



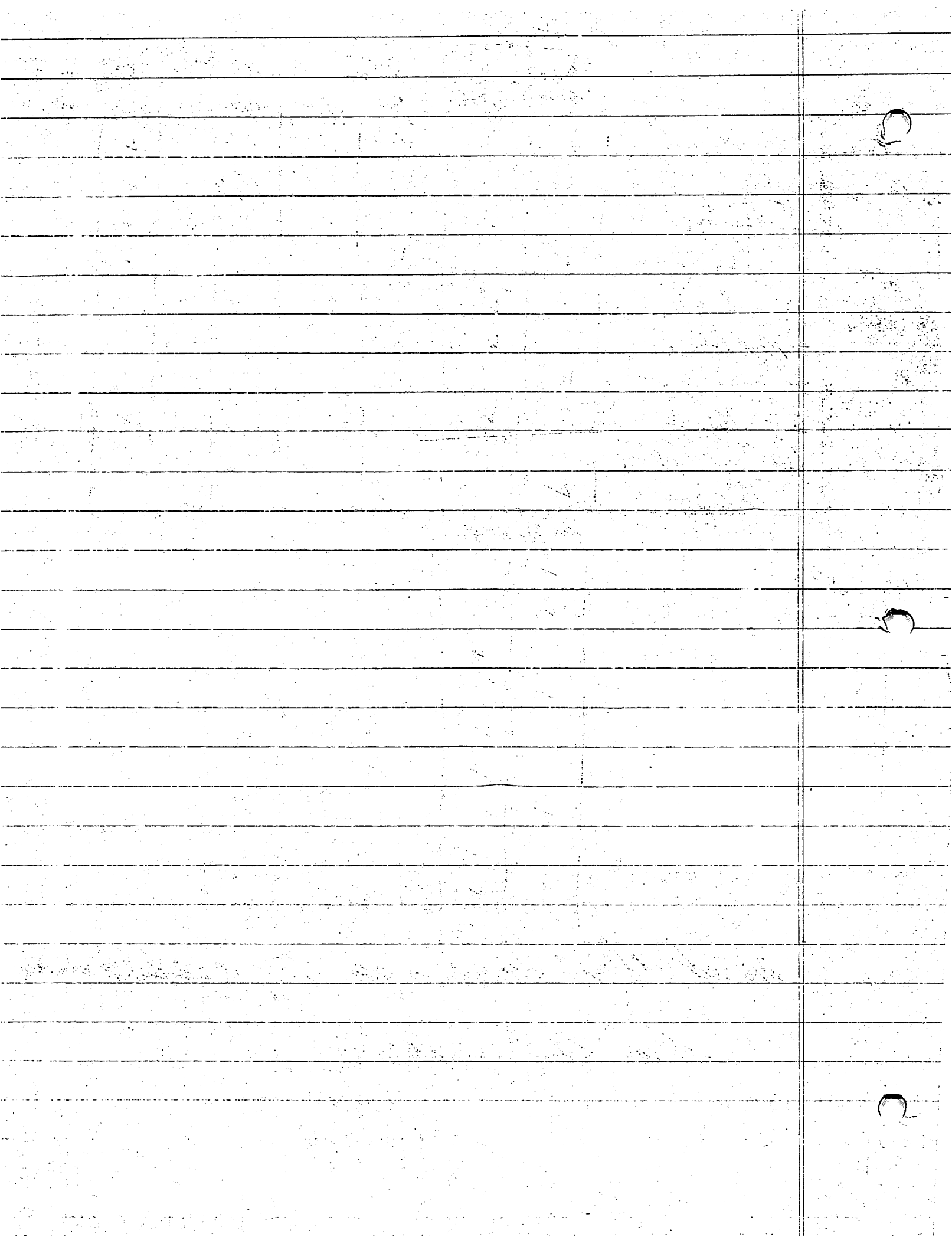
	<del>To defend</del> Approve or not yes / no		Herring FMP		exp fishery		permit approval	
	yes	no	yes	no	yes	no	yes	no
De Donato	✓		✓		✓		✓	
Mace	✓		✓		✓		✓	
Stephens		✓		✓		✓		✓
Lokkers	✓		✓		✓		✓	
McVey		✓		✓		✓		✓
Specking		✓		✓		✓		✓
Petersen	✓		✓		✓		✓	
Campbell		✓		✓		✓		✓
Collinsworth	✓			✓		✓		✓
Tilhon	✓			✓		✓		✓

area wide or

✓	
✓	
	✓
✓	
	✓
✓	
	✓
	✓
	✓

✓ -  
voting record  
for Council  
meeting -

Must thank Dan Martens for participating  
his last meeting!



M E M O R A N D U M

TO: Council, Board, SSC and AP Members

FROM: S Jim H. Branson *JHB*  
Executive Director

DATE: March 22, 1983

SUBJECT: Herring Fishery Management Plan

*ACTION REQUIRED*

1. *Review Herring Workgroup meeting.*
2. *Approve options for inclusion in FMP.*

BACKGROUND

The Herring Workgroup met March 2 and discussed various options for managing the Bering Sea herring resource. Minutes of that meeting were included in the latest Council mailing. Council staff, PDT members, General Counsel and NMFS have discussed these issues and options, and a summary of the current and Workgroup's optional approaches has been prepared as item D-2(a).

It may be appropriate for the Council to merely decide in concept which direction to take on these issues and direct staff and PDT members to work out details.

Item D-2(b) is a discussion of the exploitation rate and ABC and their appropriateness for offshore fishing.

HERRING WORKGROUP RECOMMENDATIONS, OPTIONS AND CONSIDERATIONS

The Herring Workgroup met March 2 to discuss the Bering/Chukchi Sea Herring FMP and how the Council's July 1982 motion could be incorporated. The Workgroup was instructed to consider any alternatives necessary to develop an acceptable FMP. The major topics discussed by the Workgroup were:

1. an offshore-only OY vs. a resource-wide OY;
2. the determination of ABC and OY;
3. establishment of an annual FCZ fishery;
4. an experimental/research fishery;
5. the objectives and priorities of the FMP;
6. the statistical reporting requirements and implications regarding a mandatory logbook program; and
7. the Allowable Incidental Catch (AIC) vs. Prohibited Species Catch (PSC).

The Workgroup made three recommendations for specific changes and recommended that the Council consider specific options in dealing with certain other issues. The Workgroup recommended that

1. OY apply to the entire herring resource; *SSC concern*
2. the Nelson Island biomass be exempted in determining the ABC; and *SSC concern*
3. reference to a mandatory logbook program be eliminated, but that collection of effort data be allowed if necessary for management.

The Workgroup also recommended that the Council consider

1. a new OY formulation;
2. a "guaranteed" annual 5,000 mt experimental/research fishery in the FCZ by either
  - (a) commercial vessels or
  - (b) a state-chartered research cruise; and
3. eliminating AIC from OY and the OY formula. *-SSC opposes*

No recommendation was made regarding the Regional Director's Field Order authority to open or close the FCZ based on socioeconomic factors.

The concept of replacing AIC with a PSC was discussed and may be brought up before the Council for further consideration.

The following report discusses the current and proposed methods of dealing with each of these issues.

*SSC  
concern  
offshore*

*SSC  
concern  
man  
la  
will*

*↓ should be evaluated by a PSC & Research trial pilot FMP*

CURRENT AND PROPOSED STEPS IN DETERMINATION  
OF EXPLOITATION RATE, ABC, OY, AND FCZ HARVEST

1. Determination of Annual Biomass Estimate ( $B_t$ )

Biomass estimates ( $B_t$ ) will be provided primarily by ADF&G. In the past these have been based on aerial surveys conducted throughout the spawning period from Bristol Bay to Norton Sound. Due to the nature of these surveys the estimates are fairly conservative because they are based on peak daily counts in conditions that are often less than optimum. In some cases weather, water turbidity and other factors reduce the quality of the visual data, so other methods are also used to augment the information. When adequate aerial survey data are available they will in most cases be the best scientific data available. Other types of acceptable data and techniques are described in the FMP in cases where little or no spawning biomass data are available.  $B_t$  is currently the sum of the spawning biomass estimates for Bristol Bay and all areas to the north. No surveys are made in the Aleutians so an adjustment for suspected local spawning stocks is made later in the ABC/OY procedure.

Proposed Revision: The Workgroup reviewed the current formulas for exploitation rate and ABC and noted that the biomass estimate is the critical element in determining both. They also noted that an attempt is made to reduce the optimum yield to address the importance to subsistence users of stocks spawning around Nelson Island. The current technique actually increases OY slightly because inclusion of the Nelson Island biomass in the formula increases the overall exploitation rate. The Workgroup felt that a more effective mechanism to address the importance of subsistence usage would be appropriate, and has proposed that the Nelson Island biomass estimate be excluded from the total biomass estimate to accomplish this. This would effectively lower the overall exploitation rate and therefore would reduce ABC and OY. The idea behind this is that we don't want to commercially harvest Nelson Island stocks anywhere, and it is not appropriate to increase the exploitation rate on other stocks based on this exempted biomass. Because mixed-stock fisheries will probably harvest the Nelson Island stocks to a certain degree, the spawning biomass will be monitored to assess the impacts.

2. Determination of Annual Exploitation Rate ( $E_t$ )

The annual exploitation rate ( $E_t$ ) is derived by comparing the annual biomass estimate ( $B_t$ ) with the MSY biomass ( $B_{MSY}$ ), and is the ratio of these components times 0.2:

$$E_t = \frac{B_t}{B_{MSY}} \times 0.2$$

This formula assumes that at MSY biomass the exploitation rate should be set at 0.2, and that at lower biomass levels  $E_t$  should be reduced. This formula has produced results very comparable to the inshore exploitation rates set each year by ADF&G. At above MSY levels the formula would

produce  $E_t$ s of greater than 0.2 but a ceiling of 0.2 has been established. This is currently the maximum  $E_t$  allowed by ADF&G.

### 3. Determination of Allowable Biological Catch (ABC)

ABC is an adjustment of MSY prior to the determination of Optimum Yield (OY) to take into account annual variation in stock size and condition. ABC is determined by multiplying  $E_t$  times the annual biomass estimate, and adding 2,000 mt to account for stocks which spawn in the Aleutian Islands and Alaska Peninsula:

$$ABC = E_t \times B_t + 2,000 \text{ mt}$$

The 2,000 mt adjustment is based on the average annual harvest in the Aleutians during the 1930s which was just less than 2,000 mt. Spawning data are not available for much of this area, and the stock composition of the 1930s harvest is unknown.

This formula provides a self-adjusting procedure to prevent overfishing, because if an overharvest occurs in one year, the next year the biomass estimate would reflect the decline in stock abundance and thus ABC would automatically be reduced. The Council could further strengthen the maintenance of the Nelson Island stocks by providing an additional mechanism to adjust ABC or OY if that stock declines independently of other larger stocks.

Proposed Revision: Do not add 2,000 mt at this time, but make it part of the 7,000 mt offshore component. This is tied in with the proposed OY procedure.

