaps somewhat surprising that this codend caught smaller fish than the 90 mm diamond double twine codend, but it should be noted that the "hang in" on this codend was only 5%, compared to 7% for the double mesh codend. The 90 mm (45 mm bar measure) square mesh trouser codend caught substantially larger fish, the selectivity range being between about 21 cm and 40 cm. Finally, a very significant increase in size selectivity occurs for the 110 mm (55 mm bar measure) square mesh. For this codend the selectivity range occurs between 31 cm and about 50 cm.

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1 All measurements in this experiment refer to bar mesh measure. Stretch mesh measure will be double the noted value.

In terms of current U.S. fishing practices, both the 90 mm single and double diamond mesh catch substantial amounts of fish below 30 cm which may be discarded at sea or on shore. The 90 mm test using square mesh caught very small quantities of fish less than 30 cm while harvesting most fish 35 cm and larger (>70%). Assuming that fish 31 cm and larger will be used by the surimi fleet, then 90 mm stretch measure square mesh codend would seem to provide a selectivity range appropriate for this fishery. On the other hand, a somewhat larger mesh size might be appropriate for vessels targeting on fish for the fillet/block and H&G markets, e.g., 100 mm square mesh, a selectivity curve between that noted for the 90 mm and 110 mm square mesh curves (Exhibit 3).

The options noted above are based on current market selection and do not consider yield per recruit considerations. In 1992, NRC undertook an extensive review of the yield per recruitment for Alaskan pollock. The essential elements of this study are attached in Exhibit 4. The data show that the weight growth of a pollock cohort (year class) increases rapidly during its first few years of life and that the cohort maximizes its weight sometime during its fourth year when the average size is somewhat greater than 38 cm (Exhibit 5).

Several facts are obvious from Exhibit 5. First, the weight of a particular year class doubles, taking into account natural mortality, between ages one and three. Second, the cohort weight is maximized between ages four and five. Finally, the decay or decline in the biomass weight is relatively slow between ages five and seven. The consequence of fishing as it relates to potential yields, considering various sizes of recruits (30 to 45 cm) and fishing rates (F), are shown in Exhibits 6 and 7.

These data suggest that at a low fishing rate of (F=.1), there is little value from a yield per recruit concept of increasing size of entry above 30 cm. Even at a moderate fishing rate of .2, yield from the fishery is not improved by increasing size of entry over 30 cm. On the other hand, significant catches of small pollock caught and discarded do result in a major loss of catch to the fishery and the future of biomass of the exploitable population--that is, the fish discarded would normally double their weight by age four. In terms of rational use, eliminating the catch of undersized discards would:

1. Greatly increase the economic value of the fishery by increasing the tonnage which can be processed

2. Increase the future biomass of the pollock >30 cm

3. Reduce mortalities on young fish considered important to marine mammal and bird populations

4. Significantly reduce perceived biological waste

5. Increase the size of the spawning biomass

The question is what is the most desirable mesh size, codend structure; etc., to be adopted and put into regulation. It is very apparent that codend escapement of undersized fish will depend on mesh and twine size, single or double twine, or single or double mesh structure, square or diamond webbing, and "hang in" for diamond webbing. Of these variables, escapement opportunity between knots and the geometry of the webbing, particularly in the upper section of the codend and intermediate, are most important.

An effective mesh regulation should consider, among other factors:

1. Minimum mesh opening expressed in between knot measures (BK)

2. Single layer construction for the top panel of the codend

3. Presence of chafing gear, wire straps, and other accessories that might mask or constrict the mesh opening in the upper half of the codend

4. Mesh size in the intermediate

5. Where diamond mesh is used, a minimum ribline "hang in" and ideally a non-stretchable ribline material used

Based on these considerations, The Highliners Association, in discussion with other sectors of the industry, proposes that a mesh regulation be implemented requiring codends to be designed with (Exhibit 8):

1. At least four riblines made of material having little elasticity

2. The top upper portion of the codend (between upper riblines) made of 90 mm single-layer square mesh (BK measurement should not be less than _____ mm)

3. All diamond mesh used in the codend hung in at least 7%

4. Chafing gear and other accessories other than strengthening straps and choker straps be confined to the lower half of the codend

EXHIBIT 1a

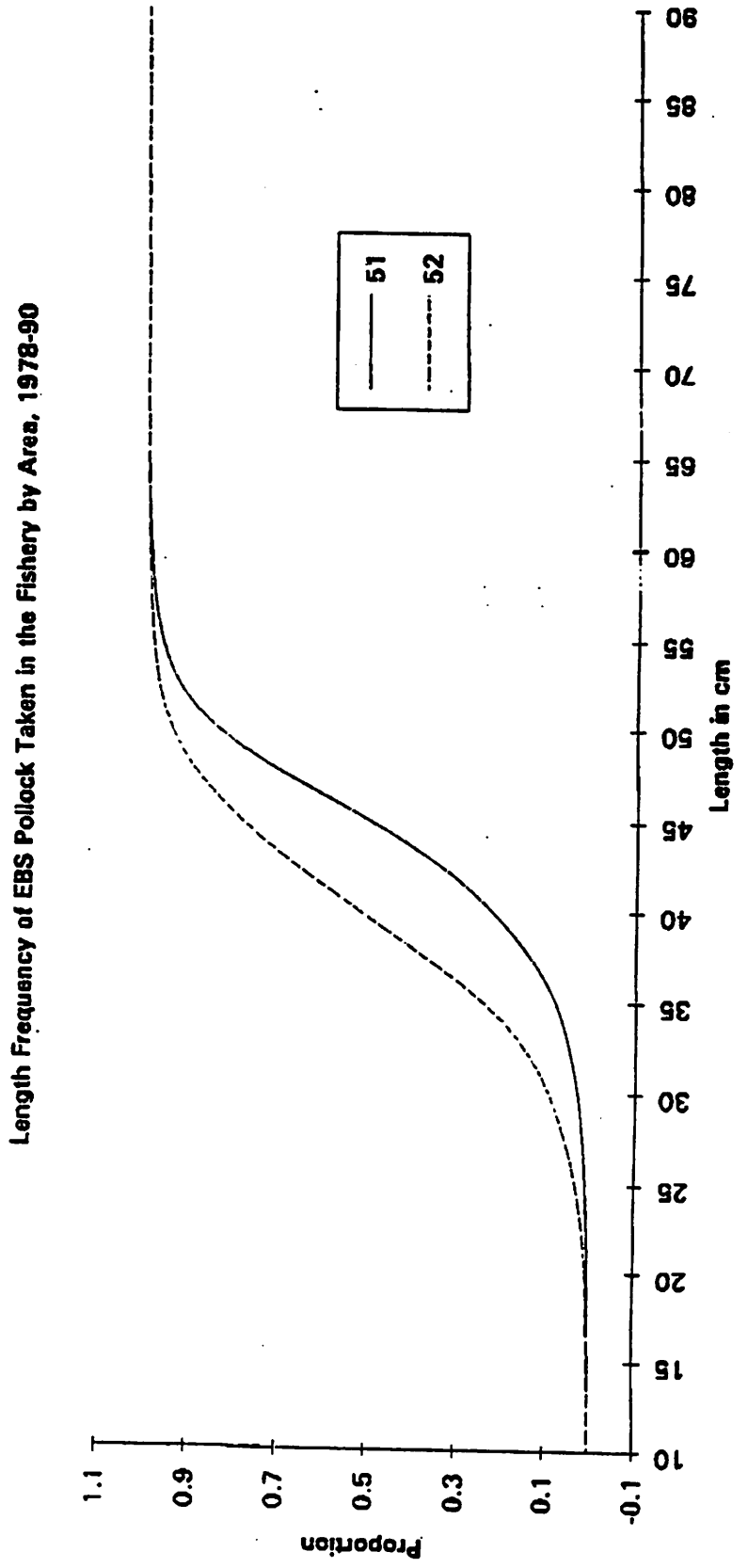

Length Frequency of EBS Pollock Taken in the Fishery by Area, 1978-90
51
52
Length in cm
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
Proportion
1.1
0.9
0.7
0.5
0.3
0.1
-0.1