### 4. Determination of Optimum Yield (OY)

OY is an adjustment of ABC based on ecological, social and economic factors. OY can be greater or less than ABC, and the Council has attempted to balance conflicting goals and interests in its determination. The determination of OY is flexible and guidelines are provided in the FMP to reduce OY if stock conditions warrant a reduction. OY may be adjusted upward to promote development of new fisheries and to provide greater benefits to the nation as a whole, but must prevent overfishing. Because ABC and OY are reevaluated every year it is extremely unlikely that overfishing will occur. However, in harvesting the major components of the herring resource in a mixed-stock offshore fishery, certain minor stock components may be reduced temporarily. The Council will review the status of major and minor stocks each year and take measures to ensure that no stock component is reduced to a critically low level. Based on the objectives and priorities stated in the FMP, the inshore fisheries are allocated the entire ABC. A summer fishery in the Aleutians is allocated 2,000 mt, which might require an in-season OY adjustment. If any portion of ABC is not harvested in the inshore fisheries and summer fishery, an offshore fishery may be allowed after October 1. This is determined by the formula,

$$\text{Winter Apportionment} = \frac{\text{ABC} - \text{Harvest} - \frac{\text{Total Inshore} - \text{Nelson Island} - \text{Summer Offshore (FCZ)} - \text{Harvest}}{2} - \text{AIC}}$$

with the stipulations that the amount must be greater than 2,000 mt and cannot be greater than 10,000 mt.

Currently OY pertains only to the FCZ fisheries.

Proposed Revisions: The Workgroup has recommended that OY apply to both inshore and offshore fisheries, but that it not restrict the inshore harvest. This could be accomplished by providing for in-season adjustment of OY, if necessary, to allow for inshore overruns. The recommendation would guarantee a 2,000 mt summer fishery and 5,000 mt experimental/research fishery in the FCZ. In this option as well as the current FMP, all summer harvest in State and FCZ waters would apply to the 2,000 mt allocation.

The offshore (FCZ) fisheries are thus allocated 7,000 mt and a portion of any remaining ABC after the inshore fisheries, with the exception that if the inshore harvests exceed ABC, an upward adjustment in OY will be made to account for the additional harvest. In general

$$\text{OY} = \text{ABC} + \text{PA} + 7,000$$

where PA is the post season adjustment (if any). Of the 7,000 mt addition, 2,000 mt represents the adjustment made to ABC by the current formula for suspected local stocks. This would be specified for the Aleutian fishery. Note that the Allowable Incidental Catch (AIC) has also been eliminated from the formula, as an option proposed by the Workgroup. The final determination of OY will not occur until approximately October 1 when statistics from the biomass surveys, inshore spring fisheries and summer fishery are available. (October 1 is the midpoint of the herring fishing year.)

#### 5. Proposed Determination of Allowable FCZ Harvest

Up to 7,000 mt will be available to offshore (FCZ) fisheries each year. Of this, 2,000 mt is specifically for the summer fishery and 5,000 mt is for an experimental/research fishery. These may be adjusted downward in the event of serious stock decline.

If the inshore harvest is less than ABC, OY will be adjusted downward in-season by a separate procedure. This additional procedure and downward adjustment are necessary to account for the uncertain impacts of offshore fishing. The Council feels that the lack of scientific knowledge about the condition, distribution and mixing of stocks offshore is justification for this adjustment of OY.

Specifically,

- (a) only 80% of the first 10,000 mt of remaining ABC may be harvested in the FCZ;
- (b) 90% of the next 40,000 mt may be harvested in the FCZ; and
- (c) 100% of all in excess of 50,000 mt may be harvested in the FCZ.

## SUMMARY OF IN-SEASON ADJUSTMENT OF OY

The proposed method of determining OY is based on a series of in-season adjustments to provide maximum flexibility. The final determination of OY is not made until around October 1. This method, combined with the annual determination of ABC based on available biomass, constitutes a self-adjusting system to maximize total harvest and flexibility while preventing overfishing.

The spring inshore fisheries begin and end before ABC and OY are determined. The fisheries are managed on a day-by-day basis to harvest about 10-20% of the available biomass, depending on stock condition, which is approximately how ABC is determined by the formulas in the FMP.

A 2,000 mt allocation is made on July 1 for the summer fishery in the Aleutians. The FCZ will be closed on September 30 or when the total area catch (inshore + FCZ) reaches 2,000 mt, whichever occurs first. This 2,000 mt is an additional component of OY.

On October 1 a 5,000 mt allocation is made for the experimental/research fishery. This will be a controlled fishery designed to gather information on offshore stock condition and distribution and to determine whether U.S. fishermen are economically and technically able to harvest herring on the high seas. This 5,000 mt is also an additional component of OY.

About October 1 or as soon as complete data on the spawning biomass, spring fisheries, and summer fishery are available, a final determination and adjustment of OY will be made. A post-season adjustment (PA) upward will be made if the inshore harvest (including summer season) exceeded ABC. An adjustment downward will be made if the inshore harvest is less than ABC so that only a portion of the remainder will be made available for offshore harvest. This downward adjustment is based on the 80%, 90%, 100% formula and is made to address the uncertain impacts of offshore, mixed-stock fishing.



## THE ROLE OF THE ALLOWABLE INCIDENTAL CATCH (AIC) AND ALTERNATIVES

AIC is a concept developed by the Council in 1980 to address the unavoidable incidental catch of herring in groundfish trawl operations. A detailed review of foreign catch statistics is provided in the FMP, and an acceptable incidental catch rate is determined based on average catches of certain vessel types. Each nation's AIC is determined as the product of this rate (times its groundfish allocation). When a nation harvests its AIC that nation's trawl vessels are excluded from all or part of the Herring Savings Area.

The legality of allowing foreign retention of AIC has been questioned, and the current method of handling AIC is complex. Currently no other FMP utilizes the AIC concept. The problem would be simplified if foreign retention of AIC were not allowed, and that the incidental catch be considered a prohibited species catch (PSC) which must be returned to the sea. The Herring Savings Area would still be in effect as for AIC.

AIC is currently deducted in the OY formula. According to the new National Standard Guidelines (2/18/83), incidental catch need not be accounted for in the determination of OY if it is discarded. The Workgroup recommended that the Council consider this option.

## REPORTING REQUIREMENTS

"An FMP must specify whatever information fishermen and processors will be required or requested to submit to the Secretary," according to the National Standard Guidelines "Information about harvest... may be collected if it is needed for proper implementation of the FMP and cannot be obtained otherwise."

All necessary information regarding inshore harvest and processing can be obtained from the State of Alaska. Information on the incidental catch of herring by foreign trawlers is collected by U.S. observers on foreign vessels. However, U.S. fishermen fishing in the FCZ and not landing their catches on shore are currently not required to report their catches to either state or federal authorities. Due to the vast area of the FCZ which may be opened to herring fishing and the unknown distribution and composition of offshore stocks, it is critical that the FMP provide for collection of harvest information. The need for this information increases with the magnitude of the offshore catch -- if the FCZ harvest is small only total catch and general area information may be required. However, due to the lack of definitive data and uncertain impacts of mixed-stock offshore fishing, much more detailed information would be required for managing a major FCZ fishery. Without an adequate information collection mechanism, a major fishery could cause irreparable damage and should not be allowed. The type of information for management of an FCZ herring fishery includes catch, time, area and effort. Non-fishing "search" time might also be critical for detection of stock declines. Specifically, where information is not available from other sources, the following statistics must be obtained from vessels harvesting herring in the FCZ:

1. catches reported by  $\frac{1}{2}$  degree latitude x 1 degree longitude areas; and
2. effort reported by gear type and vessel class by month. Examples of effort data include hours towed, number of landings, and number of trips.

# North Pacific Fishery Management Council

Clement V. Tillion, Chairman  
Jim H. Branson, Executive Director



Mailing Address: P.O. Box 3136DT  
Anchorage, Alaska 99510

605 West 4th Avenue  
Anchorage, Alaska 99510

Telephone: (907) 274-4563  
FTS 271-4064

## M E M O R A N D U M

TO: Thorn Smith  
FROM: Jim Glock *JG*  
DATE: March 21, 1983  
SUBJECT: Herring ABC

The FMP contains a detailed discussion of MSY, biomass estimates, exploitation rate and ABC. A step-by-step procedure and scientific rationale are provided and, although technically it is somewhat complex, it is straightforward. I'll do my best to explain it. (See Section 9.6.1.-9.6.2.3.)

First, the discussion addresses the entire herring resource and is not limited to either the inshore or offshore resource. This is obvious when we discuss MSY, which is based on offshore historical harvest, and annual biomass estimates, which are primarily inshore. Each of these probably reflects only a portion of the entire resource although we expect considerable overlap between them. Each of these components is recognized as the best available scientific information. The fact that these two components are not strictly comparable (i.e. somewhat like oranges and lemons) does not negate the evaluation but will cause the procedure to err on the conservative side. I will explain this below.

ABC is an intermediate step between MSY and OY. This step is necessary because herring as a species exhibit extreme fluctuations in stock size independent of any fishing pressure. ABC applies to the entire population even though we only deal with the part we can see or guess about. The acceptable exploitation rate, which is really the critical element in any discussion of overfishing, is not tied to the inshore biomass except that the inshore estimate is the best (or only) annual population figure we have. The technical description of exploitation rate refers only to "biomass estimate;" and is actually based on yield-per-recruit analysis of Atlantic herring. This analysis takes into account the fact that the biomass is no longer virgin (i.e. fishing mortality has reduced the population from its pristine condition), and assumes that a rough equilibrium can be achieved in the absence of environmental fluctuations. When stock size changes independent of fishing mortality the analysis indicates how fishing mortality should be modified to compensate. This yield-per-recruit analysis indicates that the maximum exploitation rate should not exceed .39.

Example (not real numbers):

At virgin biomass if we increase our catch by one fish per thousand, the yield-per-recruit increases by 10%.

At  $F_{0.1}$  fishing mortality level if we increase our catch by one fish per thousand the yield-per-recruit increases by 1% (i.e. 1/10 of that at the virgin biomass).

This occurs at about twice the MSY biomass and would require a .39 exploitation rate.

Again, the analysis does not distinguish between inshore and offshore but applies only to total fishing mortality. This type of analysis is scientifically credible but has numerous assumptions that can lead to some problems.

We need to remember though, that our biomass estimate is much less than the actual offshore availability, and if we used the offshore biomass in our formula the exploitation rate would be considerably higher.

ADF&G generally targets on an exploitation rate of 10-20%. Washington also uses a 20% guideline, and an analysis by Trumble (WDF) shows that an average of 20% is optimal. I think the best we can say is that fishing mortality should be less than natural mortality. Natural mortality is somewhere between 20-40%. At 20% exploitation we leave four out of five fish to perpetuate the resource.

There is no evidence that a 20% offshore exploitation rate is any more harmful than the same rate inshore. The main contention is that if a stock has been harvested at 20% inshore it cannot sustain additional harvest offshore. On a sustained basis this may be true, but on a yearly basis it is certainly not true.

The other main problem is that it is harder to control the impact on any particular stock when fishing offshore. If the fish were well-mixed offshore then it would be very difficult to impact any single one. If the stocks are segregated it would be easier to inadvertently overharvest a single stock in a given year only if a net encountered that particular stock. But it may also become easier to avoid certain stocks as more stock distribution information comes to light. However, it would be virtually impossible to overfish in MFCMA terms due to the annual re-evaluation.

If we have set a higher standard than MFCMA due to the FMP consideration of subsistence harvests, we must keep the effects of our overall conservation efforts in perspective. First, the Nelson Island subsistence harvest is less than 3% of the biomass estimate for that stock (i.e. a 3% exploitation rate). At least an additional 600 mt could be harvested without exceeding the 20% level. If a 7,000 mt offshore harvest ceiling is established this 600 mt represents about 10% of the catch, but the Nelson Island stock is only 3% of the total biomass (less than 2% in 1981). The offshore catch rate on the Nelson Island stocks would have to be much greater than that on other stocks for even optimum utilization to occur. If they are all harvested equally, about 210 mt would come from Nelson Island, for a total Nelson Island exploitation rate of less than 9% of the spawning biomass.

In summary, overfishing does not occur at the .20 exploitation rate, whether inshore or offshore. Overfishing may begin to occur at about .30-.40, depending on stock size. That the .20 rate is a sustainable average is recognized by all management agencies on the North Pacific coast, and location of reaching .20 is immaterial. Reducing this rate offshore is not scientifically justified to prevent overfishing, and this level should provide adequate protection to the Nelson Island stock to allow continuation of subsistence harvest in the normal and accustomed manner and area.



D-2 Supplemental  
UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
Office of General Counsel  
P.O. Box 1668  
Juneau, Alaska 99802  
Telephone (907) 586-7414  
March 17, 1983

MAR 23 1983

Mr. Jim Branson  
North Pacific Fishery Management Council  
P.O. Box 3136 DT  
Anchorage, AK

Dear Jim:

We have had several in-depth discussions with the NMFS staff regarding the herring workgroup recommendations and the draft FMP. I would like to present my understanding of the decisions made at the workgroup meeting, and to reiterate some of the legal advice which was offered. I am hopeful that these comments will be of help to the Council staff and the PDT in preparing a report for Council consideration.

#### Resource-wide OY

Many of the members of the workgroup favored a redefinition of OY, to encompass the entire herring resource rather than that portion harvested in the FCZ fishery. The motivation for this recommendation seemed to be that the State would thereby be subject to some moral duty to manage the inshore roe fishery in accordance with the provisions of the FMP. It was made clear at the meeting that this is the most that such a redefinition could accomplish. The State would be placed under no legal requirement to manage the resource co-operatively. The roe fishery takes place predominantly within State waters, giving the Secretary no preemptive authority.

There is no Magnuson Act requirement that OY address an entire resource. Where the Secretary has no legal authority to influence State management, it may be most realistic to define OY to cover the FCZ fishery only. OY as currently defined in the FMP was modified for this reason, and to eliminate the unnecessarily convoluted "preliminary OY" concept. The draft FMP discusses State management of the resource, and accounts for the harvest in State waters. OY, however, need not include the harvest which is managed by the State. Please see 47 FR 27231-2, Standard 3, attached.

Dick Marshall has devoted considerable time to this issue, and has not as yet come up with a viable resource-wide OY formula. We have not been able to come up with one, either. It is our conclusion that an OY definition for the FCZ fishery only is most appropriate.

#### 2. Experimental FCZ Fishery

The proposed FCZ fishery would have two purposes: to establish a commercial fishery in the FCZ allocating a portion of OY to the offshore fishery, and to gather certain scientific data. Any effects on subsistence stocks would be



monitored closely. It is recognized that the data collection objectives of such a program would be limited as a practical matter by the nature of the commercial fishery.

You may remember our discussion regarding an experimental fishery "outside" the plan. The workgroup proposition is for a profit-making commercial fishery, which would yield some scientific data. This is significantly different from a purely scientific venture in which the harvest is sold only to cover costs. While the outer boundaries of "scientific research activity" under the Magnuson Act have not been clearly defined, this proposition seems likely to fall outside of them. My understanding of the Act is that in order to provide for any such fishery, the Council must discuss the matter publicly, incorporate the fishery into its management plan, and document its decision. For that reason, I am obliged to offer the following advice...

If the Council decides to establish an experimental fishery in the FCZ, it should re-examine the scientific data available (including any data generated since the FMP was written), and make a finding that a limited offshore harvest will not result in overfishing of subsistence or other stocks. This finding is necessary in any event, but is particularly important with respect to subsistence stocks, which give rise to particular concern expressed in the plan. Likewise, the Council should limit any offshore harvest as indicated by the best scientific evidence available. The fact that scientific information concerning a fishery is incomplete does not prevent the preparation and implementation of an FMP. If there are conflicting facts or opinions relevant to a particular point, a Council may choose among them, but should justify the choice.

The Council should also review the objectives and allocation priorities of the plan, and revise them as necessary to accommodate any significant change in policy. An experimental FCZ fishery would certainly seem to constitute such a significant change. Such revisions are well within the Council's authority, so long as it feels that the record justifies its decisions.

### 3. State Research Proposal

An alternative which would accomplish one of the objectives of the experimental fishery has been proposed. This would be a research project to be performed by the State of Alaska. Research under such a project would be more comprehensive than that expected of the experimental fishery, and would be paid for through the commercial sale of herring harvested.

While this approach might weaken the argument for an experimental fishery, it would not necessarily be fatal to it. The two could co-exist, so long as there were no danger of overfishing.

### 4. Surplus Reduction Formula

The current draft of the FMP repeatedly stresses the risks

involved in offshore fisheries, as opposed to those concentrating on discrete, identified spawning stocks. For this reason, NMFS proposed a 50% reduction in the "surplus" calculated for offshore harvest. The purpose of this reduction was not so much to reduce the offshore harvest in "normal" years when the surplus would be modest, as it was to protect small subsistence stocks in the odd year when conditions ashore prevent prosecution of the roe fishery. Failure of the inshore roe fishery could result in a large "surplus", the harvest of which offshore could pose a danger of overfishing subsistence stocks.

Certain members of the workgroup expressed the view that the proposed surplus reduction was excessive, and that greater utilization of any substantial surplus should be allowed. I stated that there was nothing sacred about the particular reduction proposed, but that any reduction should be rationally related to the expressed need to protect subsistence stocks. I also offered the view that a "ceiling" on the FCZ harvest could be substituted for a rate reduction. The workgroup adopted a recommendation that an escalating surplus harvest rate of 80 to 100% be adopted, with no "ceiling" on the take. This approach does not give any of the desired protection of individual spawning stocks at maximum offshore harvest levels. My advice is that so long as the plan continues to emphasize the subsistence spawning stock issue, a more conservative offshore harvest rate (or a ceiling) should be adopted - rationally related to the best scientific evidence on permissible harvest rates. Again, if there are conflicting facts or opinions on the point, the Council may choose among them, so long as it can justify its choice. If data are nonexistent or are absolutely inconclusive, it should be aware that its primary duty is to prevent overfishing.

#### 5. Logbook Requirement

A strong consensus was voiced in support of logbooks to collect management data. If there is any rush to implement the FMP, data collection provisions should be made severable from the rest of the plan so that protracted OMB reviews will not delay implementation.

#### 6. Nelson Island Adjustment

There was a clear consensus, supported by the scientists present, that this adjustment should be eliminated from the OY formula.

#### 7. Allowable Incidental Catch

At the workgroup meeting Bob McVey promised to give further consideration to his proposal that the allowable incidental catch (AIC) concept be eliminated from the OY formula. Having done so, and having discussed the matter at length with his staff, he recommends strongly that the concept be eliminated from the plan.

The AIC concept was developed some time ago, to rationalize



the handling of prohibited species. Since that time, however, a new concept, that of the prohibited species catch (PSC), has been introduced. This approach recognizes that foreign fishermen should not be permitted to retain prohibited species, and limits the amounts which may be harvested before closures to foreign trawling occur. As the record suggests no rational basis for treating herring differently from salmon (for example) in this respect, it is the opinion of the Office of General Counsel that the special "AIC" treatment of herring may render the plan more vulnerable to legal attack. Additionally, the Enforcement Division has serious questions about the enforceability of the measure.

We do not propose that the Council ignore the problem of herring harvested incidentally in foreign trawl fisheries. Rather, we propose that herring be treated like any other prohibited species. That is, AIC in the draft herring FMP would be treated as a PSC. Foreign fishermen would be required to return herring to the sea, and the Herring Savings Area would be closed for the period specified in the draft FMP to trawl vessels of any nation which had harvested its herring PSC. The Council may wish to consider whether it wants to allow domestic fishermen to retain incidentally harvested herring, and whether to limit this incidental take.

#### 8. Field Order Authority

Among the criteria to be considered by the Regional Director in issuing a field order adjusting fishing time and areas under the FMP is a catchall, "any other factors necessary for the conservation and management of the herring resource." This broad language appears to have been included in the original draft of the FMP, written some years ago. The Office of General Counsel is reviewing field order authority generally, and will advise as to the appropriateness of the catchall criterion.

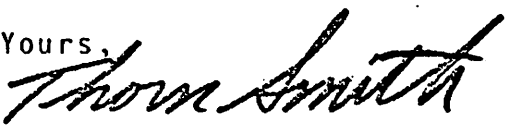
#### 9. 20% Maximum Exploitation Rate

Several members of the workgroup and most of the scientists present questioned the validity of the 20 per cent maximum exploitation rate. The PDT and SSC will review this matter, and may well recommend that the Council remove this limitation to permit greater utilization when appropriate.

While the workgroup made substantial progress and is prepared to identify changes which may strengthen the plan, it is questionable whether all of the specific details can be worked out before the Council meeting. The Council may wish to vote on the broad issues and to allow the staff more time to develop a detailed amendment.

I hope that these comments will be helpful. I will be available to discuss them at your convenience.

Yours,

  
Thorn Smith

recreational fishing to the national, regional, and local economies.

The proposed revision also encompasses a number of additional aspects of OY determination and expression that have evolved since 1977 as a result of the Councils' and NOAA's experience in implementing the Act, and passage of the two amendments. These include: (1) The concept that specification of OY in an FMP is not a quota, per se; (2) the recognition that OY amalgamates management objectives and instructs the management measures; (3) the exception to annual achievement of OY allowed through deferring until the following year the allocation to foreign fishing of some or all of the "surplus" not harvested by vessels of the U.S.; (4) the establishment of a reserve within OY for reallocation to foreign fishing to allow for uncertainties in estimates of domestic harvest and full utilization of OY; and (5) the provision that permits transfer at sea of the surplus of domestic harvest exceeding domestic processing capacity to foreign processor vessels.

#### Standard 2

1. *ANPR Issue.* Based on its concern that the present national standard guidelines fail to address the operative consequences of serious inadequacies in the biological data base, and fail to specify a minimum quantum of information upon which an approvable plan must rest, EDF proposed that FMPs incorporate measures designed to generate the information needed to assure an improved scientific basis for the plans, and that a suitable buffer in favor of conservation should be provided. In addition, EDF proposed that Councils should identify all significant information gaps and should indicate the manner in which such additional information should be acquired.

NOAA feels that it would be reasonable, and consistent with current practice, to expect Councils to prepare a management strategy to compensate for weaknesses in the information base; however, to require a plan to specify the manner of acquisition is unnecessary and inappropriate since this responsibility falls to the Secretary (Section 304(e) of the Act). The buffer concept is implicit in the concept of adjusting MSY (as in the ABC example), and is, in addition, retained as a provision under standard 6 to compensate for possible variations and contingencies.

2. *Rationale.* Application of this standard affects the operation of all the other standards. The level of information influences the establishment of MSY, OY, and

management unit composition; it underlies determinations of allocations, judgments of efficiency, adjustments for variations and contingencies, and evaluations of costs and benefits. The proposed revision strengthens the language regarding the needed information base, and is cross-referenced to two other standards.