EXHIBIT 1b

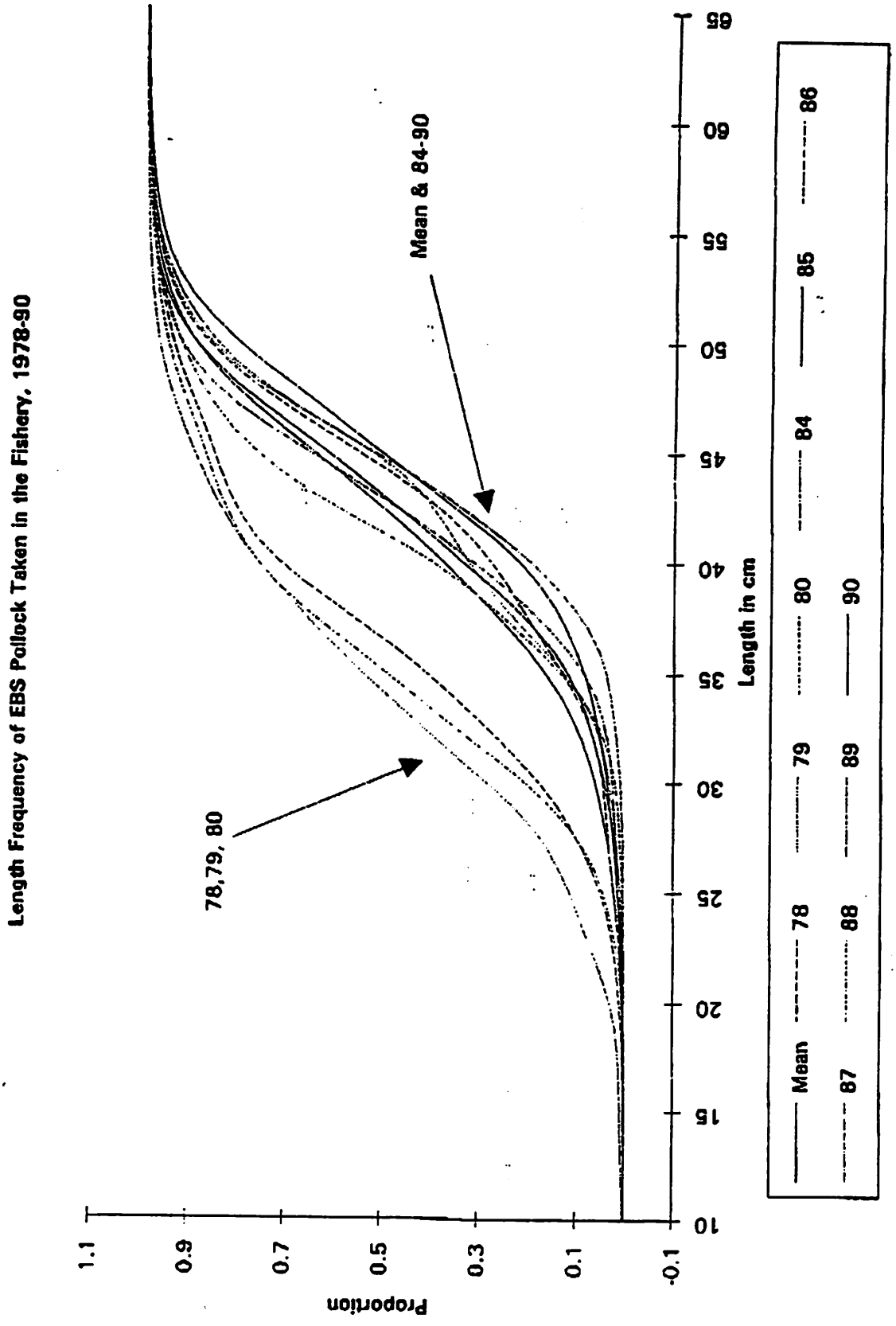
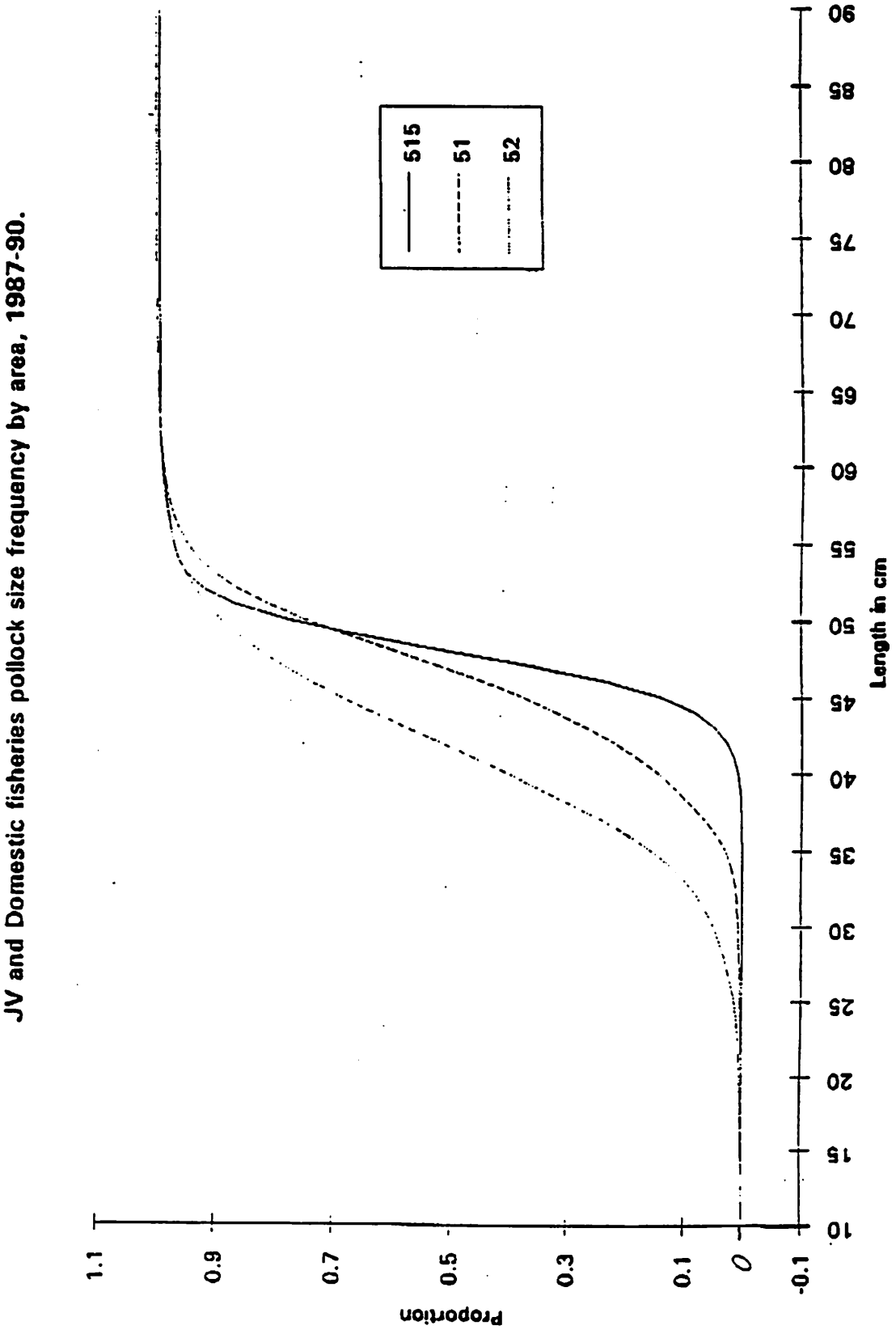
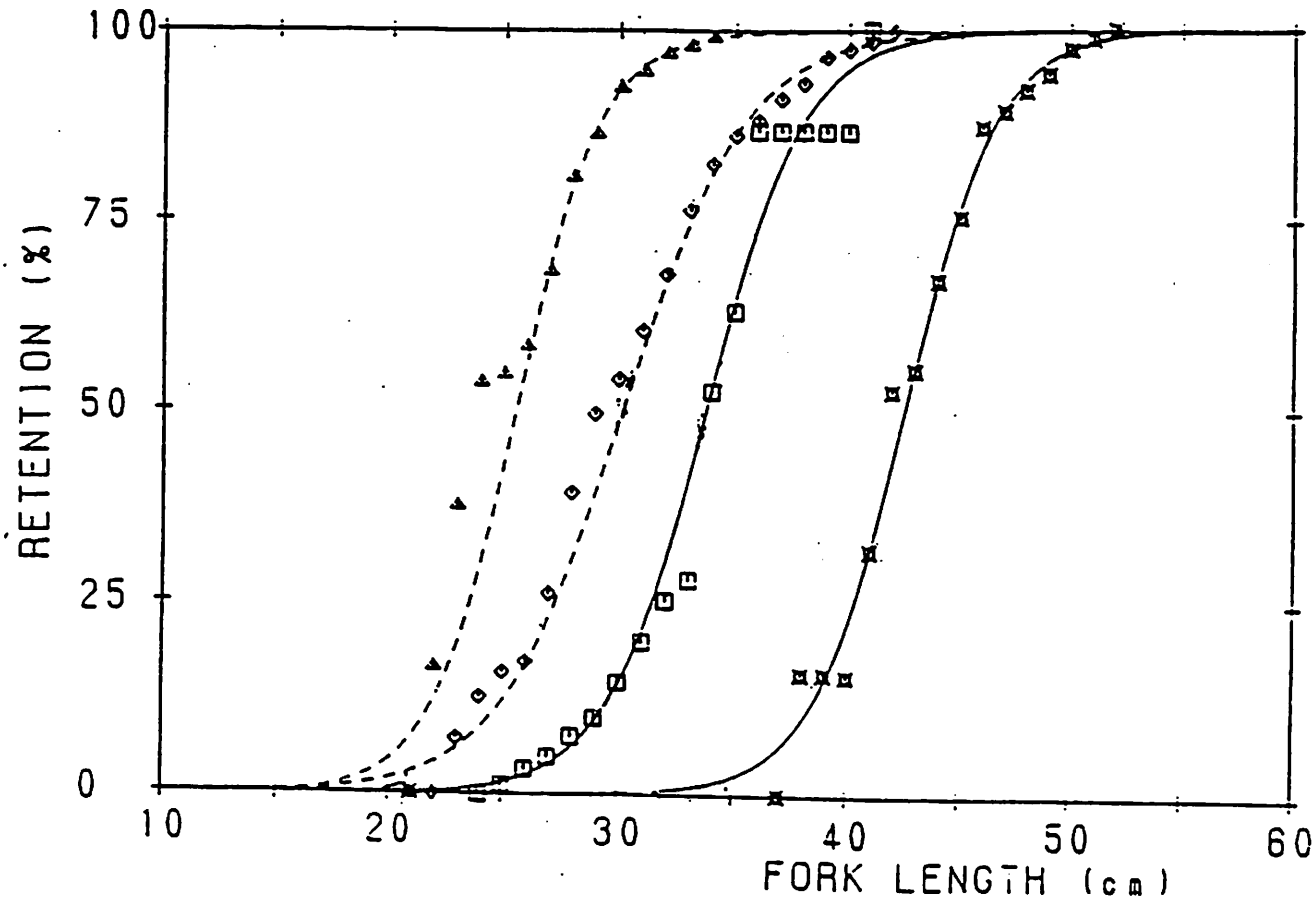

Length Frequency of EBS Pollock Taken in the Fishery, 1978-90
Mean & 84-90
78,79, 80
Proportion
1.1
0.9
0.7
0.5
0.3
0.1
-0.1
Length in cm
10
15
20
25
30
35
40
45
50
55
60
65
Mean
78
79
80
84
85
86
87
88
89
90

EXHIBIT 1c


JV and Domestic fisheries pollock size frequency by area, 1987-90.
515
51
52
Proportion
1.1
0.9
0.7
0.5
0.3
0.1
0
-0.1
Length in cm
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90

Details of the selectivity experiment.