The proposed guidelines retain the idea expressed in the current guideline that lack of complete data concerning a fishery does not prevent the preparation and implementation of an FMP. The language has been modified to acknowledge that "complete" scientific information is not attainable in the absolute sense. NOAA believes that, although collection of data about a fishery is a legitimate FMP objective, the need to collect information is not, by itself, adequate justification for preparation of a plan, and so states in the standard 7 guidelines. The standard 3 guidelines permit a management unit to contain related species or stocks of fish for which there are inadequate data to specify MSY or determine OY, and to gather data on those species or stocks under the FMP.

The proposed revision directly addresses the question of timeliness, opposing bodies of opinion, and practical utility of the information specified. It emphasizes the continuing need for information for monitoring and in-season adjustment decisions. A voluntary system of data collection is permissible, but requires a justification under the Paperwork Reduction Act, and is not covered under the Act's confidentiality provision. (Under the NOAA data security system, all individually collected fisheries data are treated internally with the same degree of protection.) It is all right to collect data within State boundaries when needed for proper implementation of an FMP. There will always be a degree of controversy regarding the qualitative word "best" in "best scientific information available." Successful data collection depends on the protection of confidential data, the public trust in that protection, and the public perception of the valid uses of those data. The validity of the entire process may hinge on the cooperative attitudes of constituents, the research community, and the relevant governmental institutions.

#### Standard 3

1. *ANPR Issues.* EDF cites failure of the guidelines to explain the relationship between the standard 3 directive to manage a fish stock throughout its range and the Act's provisions relating to jurisdiction within territorial waters as the basis for the following proposed

language: "Where management units cross Federal-State boundaries, Councils shall identify those conservation and management measures most appropriate for the conservation and management of the entire resource and shall include all such measures in their fishery management plans, leaving to the Secretary the determination whether actions of relevant State authorities substantially and adversely affect the carrying out of such plans." Another proposal that dealt with recommendations concerning habitat is discussed under Standard 6.

NOAA supports EDF's comprehensive approach but believes the EDF solution to be inappropriate. Councils are already analyzing relevant State regulations, soliciting State cooperation, or incorporating State regulations as appropriate.

2. *Rationale.* Standard 3's principle of comprehensive management works well with standard 7's principle of avoiding duplication. The emphasis in the proposed revision is on the scope, composition, and unity of the management unit, and on coordination and cooperation rather than on potential jurisdictional tension.

The proposed revision strengthens guidance on how to handle FMPs for stocks ranging across international and State-FCZ boundaries. NOAA believes that range-wide planning should encourage active State participation in the planning process, and that such planning will provide clear direction to the States as to what is needed to implement the proposed management regime effectively. This is consistent with Council practice and compatible with the comprehensive approach sought by the petitioner. The result should be greater compatibility between Federal and State management measures. Ongoing cooperative arrangements should not be disturbed by the proposed revision.

Because the potential for incompatibility does exist, however, the guidelines require an FMP to discuss the interrelationship between State management activities and the proposed Federal regime. Federal regulations supersede any conflicting State regulations of FCZ fishing (*F/V American Eagle v. Alaska*, No. 2227 (Alaska, Nov. 21, 1980)). State landing laws and other forms of indirect regulation of FCZ fishing may be affected by implementing an FMP. The required analysis focuses attention on these impacts and on the effect of inconsistent State action on attaining the objectives of the FMP. This latter discussion will assist in determining

Secretarial responsibilities under section 303(b) of the Act.

Standard 3 calls for management of a "stock" throughout its range. NOAA feels that the use of the words "stock," "fishery," and "management unit" is significant, and has endeavored to use the appropriate term in the guidelines. A stock may be larger than the fishery, as is the case when only a portion of the stock is actively fished. A fishery may be larger than a stock, when more than one stock is fished together. The management unit may ignore a portion of a fishery or stock when it includes a transboundary fishery or when a minor portion of the unit is fished within the jurisdiction of another Council. The guidelines define "management unit" as a fishery or that portion of a fishery identified in an FMP as relevant to the FMP's management objectives. Examples are given of the perspectives around which a management unit may be organized.

Standard 4

1. ANPR Issues. The ANPR question related to standard 4 was designed to give NOAA some understanding of how the term "allocation" is perceived, and how "fair and equitable" fits into the perception. NOAA was seeking assistance in addressing the definitions not elucidated by the existing guidelines.

Commenters were conscious of the need for public involvement in resolving allocation questions. Many urged flexibility, and pointed out that allocation schemes must follow from the objectives of a given plan and that problems of allocation are peculiar to each fishery. The following factors affecting allocation decisions were mentioned: consumer costs, community structure, income produced, jobs created, needs of subsistence fishermen, traditional harvest levels of each group, potential for expansion, economic efficiency of gear, incidental catch risks, economic dislocation caused by new fishing patterns, and opportunities in other fisheries.

2. Rationale. The proposed revision provides a more precise expression of agency policy and legal interpretation than was attempted or possible in 1977. To assist Councils in making what are usually the most controversial decisions within an FMP, NOAA has tried to confront the human issues surrounding fishery management directly, consistent with its increased concern for the economic and social consequences of regulation.

The guidelines address the "discrimination among residents of different States" issue as an extension

of the Federal "privilege and immunities" clause of the U.S. Constitution, which means that Councils may not rely on, nor incorporate within an FMP, a State law that discriminates against residents of a different State. The guidelines also acknowledge that management measures may have different effects on persons in different locations without discriminating among residents of different States.

These questions were at issue in the Gulf of Mexico shrimp FMP, which proposed to extend a Texas law by closing the FCZ off Texas to shrimping for a 45-day period to allow for growth that would increase the weight and value of the harvest. Fishermen in four public hearings in Louisiana expressed their fear that additional out-of-State vessels would fish off Louisiana during the Texas closure, which would result in greater competition for shrimp and shore facilities; they argued discrimination. The agency found the FMP consistent with standard 4, however, because "the measure does not allocate or assign fishing privileges to residents of any State. Even if one could consider the Texas closure to be an allocation of fishing privileges, residents of both Texas and Louisiana as well as other States are equally prohibited from fishing in the FCZ off Texas during the closure and have equal opportunity under the FMP to fish in the FCZ after the closure ends. The operator of a small vessel has fewer opportunities to fish than the operator of a large vessel, regardless of the State of residence. The large mobile shrimp vessels traditionally seek shrimp fishing opportunities off coasts of other States or even off foreign countries. Thus, mobility or lack of mobility is a function of each vessel rather than the proposed regulatory measure. The Texas closure will enhance the overall utilization of the resources by allowing for a larger harvest."

Resource management is essentially a series of allocations among present users, between present and future users, between public and private interests. The guidelines define "allocation" for purposes of the standards as a direct and deliberate distribution of the opportunity to participate in a fishery among identifiable, discrete groups of fishermen. Because only measures that meet the definition will be judged against the standard, this is a critical and sensitive delineation.

Many management measures may have an incidental effect on the fishing privileges enjoyed by different groups of U.S. fishermen. Any quota has a distributive effect on present and future users through its impact on stock

maintenance or rebuilding. Area closures may cause practical difficulties for smaller vessels or those located far from open areas. Seasonal quotas create difficulties for those whose economics of operation do not permit a long period of inactivity.

Direct allocations, by contrast, have been made by the several Councils in a variety of FMPs: quotas by classes of vessels (Atlantic groundfish), quotas for commercial and recreational fishermen (Atlantic mackerel), different fishing seasons for recreational and commercial fishermen (salmon), assignment of ocean areas to different gears (stone crab), and limiting permits to present users (surf clam). These direct allocations were approved under standard 4 because the Councils complied with the three statutory criteria of the standard in constructing their allocation schemes.

The guideline's definition is an attempted middle ground between all measures affecting fishing practices and measures designated as allocations in a plan. The distribution must be direct and deliberate, but a Council could not disclaim an intent to allocate through a measure that had obvious and inevitable allocative effects.

NOAA believes that the required analysis of allocations and alternative schemes considered—including the status quo—will help to focus attention on the existing distribution of privileges and the alteration of that distribution that Federal management will impose. Each FMP should contain the Council's judgment on fairness and equity, conservation aspects, and possible monopolistic effects of the proposed allocations. NOAA feels that the analysis poses no extra burden in that it is similar to the sort of analysis necessary under E.O. 12291.

The guidelines link "fairness" with FMP objectives and OY and acknowledge that fishing rights of treaty Indians and aboriginal Americans should be factored into Council judgments. Rational use of the resource (as in the case of the Gulf of Mexico shrimp) is suggested as one way an allocation scheme may promote conservation. A more visible conservation purpose is illustrated by the moratorium on entry of new vessels into the surf clam fishery, initiated to mitigate a resource crisis in some stocks.

The guideline lists examples of other factors to consider in making allocations, when they are relevant to FMP objectives.

Standard 5

1. ANPR Issues. Response was not heavy to the ANPR question regarding

factor  
effic  
resou  
that e  
once  
ple  
rom i  
ecolo  
relati  
object  
the co  
or rec  
appea  
(1) the  
benefi  
societ  
greate  
to the  
appro  
efficie  
is by u  
secon  
afain  
the mi  
indiv  
2. R  
purpos  
be defi  
desire  
objecti  
cost, o  
and ec  
Counci  
measu  
objecti  
nder  
ctic  
necess  
12291.  
and the  
guideli  
inherer  
econon  
partici  
goal of  
maximi  
by allo  
overcay  
effort n  
terms o  
necessa  
when it  
subsist  
recreati  
efficien  
appropri  
choose  
objectiv  
NOA  
not rest  
cost-effi  
processi  
restricti  
conserv  
FMP. Fo  
FMP pre  
cre  
machin



D-2 Supplemental  
UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
Office of General Counsel  
P.O. Box 1668  
Juneau, Alaska 99802  
Telephone (907) 586-7414  
March 17, 1983

MAR 23 1983

Mr. Jim Branson  
North Pacific Fishery Management Council  
P.O. Box 3136 DT  
Anchorage, AK

Dear Jim:

We have had several in-depth discussions with the NMFS staff regarding the herring workgroup recommendations and the draft FMP. I would like to present my understanding of the decisions made at the workgroup meeting, and to reiterate some of the legal advice which was offered. I am hopeful that these comments will be of help to the Council staff and the PDT in preparing a report for Council consideration.

#### Resource-wide OY

Many of the members of the workgroup favored a redefinition of OY, to encompass the entire herring resource rather than that portion harvested in the FCZ fishery. The motivation for this recommendation seemed to be that the State would thereby be subject to some moral duty to manage the inshore roe fishery in accordance with the provisions of the FMP. It was made clear at the meeting that this is the most that such a redefinition could accomplish. The State would be placed under no legal requirement to manage the resource co-operatively. The roe fishery takes place predominantly within State waters, giving the Secretary no preemptive authority.

There is no Magnuson Act requirement that OY address an entire resource. Where the Secretary has no legal authority to influence State management, it may be most realistic to define OY to cover the FCZ fishery only. OY as currently defined in the FMP was modified for this reason, and to eliminate the unnecessarily convoluted "preliminary OY" concept. The draft FMP discusses State management of the resource, and accounts for the harvest in State waters. OY, however, need not include the harvest which is managed by the State. Please see 47 FR 27231-2, Standard 3, attached.

Dick Marshall has devoted considerable time to this issue, and has not as yet come up with a viable resource-wide OY formula. We have not been able to come up with one, either. It is our conclusion that an OY definition for the FCZ fishery only is most appropriate.

#### 2. Experimental FCZ Fishery

The proposed FCZ fishery would have two purposes: to establish a commercial fishery in the FCZ allocating a portion of OY to the offshore fishery, and to gather certain scientific data. Any effects on subsistence stocks would be



monitored closely. It is recognized that the data collection objectives of such a program would be limited as a practical matter by the nature of the commercial fishery.

You may remember our discussion regarding an experimental fishery "outside" the plan. The workgroup proposition is for a profit-making commercial fishery, which would yield some scientific data. This is significantly different from a purely scientific venture in which the harvest is sold only to cover costs. While the outer boundaries of "scientific research activity" under the Magnuson Act have not been clearly defined, this proposition seems likely to fall outside of them. My understanding of the Act is that in order to provide for any such fishery, the Council must discuss the matter publicly, incorporate the fishery into its management plan, and document its decision. For that reason, I am obliged to offer the following advice...

If the Council decides to establish an experimental fishery in the FCZ, it should re-examine the scientific data available (including any data generated since the FMP was written), and make a finding that a limited offshore harvest will not result in overfishing of subsistence or other stocks. This finding is necessary in any event, but is particularly important with respect to subsistence stocks, which give rise to particular concern expressed in the plan. Likewise, the Council should limit any offshore harvest as indicated by the best scientific evidence available. The fact that scientific information concerning a fishery is incomplete does not prevent the preparation and implementation of an FMP. If there are conflicting facts or opinions relevant to a particular point, a Council may choose among them, but should justify the choice.

The Council should also review the objectives and allocation priorities of the plan, and revise them as necessary to accommodate any significant change in policy. An experimental FCZ fishery would certainly seem to constitute such a significant change. Such revisions are well within the Council's authority, so long as it feels that the record justifies its decisions.

### 3. State Research Proposal

An alternative which would accomplish one of the objectives of the experimental fishery has been proposed. This would be a research project to be performed by the State of Alaska. Research under such a project would be more comprehensive than that expected of the experimental fishery, and would be paid for through the commercial sale of herring harvested.

While this approach might weaken the argument for an experimental fishery, it would not necessarily be fatal to it. The two could co-exist, so long as there were no danger of overfishing.

### 4. Surplus Reduction Formula

The current draft of the FMP repeatedly stresses the risks

involved in offshore fisheries, as opposed to those concentrating on discrete, identified spawning stocks. For this reason, NMFS proposed a 50% reduction in the "surplus" calculated for offshore harvest. The purpose of this reduction was not so much to reduce the offshore harvest in "normal" years when the surplus would be modest, as it was to protect small subsistence stocks in the odd year when conditions ashore prevent prosecution of the roe fishery. Failure of the inshore roe fishery could result in a large "surplus", the harvest of which offshore could pose a danger of overfishing subsistence stocks.

Certain members of the workgroup expressed the view that the proposed surplus reduction was excessive, and that greater utilization of any substantial surplus should be allowed. I stated that there was nothing sacred about the particular reduction proposed, but that any reduction should be rationally related to the expressed need to protect subsistence stocks. I also offered the view that a "ceiling" on the FCZ harvest could be substituted for a rate reduction. The workgroup adopted a recommendation that an escalating surplus harvest rate of 80 to 100% be adopted, with no "ceiling" on the take. This approach does not give any of the desired protection of individual spawning stocks at maximum offshore harvest levels. My advice is that so long as the plan continues to emphasize the subsistence spawning stock issue, a more conservative offshore harvest rate (or a ceiling) should be adopted - rationally related to the best scientific evidence on permissible harvest rates. Again, if there are conflicting facts or opinions on the point, the Council may choose among them, so long as it can justify its choice. If data are nonexistent or are absolutely inconclusive, it should be aware that its primary duty is to prevent overfishing.

#### 5. Logbook Requirement

A strong consensus was voiced in support of logbooks to collect management data. If there is any rush to implement the FMP, data collection provisions should be made severable from the rest of the plan so that protracted OMB reviews will not delay implementation.

#### 6. Nelson Island Adjustment

There was a clear consensus, supported by the scientists present, that this adjustment should be eliminated from the OY formula.

#### 7. Allowable Incidental Catch

At the workgroup meeting Bob McVey promised to give further consideration to his proposal that the allowable incidental catch (AIC) concept be eliminated from the OY formula. Having done so, and having discussed the matter at length with his staff, he recommends strongly that the concept be eliminated from the plan.

The AIC concept was developed some time ago, to rationalize

the handling of prohibited species. Since that time, however, a new concept, that of the prohibited species catch (PSC); has been introduced. This approach recognizes that foreign fishermen should not be permitted to retain prohibited species, and limits the amounts which may be harvested before closures to foreign trawling occur. As the record suggests no rational basis for treating herring differently from salmon (for example) in this respect, it is the opinion of the Office of General Counsel that the special "AIC" treatment of herring may render the plan more vulnerable to legal attack. Additionally, the Enforcement Division has serious questions about the enforceability of the measure.

We do not propose that the Council ignore the problem of herring harvested incidentally in foreign trawl fisheries. Rather, we propose that herring be treated like any other prohibited species. That is, AIC in the draft herring FMP would be treated as a PSC. Foreign fishermen would be required to return herring to the sea, and the Herring Savings Area would be closed for the period specified in the draft FMP to trawl vessels of any nation which had harvested its herring PSC. The Council may wish to consider whether it wants to allow domestic fishermen to retain incidentally harvested herring, and whether to limit this incidental take.

#### 8. Field Order Authority

Among the criteria to be considered by the Regional Director in issuing a field order adjusting fishing time and areas under the FMP is a catchall, "any other factors necessary for the conservation and management of the herring resource." This broad language appears to have been included in the original draft of the FMP, written some years ago. The Office of General Counsel is reviewing field order authority generally, and will advise as to the appropriateness of the catchall criterion.

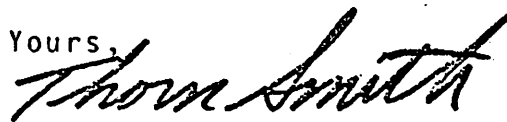
#### 9. 20% Maximum Exploitation Rate

Several members of the workgroup and most of the scientists present questioned the validity of the 20 per cent maximum exploitation rate. The PDT and SSC will review this matter, and may well recommend that the Council remove this limitation to permit greater utilization when appropriate.

While the workgroup made substantial progress and is prepared to identify changes which may strengthen the plan, it is questionable whether all of the specific details can be worked out before the Council meeting. The Council may wish to vote on the broad issues and to allow the staff more time to develop a detailed amendment.

I hope that these comments will be helpful. I will be available to discuss them at your convenience.

Yours,

  
Thorn Smith

recreational fishing to the national, regional, and local economies.

The proposed revision also encompasses a number of additional aspects of OY determination and expression that have evolved since 1977 as a result of the Councils' and NOAA's experience in implementing the Act, and passage of the two amendments. These include: (1) The concept that specification of OY in an FMP is not a quota, per se; (2) the recognition that OY amalgamates management objectives and instructs the management measures; (3) the exception to annual achievement of OY allowed through deferring until the following year the allocation to foreign fishing of some or all of the "surplus" not harvested by vessels of the U.S.; (4) the establishment of a reserve within OY for reallocation to foreign fishing to allow for uncertainties in estimates of domestic harvest and full utilization of OY; and (5) the provision that permits transfer at sea of the surplus of domestic harvest exceeding domestic processing capacity to foreign processor vessels.

#### Standard 2

1. *ANPR Issue.* Based on its concern that the present national standard guidelines fail to address the operative consequences of serious inadequacies in the biological data base, and fail to specify a minimum quantum of information upon which an approvable plan must rest, EDF proposed that FMPs incorporate measures designed to generate the information needed to assure an improved scientific basis for the plans, and that a suitable buffer in favor of conservation should be provided. In addition, EDF proposed that Councils should identify all significant information gaps and should indicate the manner in which such additional information should be acquired.

NOAA feels that it would be reasonable, and consistent with current practice, to expect Councils to prepare a management strategy to compensate for weaknesses in the information base; however, to require a plan to specify the manner of acquisition is unnecessary and inappropriate since this responsibility falls to the Secretary (Section 304(e) of the Act). The buffer concept is implicit in the concept of adjusting MSY (as in the ABC example), and is, in addition, retained as a provision under standard 6 to compensate for possible variations and contingencies.

2. *Rationale.* Application of this standard affects the operation of all the other standards. The level of information influences the establishment of MSY, OY, and

management unit composition; it underlies determinations of allocations, judgments of efficiency, adjustments for variations and contingencies, and evaluations of costs and benefits. The proposed revision strengthens the language regarding the needed information base, and is cross-referenced to two other standards.

The proposed guidelines retain the idea expressed in the current guideline that lack of complete data concerning a fishery does not prevent the preparation and implementation of an FMP. The language has been modified to acknowledge that "complete" scientific information is not attainable in the absolute sense. NOAA believes that, although collection of data about a fishery is a legitimate FMP objective, the need to collect information is not, *by itself*, adequate justification for preparation of a plan, and so states in the standard 7 guidelines. The standard 3 guidelines permit a management unit to contain related species or stocks of fish for which there are inadequate data to specify MSY or determine OY, and to gather data on those species or stocks under the FMP.

The proposed revision directly addresses the question of timeliness, opposing bodies of opinion, and practical utility of the information specified. It emphasizes the continuing need for information for monitoring and in-season adjustment decisions. A voluntary system of data collection is permissible, but requires a justification under the Paperwork Reduction Act, and is not covered under the Act's confidentiality provision. (Under the NOAA data security system, all individually collected fisheries data are treated internally with the same degree of protection.) It is all right to collect data within State boundaries when needed for proper implementation of an FMP. There will always be a degree of controversy regarding the qualitative word "best" in "best scientific information available." Successful data collection depends on the protection of confidential data, the public trust in that protection, and the public perception of the valid uses of those data. The validity of the entire process may hinge on the cooperative attitudes of constituents, the research community, and the relevant governmental institutions.

#### Standard 3

1. *ANPR Issues.* EDF cites failure of the guidelines to explain the relationship between the standard 3 directive to manage a fish stock throughout its range and the Act's provisions relating to jurisdiction within territorial waters as the basis for the following proposed

language: "Where management units cross Federal-State boundaries, Councils shall identify those conservation and management measures most appropriate for the conservation and management of the entire resource and shall include all such measures in their fishery management plans, leaving to the Secretary the determination whether actions of relevant State authorities substantially and adversely affect the carrying out of such plans." Another proposal that dealt with recommendations concerning habitat is discussed under Standard 6.

NOAA supports EDF's comprehensive approach but believes the EDF solution to be inappropriate. Councils are already analyzing relevant State regulations, soliciting State cooperation, or incorporating State regulations as appropriate.

2. *Rationale.* Standard 3's principle of comprehensive management works well with standard 7's principle of avoiding duplication. The emphasis in the proposed revision is on the scope, composition, and unity of the management unit, and on coordination and cooperation rather than on potential jurisdictional tension.

The proposed revision strengthens guidance on how to handle FMPs for stocks ranging across international and State-FCZ boundaries. NOAA believes that range-wide planning should encourage active State participation in the planning process, and that such planning will provide clear direction to the States as to what is needed to implement the proposed management regime effectively. This is consistent with Council practice and compatible with the comprehensive approach sought by the petitioner. The result should be greater compatibility between Federal and State management measures. Ongoing cooperative arrangements should not be disturbed by the proposed revision.