Date	Type of codend and mesh size(1 bar)	The hanging ratio	number of experiment	Total catch
'90 9/11-16	Single body Dia 45mm(knotted)	7%	11	21.01 ton
'90 9/17-19	Single body , Dia double 45mm(knotted)	7%	10	12.10 ton
'90 10/24-11/7	Trouser Dia and Squ 45mm(knotless)	5% (diamond)	9	7.75 ton
'89 10/12-11/13	Single body Squ 55mm(knotless)	—	13	11.84 ton



Selection curves for Walleye pollack

△ 45mm diamond (trouser) □ 45mm square (trouser)

◇ 45mm diamond ⌗ 55mm square

THEORETICAL BASIS FOR SIZE MANAGEMENT

Establishing size limits on fish has been used as a conservation management technique in order to 1) prevent unnecessary waste, 2) limit harvest to sizes acceptable to markets, 3) postpone harvest until maturation has occurred, 4) manage production from the biological material produced by nature, and/or 5) maximize the economic return from the available biological surplus. Although any one or a combination of these objectives may form the basis of a management strategy, most frequently size limits are used in association with control of fishing effort to optimize the yield from a given number of recruits.

The yield-per-recruit concept is based on the fact that any group of animals born or spawned together (a cohort) will maximize their aggregate weight at some time in the life span of the cohort. Initially, as larvae, they will have a relatively small biomass. As they begin to grow, some will die but the remaining animals will have an increased total biomass. At some point in the life span of the cohort, the group of animals spawned together will loose as much material to death as it gains from growth. At this point in the group's life history, it will have achieved a maximum biomass. During subsequent periods, the cohort biomass will decline because losses due to death will exceed the aggregate weight growth of the group. Finally, all the animals of the original cohort will die, and the biomass will cease to exist (Figure 1).

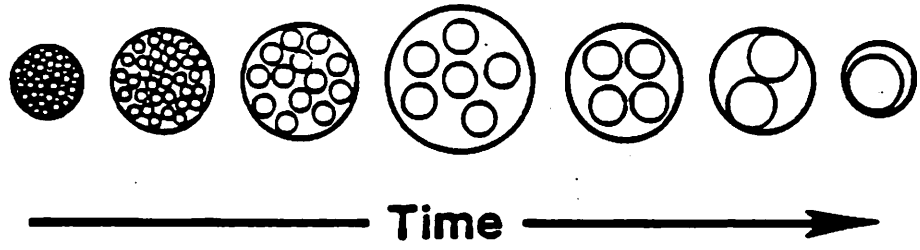


Figure 1. A diagrammatic illustration of changes in a cohort "energy" system with time.

From a use strategy viewpoint, the maximum yield from any group can be attained at the point in the life history of the cohort that maximum biomass occurs. This point in time is frequently referred to as the critical age or size of the fish. An example of the concept of maximizing the yield per recruit is that of a fruit tree, e.g., apple. If you allow your children to pick all the apples while they are green and small, the total weight of harvest will be relatively small. If, on the other hand, you pick them as they ripen and mature, you will get a larger yield. If you wait too long, most of the apples will fall to the ground and be lost.

The yield-per-recruit strategy in fisheries follows the same approach; that is, instituting a fishery at a size and with the amount of effort that allows you to maximize the yield from whatever nature produces. Inasmuch as it is physically impossible to generate enough effort to harvest all the fish available in a short time frame, the fishery must begin before the critical age occurs and extend beyond the critical age. The trick is to match fishing effort with the growth characteristics of the fish in a manner that provides the greatest biological yield. From an economic viewpoint, if different values are placed on different sizes of fish, then the manager may wish to consider biological attributes of the population in the light of economic objectives, e.g., to maximize the dollar value of the harvest.

In actual practice, managers frequently couple the yield-per-recruit approach with some pragmatic consideration of a spawner recruit relationship. Thus, the allowable effort seldom reaches that required to maximize yields using the yield-per-recruit relationship.

The growth and decay of a pollock population in the absence of a fishery was examined for constant annual survival rates of 0.70 and 0.74 and for age-specific rates given by Wespestad (personal communication, 1982). From Ricker's (1958) table of exponential functions, the annual survival rates of 0.70 and 0.74 correspond to instantaneous natural mortality rates of 0.35 and 0.30, respectively.

The shape of the growth and decay curve (based on 1000 recruits) was little affected over the range of survival rates examined. The indicated weight of the population was greatest between ages 3 and 6, peaking at age 4 for a constant survival rate of 0.70 and at age 5 for a constant survival rate of 0.74 and for Wespestad's age-specific rates (Figures 2, 3 and 4). As can be seen, the maximum biomass occurs at age 4 with relatively small reduction in size of the biomass from ages 4 through 7. Data used to support these graphs are given in Tables 1-3. A graphic illustration of the growth and decay of a pollock cohort having an annual average natural mortality rate of 0.3 or survival of 0.7 is given in Figure 5.

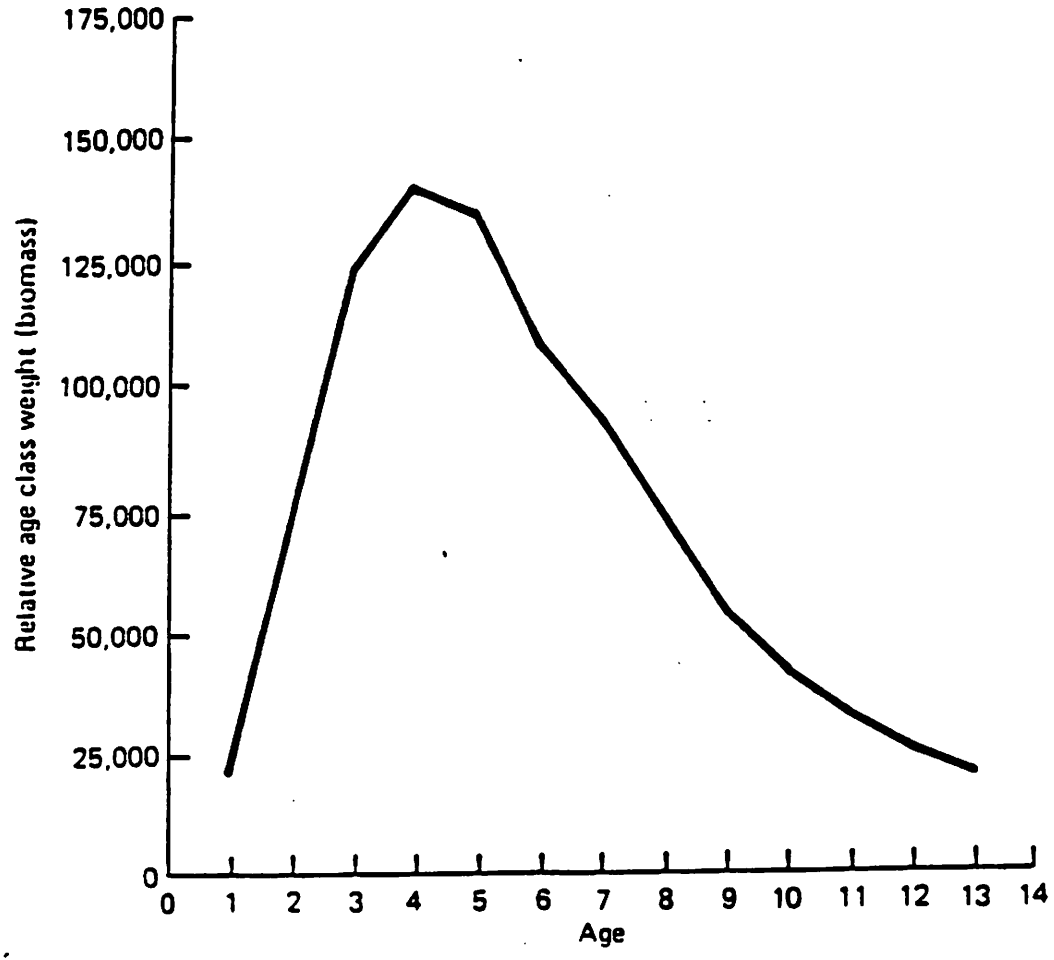


Figure 2. Relative age class strengths at indicated ages using mean body weights given by Smith (1981, Table 33-6) and a constant annual survival rate of 0.70.

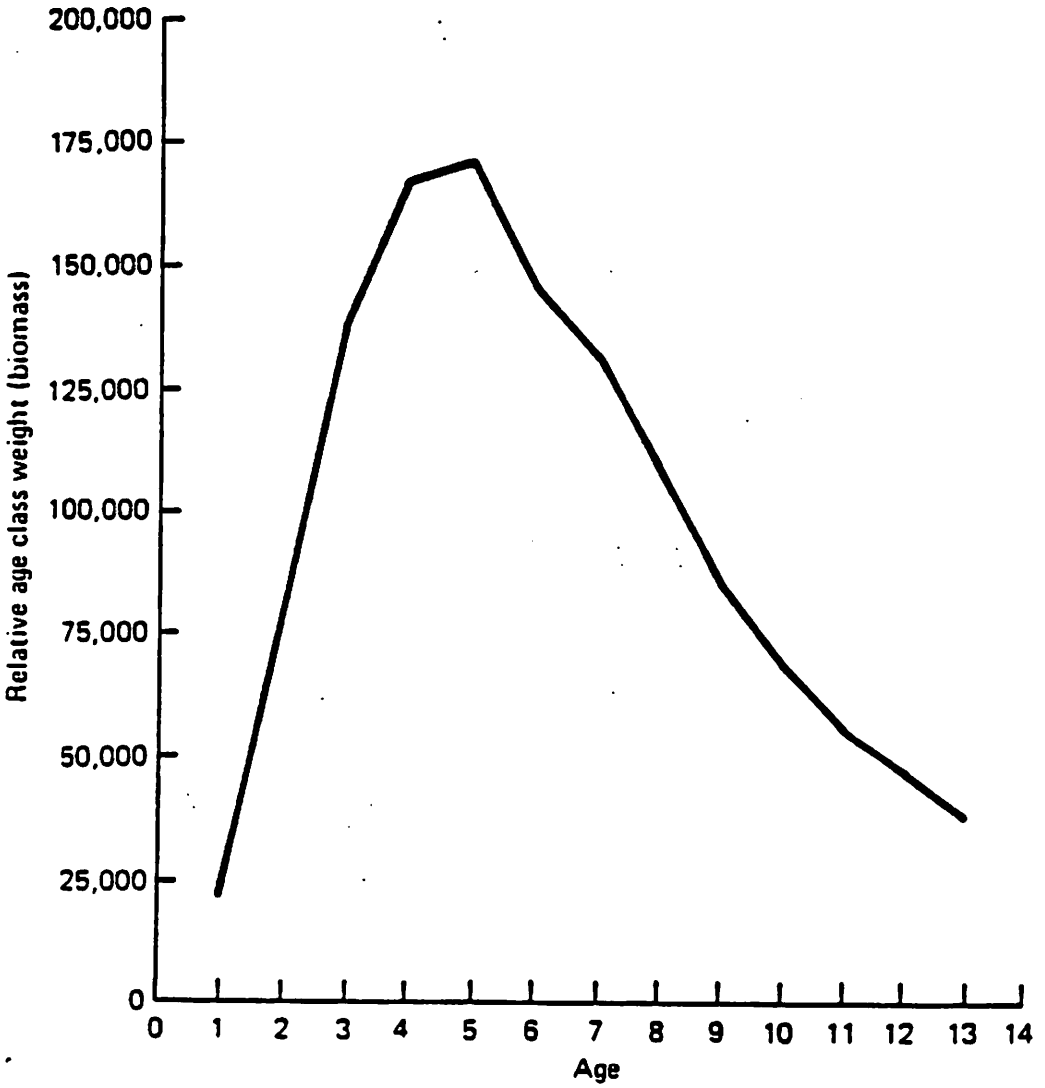


Figure 3. Relative age class strengths at indicated ages using mean body weights given by Smith (1981, Table 33-6) and a constant annual survival rate of 0.7408.