Because the potential for incompatibility does exist, however, the guidelines require an FMP to discuss the interrelationship between State management activities and the proposed Federal regime. Federal regulations supersede any conflicting State regulations of FCZ fishing (*F/V American Eagle v. Alaska*, No. 2227 (Alaska, Nov. 21, 1980)). State landing laws and other forms of indirect regulation of FCZ fishing may be affected by implementing an FMP. The required analysis focuses attention on these impacts and on the effect of inconsistent State action on attaining the objectives of the FMP. This latter discussion will assist in determining



Secretarial responsibilities under section 306(b) of the Act.

Standard 3 calls for management of a "stock" throughout its range. NOAA feels that the use of the words "stock," "fishery," and "management unit" is significant, and has endeavored to use the appropriate term in the guidelines. A stock may be larger than the fishery, as is the case when only a portion of the stock is actively fished. A fishery may be larger than a stock, when more than one stock is fished together. The management unit may ignore a portion of a fishery or stock when it includes a transboundary fishery or when a minor portion of the unit is fished within the jurisdiction of another Council. The guidelines define "management unit" as a fishery or that portion of a fishery identified in an FMP as relevant to the FMP's management objectives. Examples are given of the perspectives around which a management unit may be organized.

Standard 4

1. ANPR Issues. The ANPR question related to standard 4 was designed to give NOAA some understanding of how the term "allocation" is perceived, and how "fair and equitable" fits into the perception. NOAA was seeking assistance in addressing the definitions not elucidated by the existing guidelines.

Commenters were conscious of the need for public involvement in resolving allocation questions. Many urged flexibility, and pointed out that allocation schemes must follow from the objectives of a given plan and that problems of allocation are peculiar to each fishery. The following factors affecting allocation decisions were mentioned: consumer costs, community structure, income produced, jobs created, needs of subsistence fishermen, traditional harvest levels of each group, potential for expansion, economic efficiency of gear, incidental catch risks, economic dislocation caused by new fishing patterns, and opportunities in other fisheries.

2. Rationale. The proposed revision provides a more precise expression of agency policy and legal interpretation than was attempted or possible in 1977. To assist Councils in making what are usually the most controversial decisions within an FMP, NOAA has tried to confront the human issues surrounding fishery management directly, consistent with its increased concern for the economic and social consequences of regulation.

The guidelines address the "discrimination among residents of different States" issue as an extension

of the Federal "privilege and immunities" clause of the U.S. Constitution, which means that Councils may not rely on, nor incorporate within an FMP, a State law that discriminates against residents of a different State. The guidelines also acknowledge that management measures may have different effects on persons in different locations without discriminating among residents of different States.

These questions were at issue in the Gulf of Mexico shrimp FMP, which proposed to extend a Texas law by closing the FCZ off Texas to shrimping for a 45-day period to allow for growth that would increase the weight and value of the harvest. Fishermen in four public hearings in Louisiana expressed their fear that additional out-of-State vessels would fish off Louisiana during the Texas closure, which would result in greater competition for shrimp and shore facilities; they argued discrimination. The agency found the FMP consistent with standard 4, however, because "the measure does not allocate or assign fishing privileges to residents of any State. Even if one could consider the Texas closure to be an allocation of fishing privileges, residents of both Texas and Louisiana as well as other States are equally prohibited from fishing in the FCZ off Texas during the closure and have equal opportunity under the FMP to fish in the FCZ after the closure ends. The operator of a small vessel has fewer opportunities to fish than the operator of a large vessel, regardless of the State of residence. The large mobile shrimp vessels traditionally seek shrimp fishing opportunities off coasts of other States or even off foreign countries. Thus, mobility or lack of mobility is a function of each vessel rather than the proposed regulatory measure. The Texas closure will enhance the overall utilization of the resources by allowing for a larger harvest."

Resource management is essentially a series of allocations among present users, between present and future users, between public and private interests. The guidelines define "allocation" for purposes of the standards as a direct and deliberate distribution of the opportunity to participate in a fishery among identifiable, discrete groups of fishermen. Because only measures that meet the definition will be judged against the standard, this is a critical and sensitive delineation.

Many management measures may have an incidental effect on the fishing privileges enjoyed by different groups of U.S. fishermen. Any quota has a distributive effect on present and future users through its impact on stock

maintenance or rebuilding. Area closures may cause practical difficulties for smaller vessels or those located far from open areas. Seasonal quotas create difficulties for those whose economics of operation do not permit a long period of inactivity.

Direct allocations, by contrast, have been made by the several Councils in a variety of FMPs: quotas by classes of vessels (Atlantic groundfish), quotas for commercial and recreational fishermen (Atlantic mackerel), different fishing seasons for recreational and commercial fishermen (salmon), assignment of ocean areas to different gears (stone crab), and limiting permits to present users (surf clam). These direct allocations were approved under standard 4 because the Councils complied with the three statutory criteria of the standard in constructing their allocation schemes.

The guideline's definition is an attempted middle ground between all measures affecting fishing practices and measures designated as allocations in a plan. The distribution must be direct and deliberate, but a Council could not disclaim an intent to allocate through a measure that had obvious and inevitable allocative effects.

NOAA believes that the required analysis of allocations and alternative schemes considered—including the status quo—will help to focus attention on the existing distribution of privileges and the alteration of that distribution that Federal management will impose. Each FMP should contain the Council's judgment on fairness and equity, conservation aspects, and possible monopolistic effects of the proposed allocations. NOAA feels that the analysis poses no extra burden in that it is similar to the sort of analysis necessary under E.O. 12291.

The guidelines link "fairness" with FMP objectives and OY and acknowledge that fishing rights of treaty Indians and aboriginal Americans should be factored into Council judgments. Rational use of the resource (as in the case of the Gulf of Mexico shrimp) is suggested as one way an allocation scheme may promote conservation. A more visible conservation purpose is illustrated by the moratorium on entry of new vessels into the surf clam fishery, initiated to mitigate a resource crisis in some stocks.

The guideline lists examples of other factors to consider in making allocations, when they are relevant to FMP objectives.

Standard 5

1. ANPR Issues. Response was not heavy to the ANPR question regard-

factor  
effic  
resou  
that e  
nce  
ple  
om i  
ecolo  
relati  
object  
the co  
or rec  
appea  
(1) the  
benefi  
societ  
greate  
to the  
appro  
effic  
is by t  
secon  
attain  
the mi  
indiv  
2. R  
purpos  
be def  
desire  
objecti  
cost, o  
and ec  
Counci  
measu  
objecti  
nder  
etic  
necess  
12291  
and the  
guideli  
inherer  
econon  
particip  
goal of  
maximi  
by allo  
overca  
effort n  
terms o  
necess  
when it  
subsiste  
recreati  
efficien  
appropri  
choose  
objectiv  
NOA  
not rest  
cost-effi  
processi  
restricti  
conserv  
FMP. Fo  
FMP pre  
cre  
at, chin

# North Pacific Fishery Management Council

Clement V. Tillion, Chairman  
Jim H. Branson, Executive Director

Mailing Address: P.O. Box 3136DT  
Anchorage, Alaska 99510

Suite 32, 333 West 4th Avenue  
Post Office Mall Building



Telephone: (907) 274-4563  
FTS 271-4064

## DOCUMENT RECEIPT AND DISBURSEMENT REPORT

Document Title and Date of Document: Draft Vedars report  
on BS exp trawl fishing

Received by: Becky Date: 3/28 Time: 9:00

Originator of Document: \_\_\_\_\_

### SPECIAL INSTRUCTIONS FROM ORIGINATOR:

- For Council books
- For SSC books
- For AP Books
- For Staff Books
- Other: \_\_\_\_\_

Instructions completed: 3/28

By: Becky

DRAFT

Research plan for eastern Bering Sea experimental trawl fishery

Background:

Prior to the implementation of the MFMA eastern Bering Sea herring were primarily exploited by foreign trawl vessels fishing on winter concentrations located northwest of the Pribilof Islands. Concurrent with the implementation of the MFMA a domestic herring fishery developed on coastal spawning grounds. The domestic fishery developed rapidly and the foreign trawl fishery was reduced accordingly. In 1980 all directed trawling for herring in the Bering Sea FCZ was prohibited through judicial action. No herring fishing has occurred in the FCZ since 1980 due to either the absence of a fishery management plan or the lack of identifiable surplus production.

The current principal stock assessment method for herring, aerial survey, has developed and evolved with the domestic coastal roe herring fishery. Initially aerial surveys were used to provide an index of relative abundance, but with the acquisition of herring school density estimates aerial survey estimates were converted to absolute abundance estimates. From the beginning there have been questions raised concerning the accuracy and precision of aerial survey estimates and calls for the use of alternative quantitative methods to verify or

Fisheries Center have attempted to assess herring abundance via acoustic-trawl surveys over the winter grounds. In both instances 1 vessel month or less was available for the survey and only minimal amounts of herring were encountered. Based on these past efforts it is likely that a minimum of 3-4 vessel months is required to obtain a quantitative estimate of wintering herring.

In the absence of adequate research vessel effort it has been proposed that an experimental fishery be instituted in the FCZ to collect scientific data on herring. ~~It must be emphasized that~~ the proposed experimental fishery will likely not provide an absolute measure of herring abundance. What the fishery can provide are items such as age composition and maturity data which could be useful in assessing the abundance of the younger age groups which are only partially recruited to the roe fishery. Also biological and distributional data of value for organizing future research activities can be obtained from a fishery. The extent and quality of data obtained from an experimental fishery is highly dependent on the amount of control of fishing location and effort by scientific personnel.

#### Survey areas and general data description:

Herring trawl fisheries could be conducted in the FZC during autumn along the continental shelf between Unimak Pass and the Pribilof Islands or northwest of the Pribilofs during December-

March. The value and quality of data collected is expected to differ between these areas and seasons.

The type of data which could be obtained from a controlled commercial fishery include age composition and maturity data, and relative abundance indices (CPUE, frequency of school encounter), which would be useful in evaluation of inshore surveys. Also relative abundance and maturity data collected from recruiting ages is of value in estimating spawning stock size in the following roe herring fishery. Distributional data collected in a commercial fishery could help to define the range and location of herring concentrations and the degree of mixing with other species such as pollock.

Based on current knowledge the optimum time and location for a exploratory fishery for research purposes would be during December and January northwest of the Pribilof Islands. At this time herring are believed to be relatively concentrated and the ice pack has not extended into the area. This would likely be the area that hydroacoustic-trawl surveys would be conducted in the future and fishery data obtain within the area would have maximum value.

A fishery along the continental slope between Unimak Pass and the Pribilof Islands to be conducted during the autumn migration has recently been proposed. Very little is known about herring at in this area or time other than historically herring are first taken incidentally in the summer pollock fishery in mid to late August. It is believed that herring taken in late summer and

autumn are migrating to the winter grounds. The exact timing, routes and stocks harvested are unknown but it is assumed that primarily southern Bering Sea spawning stocks are involved. The data that could be obtained for a fishery in this area are similar to that obtained north of the Pribilofs however since herring are migrating more research structure is needed to obtain the same information.

General research plan:

It is difficult to specify precise operation plans without a knowledge of the size of the fishery or the size or number of vessels involved. It is assumed that several large vessels will be involved and it will be possible to coordinate the activities of all of the vessels involved in the fishery. Since the proposed experimental fishery is designed for research a high degree of control may be required which may reduce overall efficiency from that experienced in a unregulated fishery.