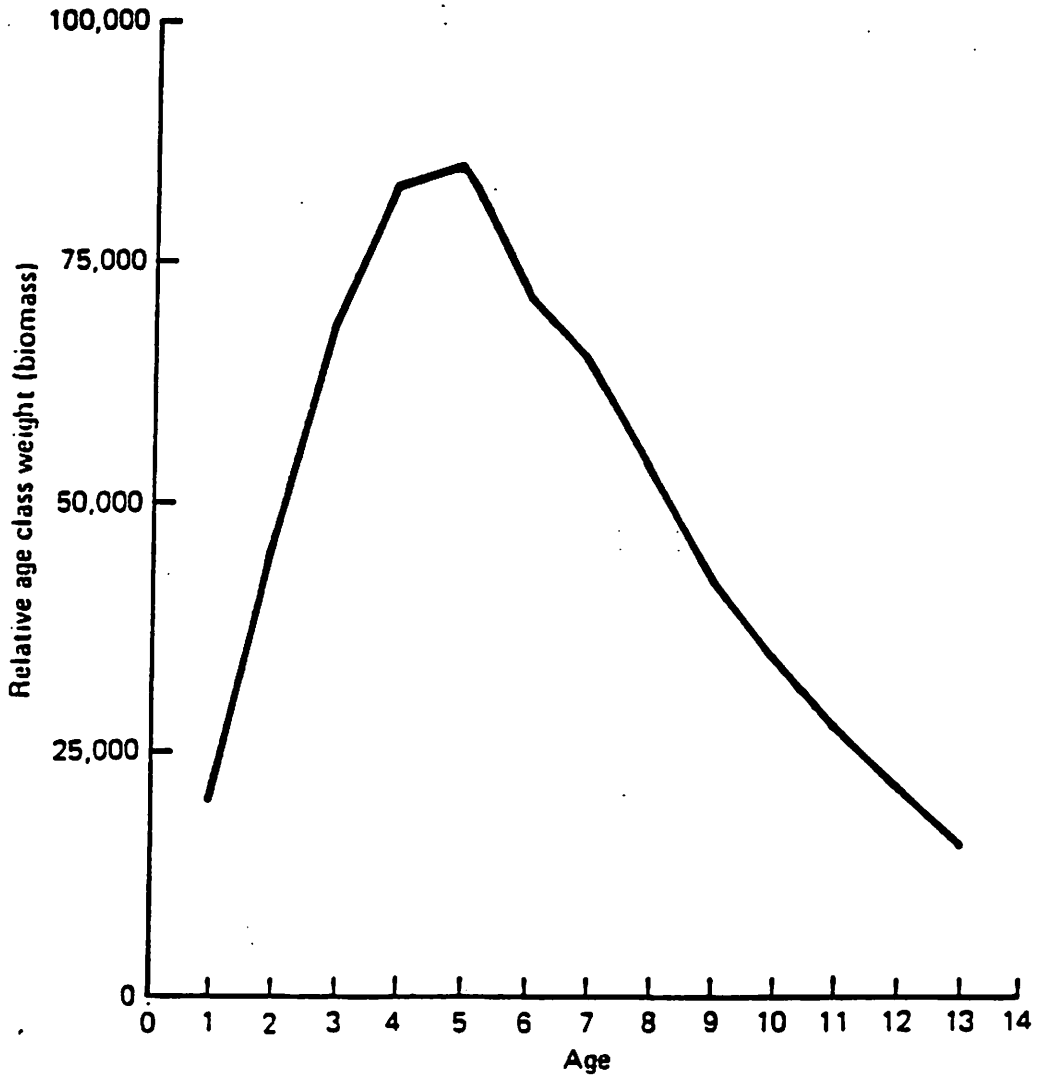


Figure 4. Relative age class strength at indicated ages using mean body weights given by Smith (1981, Table 33-6) and age-specific instantaneous natural mortality rates given by Wespestad (1982), converted to corresponding annual survival rates.

Table 1. Growth and decay of pollock using figures from Smith (1981, Table 33-6) for mean body weights at indicated ages and lengths and a constant annual natural mortality of 0.3 (0.7 survival).

AGE	MEAN FORK LENGTH IN cm.	MEAN BODY WEIGHT IN GRAMS	ANNUAL SURVIVAL RATE	NUMBER OF FISH	RELATIVE AGE CLASS WEIGHT
1	14.4	21.9	0.70	1000	21,900
2	24.7	105.2	0.70	700	73,640
3	33.0	251.0	0.70	490	122,990
4	39.0	409.6	0.70	343	140,493
5	43.5	565.0	0.70	240	135,600
6	45.5	650.9	0.70	168	109,351
7	48.7	796.6	0.70	118	93,999
8	50.6	892.6	0.70	83	74,086
9	51.6	945.4	0.70	58	54,833
10	53.2	1034.0	0.70	41	42,394
11	54.8	1125.0	0.70	29	32,625
12	57.3	1298.0	0.70	20	25,960
13	59.2	1436.0	0.70	14	20,104

Table 2. Growth and decay of pollock using figures from Smith (1981, Table 33-6) for mean body weights at indicated ages and a constant instantaneous natural mortality rate (M) of 0.3. From Ricker (1958), the annual mortality rate corresponding to an M of 0.3 is 0.2592, and the annual survival rate is 1-0.2592=0.7408.

AGE	MEAN BODY WEIGHT IN GRAMS	ANNUAL SURVIVAL RATE	NUMBER OF FISH	RELATIVE AGE CLASS WEIGHT
1	21.9	0.7408	1000.0	21,900
2	105.2	0.7408	740.8	77,932
3	251.0	0.7408	548.8	137,749
4	409.6	0.7408	406.6	166,543
5	565.0	0.7408	301.2	170,178
6	650.9	0.7408	223.1	145,216
7	796.6	0.7408	165.3	131,678
8	892.6	0.7408	122.5	109,344
9	945.4	0.7408	90.7	85,748
10	1034.0	0.7408	67.2	69,485
11	1125.0	0.7408	49.8	56,025
12	1298.0	0.7408	36.9	47,896
13	1436.0	0.7408	27.3	39,203

Table 3. Growth and decay of pollock using figures from Smith (1981, Table 33-6) for mean body weights at age and age-specific instantaneous natural mortality rates from Wespestad (1982) converted to annual rates.

AGE	MEAN BODY WEIGHT IN GRAMS	WESPESTAD'S VALUES OF M (INSTANTANEOUS)	CORRESPONDING ANNUAL MORTALITY RATE	ANNUAL SURVIVAL RATE	NUMBERS OF FISH	RELATIVE AGE CLASS WEIGHT
1	21.9	0.85	0.5726	0.4274	1000.0	21,900
2	105.2	0.45	0.3623	0.6376	427.4	44,962
3	251.0	0.30	0.2592	0.7408	272.5	68,398
4	409.6	0.30	0.2592	0.7408	201.9	82,698
5	565.0	0.30	0.2592	0.7408	149.6	84,524
6	650.9	0.30	0.2592	0.7408	110.8	72,120
7	796.6	0.30	0.2592	0.7408	82.1	65,401
8	892.6	0.30	0.2592	0.7408	60.8	54,270
9	945.4	0.30	0.2592	0.7408	45.0	42,543
10	1034.0	0.30	0.2592	0.7408	33.3	34,432
11	1125.0	0.40	0.3297	0.6703	24.7	27,788
12	1298.0	0.40	0.3297	0.6703	16.6	21,547
13	1436.0	0.40	0.3297	0.6703	11.1	15,940

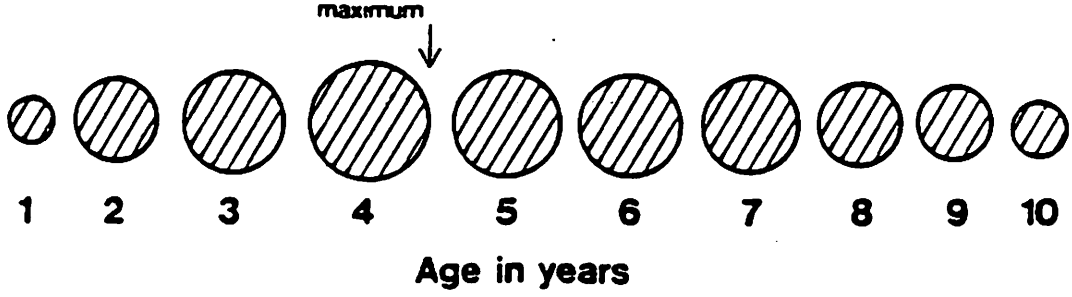


Figure 5. Relative size of biomass for Alaska pollock based on observed weights at age (as given by $W=0.075L^{2.977}$) and an annual survival rate of 0.7.

Simulation of 1000 pollock subjected to age-dependent natural mortality rates showing the resulting decline in population numbers and corresponding changes in population weight due to growth and mortality. The maximum biomass is obtained between 4 and 5 years of age. (Body weights given here and in Tables 10 and 11 are from a different source than those given in Tables 1-3. The differences do not affect the determination of relative biomass.)

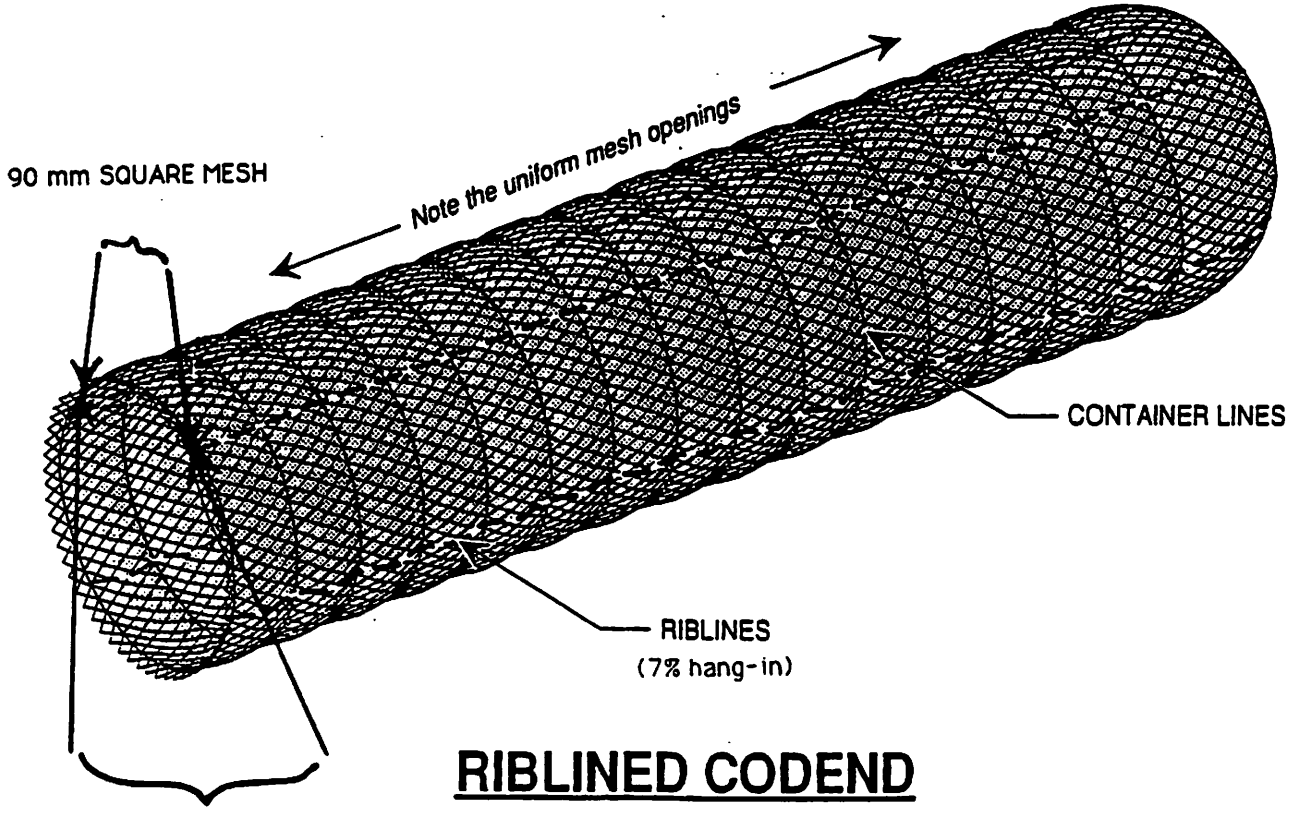
NUMBER FISH	AGE (YRS.)	LENGTH (CM.)	WEIGHT (GRAMS)	TOTAL BIOMASS (GRAMS)
427	1	13	16	6,952
273	2	24	95	25,809
202	3	32	225	45,450
150	4	38	379	56,618
111	5	43	532	58,942
82	6	46	672	55,154
61	7	49	793	48,195
45	8	51	893	40,215
33	9	52	974	32,496
25	10	53	1038	25,665
18	11	54	1089	19,938
12	12	55	1128	13,846
8	13	55	1158	9,530
6	14	56	1181	6,516
3	15	56	1199	4,012
2	16	56	1213	2.461

Eastern Bering Sea pollock yields calculated to result when fish enter the fisheries at four different sizes under stated conditions when F=0.1.