On the winter grounds a initial survey of 7-10 days duration would be desirable to define the distributional range of herring schools and to locate major concentrations. If adequate biomass is located to support a fishery biological data will be collected through normal fishery observer procedures. Should a fishery develop dedicated vessel time of 1-2 vessel days per week will be required for test fishing and school behavior studies. It may also be necessary to periodically shift fishing effort to fully

sample the resource.

South of the Pribilofs a greater amount of vessel coordination may be needed to achieve data similar to that collected on the winter grounds. For best results fishing should start soon after herring begin migrating along the shelf. Fishing should proceed from north to south with the vessels involved following assigned search patterns. Since the fishery will only cover the southern Bering Sea a dedicated research vessel may be needed to investigate herring distribution and abundance on the northern shelf.



# North Pacific Fishery Management Council

Clement V. Tillion, Chairman  
Jim H. Branson, Executive Director

Mailing Address: P.O. Box 3136DT  
Anchorage, Alaska 99510

Suite 32, 333 West 4th Avenue  
Post Office Mall Building



Telephone: (907) 274-4563  
FTS 271-4064

## DOCUMENT RECEIPT AND DISBURSEMENT REPORT

Document Title and Date of Document: memo to Fred Gaffney on  
Vidar's draft on experi-  
mental trawl fishery

Received by: Becky Date: 3/28 Time: 9:00

Originator of Document: \_\_\_\_\_

### SPECIAL INSTRUCTIONS FROM ORIGINATOR:

- For Council books
- For SSC books
- For AP Books
- For Staff Books
- Other: \_\_\_\_\_

Instructions completed: 3/28

By: Becky



TO: Jim Glock  
From: Fred Gaffney  
Date: 3/24/83

Subj: Vidar's draft on experimental trawl fishery

Following are comments on Vidar's paper:

1. 3 to 4 months to conduct a research survey seems unrealistic. I talked with Vidar and he agrees that with the info available on previous NMFS surveys, observer reports, historical fisheries, and the abortative U.S. trawl fishery should reduce the time necessary to conduct an adequate research survey. Six weeks of vessel charter should do the trick. The Department's Test fish fund (which is set up for Shrimp, Herring & Salmon) could be used to conduct such a survey at no expense to the State, Feds, or Council. Assuming \$3000/day for a vessel the charter could be conducted for approximately 150 tons of herring (\$3000/day times 45days = \$135,000; assume \$300/ton selling price).
2. I think it should be strongly emphasized that an experimental trawl fishery would not produce biomass estimates or estimates of recruitment or stock contributions. The only way such info can be acquired is thru a bona fide research effort.
3. Vidar has indicated that a Priblof experimental trawl fishery would be hard enough to conduct given the level of info available and the administrative control necessary, but a fall trawl fishery between the priblofs and Dutch Hbr. would be much more difficult (because of little info available and the fact that the herring are migrating north). I would recommend that we should reject the fall proposal as unworkable and concentrate on the winter fishery in the priblofs.
4. I believe that we should state that it would be difficult to equate the performance of the experimental trawl fishery to the performance of the inshore roe ~~fishery~~ and food/bait fishery.
5. There is no discussion of the manpower needs or costs associated with such an offshore experimental trawl fishery. Presumably, Vidar and you will be available for your mid winter cruise!
6. I don't really understand Vidar's 7-10 day proposal and the 1-2 days per week necessary for test fishing and school behavior studies. How many vessels does he expect to participate, how many scientist/observers on how many vessels, what level of administrative control is necessary for the vessels, etc.??

I have also enclosed a brief issue paper that Al prepared on the subject. Hope these comments are useful.

Subject: Offshore Bering Sea  
Herring Trawl Fishery

Prepared by: Al Didier

Date: March 1, 1983

Issue:

There have been recent proposals before both the NPFMC and the BOF to provide an offshore allocation of herring in the Bering Sea, thereby permitting an offshore trawl fishery in this area. Since there is scant management information available dealing with the stocks found on the offshore grounds, justification for this action has centered on the need to gather additional information; the proposed fishery has been described as experimental in nature. This paper will describe those information needs and will examine the techniques which are available for their solution.

Information Needs:

The initiation of any experiment is a highly goal-oriented activity. Specific questions are formulated and a plan is developed which will produce information to answer these questions. For offshore herring stocks in the Bering Sea, the basic questions simplify to how many herring are out there, where are they, and from where do they come? These questions must be answered in order to begin a process of population modeling which establishes the estimate of maximum sustainable yield. It is necessary to determine whether the stock may be managed as a

separate unit or whether offshore activities will affect or can be affected by fisheries in other areas. In addition, it is necessary to determine whether subgroups exist within the offshore stock which might react differently to fishery exploitation.

#### Assessment Techniques:

Since the numbers of herring in the Bering Sea are too large to census directly, population estimates must use indirect techniques. One of the most commonly used methods is that of swept area. When using this technique, it is assumed that catch per unit of effort is proportional to the population density as well as to the abundance of the stock. Fishing effort must be distributed randomly to avoid bias; the variables of fishing strategy (the choice of grounds) and fishing tactics (activity on a particular ground) must be eliminated. The standardization process is fairly straightforward if all the samples are collected by a single vessel; sampling sites and schedules may be set in advance. The use of multiple vessels requires an additional standardization of fishing power through the sampling fleet. For trawlers, the ability to capture fish given a set density of fish per unit of fishing time improves with increases in size (tonnage) and horsepower. Net design is also a critical factor. The impacts of individual vessel differences must be quantified and minimized. If these conditions are satisfied, the catch in any individual trawl may be taken as representative of the population density in the sampling area and the values may be

expanded accordingly. Errors can occur when using this method if some of the fish in the area covered by the gear escape or if the population density in the sample area is not representative of the average density.

It is also possible to use the swept area technique to obtain a measure of stock density which is entirely independent of catch and effort data. Echo- or sonar-surveys may be conducted using the same sampling schemes and the index of density may be expressed as the amount of trace per mile traveled. In practice, these surveys are usually conducted in conjunction with a trawl survey so that the companion measure, that of tonnage per unit trace, may also be obtained.

The other primary technique for answering the questions of numbers and origin involves tagging studies. If conducted properly, these provide definitive information on specific stocks but they also require a multi-layered project. Initially, spawning herring stocks must be located along the Asian and North American sides of the Bering Sea and a rough estimate of population size must be made. A representative number of randomly selected fish must then be captured, tagged, and released. Later, when herring are captured on the offshore grounds, all or a representative random sample of the catch must be examined for tags. Knowing the number of tags recovered, the original site of tag implantation, and the magnitude of the total catch, it is possible to estimate the population size and the

proportions of individual stock contributions.

Unfortunately, tagging studies also contain many potential sources of error. Obviously, if an untagged herring stock is a major contributor to the offshore population, results from the study will be misleading. Emigration of tagged fish from the Bering Sea will also skew the results. Population estimates will be affected if the tagged fish die immediately afterward due to the stress of handling, if tagged fish shed or lose their tags between tagging and recovery, or if tagged fish suffer a higher rate of mortality or predation than the general population. Tagging must not induce behavioral changes which cause tagged fish to be unequally vulnerable to recovery gear or not uniformly mixed with the untagged population. Finally, recovery and reporting of tags in the fishery must be complete or at least occur at a constant and known rate.

The question of subgroups within the offshore stock can best be answered through a detailed examination of the catch. Samples of lengths, scales, and otoliths must be collected from each tow. Tissue samples must be collected and preserved for later analysis using electrophoresis. To be representative, these samples must come from a random selection of both sampling area and catch. In addition, standards for each set of biological data must be collected from spawning herring populations on the Asian and North American sides of the Bering Sea.

## Conclusions:

Randomizing effort and standardizing collection methods appear to be the keys to effectively addressing the questions of herring in the Bering Sea. Toward this end, the use of private vessels in an open commercial fishery situation would be of very little assistance. The practices of research and commercial fisheries are so different that neither function is adequately served by a joint effort. The imposition of a research framework on a commercial fishery requires activities which are inherently inefficient from the commercial standpoint. However, the use of a purely commercial fishery to obtain research information permits the collection of some qualitative biological catch data but sacrifices collection of meaningful quantitative data.

Effort in an open commercial fishery is not random but targets on the major concentrations of fish in an area; strategy and tactics are both vital elements. These factors seriously interfere with the random sampling of a population essential to a research effort. Research fishing requires that fishing practices be set in advance and that limits be placed on factors such as the length of tows. Restrictions of this type effectively limit the amount of catch and run contrary to the normal operation of a commercial fishery. In addition, the gear used on commercial vessels depends largely on the preferences of individual fishermen and there is little attempt to standardize within the legal limits. The sampling, sorting, and other necessary handling of a research catch usually interferes with routine

commercial operations. Weather conditions which make research activities, such as weighing the catch, difficult or dangerous would halt a research fishery during periods in which a normal commercial fishery might continue. Finally, since a research operation must continue until the test area is sampled, research fisheries are usually of longer duration than commercial fisheries. Spoilage of a commercial catch is then an additional concern; frequent interruptions would be required for unloading at processors on the grounds or on shore. For all these reasons, the needs of experimental research are better satisfied through vessel charters using a small number of standardized fishing boats.



# Marine Resources Company

HEAD OFFICE:  
192 Nickerson  
Suite 307  
Seattle, Washington 98109  
Phone: (206) 285-6424  
Telex: 277115 MRC UR

NAKHODKA OFFICE:  
Verkhne - Morskaya, 134  
Nakhodka 17  
Primorski Krai  
692900 U.S.S.R  
Telex: 213118 MRK SU

March 28, 1983

## UPDATED PROPOSAL FOR AN EASTERN BERING SEA HERRING RESEARCH/EXPERIMENTAL PRODUCTION PROJECT

By  
Marine Resources Company  
192 Nickerson #307, Seattle, WA 98109

This project proposal is intended to complement the letter of 28 February, 1983, to the North Pacific Fishery Management Council and to update the original proposal for such a project submitted to the Council on July 18, 1980. A copy of this previous proposal is enclosed for reference.

Marine Resources Company offers to organize and conduct a research/experimental herring fishery during the winter months of 1983-1984 in the eastern Bering Sea. Area of operation would be the wintering grounds of pacific herring northwest of the Pribilof Islands. In this area fishable concentrations of herring are known to be highest. Also, it is this region where herring biologists have recommended as the best for acquiring the needed information.

Our experimental research/production project would be organized in such a fashion that at least one U.S. midwater trawler catching vessel would be at the complete disposal of the joint state-federal research team. The fishery would likely employ a Soviet processing vessel of the Sulak type capable of accepting and processing upwards of 200 metric tons of fish per day and 4-5 U.S. midwater catching vessels. Catching capacity surplus to the raw fish delivery requirements of the processor would be contracted with so that a harvesting platform was always available to the biologists.

We would anticipate a fishery plan according to the following general format: Prior to the arrival of the processing vessel, the U.S. fleet would spend 5-10 days surveying for herring availability and abundance within areas recommended by the



biological team. Research workers or representatives would be present on each of the U.S. trawlers and preliminary distributional information would be obtained. Upon the arrival of the processing mothership the production phase would begin with normal fishery observer procedures being carried out on board the processor and trawlers as required. Additionally, one trawler would host the chief research team which would have control over the work program of that vessel. The "research trawler" would accept for use the various sampling and testing equipment such as XBT, CDT and hydro-acoustic assessment equipment as requested by the biologists. This ship could work alongside production trawlers in areas being commercially exploited or would survey peripheral or more distant areas according to grids or tracts as spelled out by the research team. We would expect that several trawlers within the U.S. fleet would also be rotated in and serve as the research platform subject to a schedule agreed upon with the chief biologist.