AGE	LENGTH (CM.)	WEIGHT (GRAMS)	YIELD (MT) AT SIZE OF ENTRY TO FISHERY 30 CM.	35 CM.	40 CM.	45 CM.
3	32	225	115,481	0	0	0
4	38	379	130,168	143,858	0	0
5	43	532	122,615	135,510	149,762	0
6	46	672	103,816	114,735	126,802	140,137
7	49	793	82,034	90,717	100,258	110,802
8	51	893	61,975	68,493	75,696	83,657
9	52	974	45,314	50,079	55,346	61,167
10	53	1,038	32,383	35,788	39,552	43,712
11	54	1,089	22,762	25,156	27,802	30,726
12	55	1,128	15,093	16,680	18,435	20,374
13	55	1,158	9,400	10,389	11,481	12,689
14	56	1,181	5,816	6,427	7,103	7,850
15	56	1,199	3,421	3,781	4,179	4,618
16	56	1,213	1,899	2,099	2,319	2,563
TOTAL YIELD (MT)			752,227	703,713	618,735	518,296

Eastern Bering Sea pollock yields calculated to result when fish enter the fisheries at four different sizes under stated conditions when F=0.2.

AGE	LENGTH (CM.)	WEIGHT (GRAMS)	YIELD (MT) AT SIZE OF ENTRY TO FISHERY 30 CM.	35 CM.	40 CM.	45 CM.
3	32	225	220,521	0	0	0
4	38	379	224,913	274,709	0	0
5	43	532	191,700	234,143	285,983	0
6	46	672	146,864	179,380	219,096	267,604
7	49	793	105,070	128,333	156,746	191,450
8	51	893	71,781	87,673	107,084	130,793
9	52	974	47,489	58,003	70,845	86,530
10	53	1,038	30,707	37,506	45,810	55,953
11	54	1,089	19,531	23,855	29,137	35,587
12	55	1,128	11,728	14,324	17,496	21,369
13	55	1,158	6,609	8,072	9,859	12,042
14	56	1,181	3,700	4,519	5,519	6,741
15	56	1,199	1,971	2,407	2,940	3,591
16	56	1,213	990	1,209	1,477	1,804
TOTAL YIELD (MT)			1,935,800	1,757,847	1,570,727	1,331,760



RIBLINED CODEND

100 mm or 110 mm or >
SINGLE OR DOUBLE LAYER
DIAMOND MESH, RESPECTIVELY

Jed Whittaker

E.A.R.T.H.
1540 MEDFRA
ANCHORAGE, ALASKA
99501
277-8889

A PROPOSAL

The management of the North Pacific fisheries must be based on axiomatical values to insure equitable and enviromentally sound management practices. At present, the management of the fishery is done on a piece-meal, situational decision-making basis. This has resulted in a waste of by-catch of such a proportion that everyone in the world could be fed with the waste.

The waste is of such a scale that the universal jurisdiction of the United Nations might apply with regard to United Nations Resolution 95(i), crimes against humanity. It also be interesting if the General Accounting Office did an evaluation to determine what, if any, benefit the owners of the resource receive, or if in fact the industry is receiving a subsidy, through lack of any real governmental control over the industry.

E.A.R.T.H. has a simple, axiomatical proposition with regard to management of the North Pacific fisheries:

AXIOMATICAL RULE

ALL FISH THAT ARE CAUGHT ARE KEPT, AND UTILIZED TO FEED THE HUNGRY PEOPLE OF THE WORLD.

Through proper utilization of resources, military might would not be needed in places like Somalia.

AXIOMATICAL RULE, A PROPOSAL

E.A.R.T.H. is a non-profit, 501(c3) corporation, which first got into the problem of food value waste by recycling discarded food with the cooperation of Carrs Food Stores. An average of roughly 800,000 pounds of food have been recycled each year for the last three years. In 1991, E.A.R.T.H. became involved with waste of food in the fisheries; on a budget of 500 dollars, three fish giveaways occurred, and 65,000 pounds of Prince William Sound pink salmon were distributed. The fish giveaways were so popular that legislators sought and succeded in funding the 1992 fish giveaway with a grant to E.A.R.T.H. for $30,000, and 503,000 pounds of pink salmon were distributed to people in Anchorage, Palmer, Homer, and Juneau. At one point, totes of fish were sent on United States Air Force trucks to Elemendorf Air Force Base. The Air Force also provided the trucking for a fall fish giveaway of by-catch from the halibut opening. 8,000 pounds of by-catch--sharks, skates, grey cod, red snapper, and a few black cod--- were given away.

E.A.R.T.H. believes that the positive aspects of the axiomatical rule far outweight the negative aspects of it: for the first time accurate data will be obtained. This data is essential to any viable management decisions. By having this data, management decisions can be made to prevent over-fishing of the stocks and to have a sustained yield.

Chris Chavasse

Submitted by Councilmember Godfrey

CITY OF HOMER
HOMER, ALASKA

RESOLUTION 92-39

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF HOMER, ALASKA, ENCOURAGING THE STATE OF ALASKA AND FEDERAL GOVERNMENT TO RE-EXAMINE FISHERIES POLICY, AMENDING SAID POLICIES TO EFFECTUALLY REDUCE THE WASTE OF NUTRITIONAL MARINE RESOURCES AND CHANNEL TYPICALLY DISCARDED BUT EDIBLE FISH INTO LOCAL FOOD PROGRAMS.

WHEREAS, the City of Homer, a port city, situated on Kachemak Bay, Alaska, derives substantial benefits from marine resources; and

WHEREAS, the City Council has been apprised by leaders of the NPFMC of gross waste of those resources in both the Territorial Waters of the State of Alaska and within the Exclusive Economic Zone of the United Stated of America; and

WHEREAS, typically discarded bycatch species have been utilized for food by such local groups as senior citizens, those persons in need of emergency food assistance, and others relying upon local food programs; and

WHEREAS, a local program instituted within the City will provide employment and nutritional food for local food programs.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Homer, Alaska, finds it morally and ethically wrong that the waste of our marine living resources continue and that those resources considered unmarketable, but nutritional, be utilized for local and state institutional and emergency food programs; and

BE IT FURTHER RESOLVED, that both State of Alaska Fisheries Regulatory Agencies, and Federal Fisheries Regulatory Agencies do all within their power to reduce the waste of our marine living resources and that those agencies review fisheries policies to assess their impact on nutrition, and re-orient those policies to help alleviate hunger and malnutrition, where feasible.

PASSED AND ADOPTED BY THE HOMER CITY COUNCIL OF THE CITY OF HOMER, ALASKA dated this 13th day of April, 1992.

CITY OF HOMER

Harry E. Gregoire

HARRY E. GREGOIRE, MAYOR

ATTEST:

Mary L. Shannon

MARY L. SHANNON, CITY CLERK