We would be willing to contract with the Council or lead research agency to insure that:

1. Scouting by harvesting vessels with observers on board would be conducted prior to the beginning of the production phase.
2. During production phase specific trawler vessel time would be made available to the research team for its independent survey work.
3. Area of fleet activity could be shifted if the biologists became alarmed that a relatively smaller independent concentration of herring was being exploited too heavily by the production fishery.

Magnitude of the fishery and species composition is projected as follows:

Minimum number of fishery days--90 (plus preliminary survey)

Projected harvest level 18,000 MT

Target species composition

Herring	10,000 MT
Pollock	7,500 MT
Miscellaneous	500 MT
	<hr/>
	18,000 MT

Biologists of state and federal agencies as well as biologists from the private sector have suggested the types of useful information to be generated from such a research/experimental production project and how that information could be used. They include:

1. Age composition and population structure of the Eastern Bering Sea herring stocks;

2. Relative abundance indices of the various year classes presently comprising the population;
3. Relative abundance and maturity data on younger age groups which are only partially recruited to the roe fishery;
4. Distributional data on the herring resource and stock mixing or segregation, including possible mixing with western Bering Sea stocks;
5. Spatial relationship between herring and the other pelagic resources in this area;
6. Oceanographic factors influencing the offshore distribution of herring during winter;
7. Schooling behavior of herring;
8. Acoustic signatures of herring relative to other midwater species in this area at this time;
9. Food habits of wintering herring concentration for use in Bering Sea biomass modelling efforts.

Additionally, various analyses of a developing domestic fishery can be initiated in areas such as fisheries technology, fleet interactions, economics, logistics and management.

No funding of any sort is being requested for this project. The various survey and sampling efforts would be pursued as an integral part of our experimental production fishery. The various research agencies themselves would be responsible for supporting their own personnel, including their specific catch sampling and data analysis requirements.

The design of this research/experimental production project incorporates many of the thoughts and requirements expressed by agency biologists who participate in the management of the Bering Sea Herring resource. Marine Resources Company is confident that we and the fishermen who join the operation could cooperatively and successfully work with the biologists responsible for the details of design and implementation of the research program.

As in the past we are ready to begin work on this project. We seek Council endorsement. If it is granted, we firmly believe that the additional steps necessary to implement this cooperative venture can be and will be accomplished to the benefit of all concerned with the rational management and utilization of the Bering Sea herring resource.



# Marine Resources Company

HEAD OFFICE:  
4215 - 21st Avenue West  
Suite 206  
Seattle, Washington 98199  
Phone: (206) 285-2701  
Telex: 32-8041 MRC SEA

NAKHODKA OFFICE:  
Verkhne - Morskaya, 134  
Nakhodka 17  
Primorski Krai  
692900 U.S.S.R.  
Telex: 213434 MRKNHDSU

July 18, 1980

Mr. Jim H. Branson  
Executive Director  
North Pacific Fishery Management Council  
P. O. Box 3136 DT  
Anchorage, AK 99510

Dear Jim:

Re: Proposal for an Eastern Bering  
Sea Herring Research/Experimental  
Production Project

On behalf of ourselves and the fishermen who fished for us this year in the Bering Sea, I am pleased to submit the attached "Proposal for an Eastern Bering Sea Herring Research/Experimental Production Project" for Council consideration. Please note that we are not requesting any financial support, only Council endorsement.

If the proper administrative approvals can be obtained from NMFS, this project would be incorporated into our developmental ground-fish fishery this fall in the Bering Sea. We plan to have the Sulak and/or up to 4 BMRT/RTM-type processors working with 4-5 American trawlers. They will operate in the entire Eastern Bering Sea from the Unimak Pass area to the outer shelf area southwest of St. Matthew Island. Estimated total production is about 12,955 MT broken down as follows:

Herring	3500 MT
Pollock	7500
Pacific cod	1500
Atka mackerel	150
Sablefish	120
POP	50
Rockfish	25
Squid	10
Other species	100

Total: 12955 MT

Jim Branson  
July 18, 1980  
Page 2.

Marine Resources Company and the fishermen who fish for us feel quite strongly that due to conflicting data presently available regarding the Bering Sea herring stocks (1980 Togiak data versus that presented in the draft herring FMP), it will be impossible to make a reasonably accurate assessment of the status of this resource. For this reason it will be very difficult, if not impossible, to arrive at any rational management decisions as to what sort of reasonable quotas or allocation schemes should be set so that the maximum benefit can be derived from this valuable resource.

It is our considered opinion that, given the value of this resource to both native and non-native fishermen and the difficult economic situation in most of our fisheries, we can ill-afford to under-exploit or overexploit the Bering Sea herring resource. Unfortunately, though, with the inconclusive data available, there is a strong possibility we will do one or the other.

Obviously more data such as stock composition, age structure and relative year class strengths are needed in order to set reasonable quotas and allocation schemes with any degree of certainty. There also is a recognized need for information on the high seas distribution of the Western Alaska herring stocks. Such data can only be obtained on the high seas in the areas where the herring are aggregated.

We are not aware of any research cruise which have been or will be organized for this purpose. For this reason, given the critical situation on hand, we are willing to organize and operate our fall fishery so that the required data can be collected.

The attached proposal, which outlines our ideas on such a project, was put together following discussions we had with scientists and management staff at the NMFS Alaska Regional Office and the Northwest and Alaska Fisheries Center and the Alaska Department of Fish and Game.

It should be noted that the facilities and accommodations on the trawlers and processors together with the survey and sampling efforts would be provided at no cost. Since this would be a directed operation, the participating biologists would be assured of getting the necessary samples (We understand that such was not the case when the Miller Freeman was involved in a herring assessment cruise in the Bering Sea two years ago). To carry out such a

Jim Branson  
July 18, 1980  
Page 3.

sampling program using a dedicated research trawler would cost in excess of \$250,000 and since sampling effort would be considerably less, chances of success would not be as great as our proposed joint research/production operation with 4-5 well-equipped trawlers.

The amount of herring involved (up to 3500 MT) is small when compared with the amount of under or overharvest which is likely to occur. Ironically twice this amount was wasted as deadloss during the Togiak sac-roe fishery this spring.

We ask that the Council support our proposal. Moreover, we ask that you request NMFS to promulgate the necessary regulations required to permit our processors to receive herring from the U.S. trawlers involved. From our side we pledge to work closely with the Council, NMFS and ADF and G to insure that the data and samples collected meet the scientific criteria established so they will be meaningful in terms of shedding light on the status of the Bering Sea herring resource for the benefit of all parties concerned.

Yours sincerely,



Walter F. Pereyra  
Vice President and General Manager

WTP:kb

Enclosure

cc: Senator Magnuson  
Senator Stevens  
Senator Gravel  
Congressman Young  
Congressman Pritchard  
Terry Leitzell  
Robert McVey  
Dr. William Aron  
Charles Meacham  
Ronald O. Skoog

PROPOSAL FOR AN EASTERN BERING SEA HERRING RESEARCH/EXPERIMENTAL  
PRODUCTION PROJECT

By  
Marine Resources Company  
4215 21st Ave. W., Seattle, WA

---

PROBLEM

Data on the Eastern Bering Sea herring resource is incomplete. Moreover, what data that is available is conflicting as regards conclusions which can be drawn as to the status of this important resource. A brief review of the status of stocks information and conclusions which are presented in the draft herring FMP as contrasted with preliminary data from this year's Togiak fishery are illustrative in this regard.

Draft FMP for herring in the Bering-Chukchi Sea presents evidence that suggests the Eastern Bering Sea herring resource is in good condition with increasing biomass and strong year classes entering the fishery. Specifically the FMP states:

. Aerial surveys have indicated an increase in herring abundance in all major spawning areas during the 1976-1978 period. Preliminary observations in 1979 indicate a similar or slightly greater abundance relative to 1978.

. Based on peak-day aerial counts of herring schools it is estimated that the spawning biomass in 1978 from Bristol Bay to Norton Sound was between about 250,000 - 500,000 MT.

. The 1979 surveys indicated that herring abundance was approximately equal to that recorded for 1978 in all areas.

. A relatively high abundance of 3 year old herring (1976 year class) were present during the 1979 spawning season indicating that recruitment to the 1980 fishery will be good.

. Under average conditions an exploitation rate of 20 percent would be appropriate.

. ABC for 1980 is thus set at 49,600 MT.

. Preliminary TAC is set at 48,438. (Following a reanalysis of the 1979 data the TAC was set in the PFMP at 41,200 MT (including 200 MT for the subsistence fishery), broken down as follows: DAH 33,200 MT (DAP 27,000 MT; JVP 6,000 MT, and subsistence 200 MT), TALFF 6,000 MT and reserve 2,000 MT).

Preliminary indications from data gathered from the Togiak sacroe fishery gives a somewhat different picture. For example, it is reported that the peak spawning biomass was only about 100,000 MT and that the run was dominated by older age groups. The 1976 year class, which had a strong showing as 3-year olds last year, did not enter the fishery in numbers.

If the Togiak data is accepted as representative of the size and composition of the Eastern Bering Sea herring resource, then the immediate conclusion one reaches is that the resource is in a depressed state and needs maximum protection. Such a conclusion is not warranted at this time for the following reasons:

- 1) The total population could not have declined by two-thirds decline in apparent abundance as suggested by peak spawning counts without experiencing a greater than threefold increase in instantaneous total mortality.

- 2) It is difficult to establish a supportable biological hypothesis whereby the relatively strong 1976 year class could be severely reduced without having a similar or more severe reduction in the older age groups.

- 3) Storms were prevalent this spring which probably decreased the effectiveness of the aerial surveys.

- 4) A rapid temperature drop of 7° F (48° F to 41° F) was observed following one severe storm. This suggests that thermal conditions may not have been optimal for spawning which could have caused a reduction in the availability of herring on the spawning grounds or a delay in the time of spawning. This later explanation is supported by reports of increased amounts of spawn on the spawning substrates after the fishery was closed down in late May.

Obviously additional data on the age class structure and relative abundance of the Eastern Bering Sea herring stocks is critically needed before the end of this year in order to establish the actual status of this important resource. Moreover, information on the origin and distribution of the stocks in offshore waters is needed to properly manage this resource. Without such information it will be extremely difficult to establish quotas and allocation schemes with any degree of certainty or to proscribe appropriate conservation measures, should they be required.

Data to answer some of these questions can only be obtained on the high seas in the areas where herring are aggregated. Unfortunately to the best of our knowledge, no research cruises have been or will be organized this year for this purpose. Furthermore,

the present prohibition against any directed foreign herring fishery makes it impossible for NMFS observers aboard foreign vessels to collect such data as these vessels now avoid herring concentrations.

For these reasons, together with the fact that there is a critical need for more data and time is short, we propose that a limited domestic research fishery be permitted this fall from late October through late December to allow collection of the requisite data.

#### PROPOSAL

This fall we plan to have the 18,000-ton mothership, Sulak, and/or up to 4 BMRT/RTM-type processors work with 4-5 large, U.S. trawlers from late October to late December. This fleet will operate over the entire Eastern Bering Sea from the area around Unimak Pass to the outer shelf area west of St. Matthew Island.

Taking into consideration that we would be fishing in areas with various levels of herring abundance, we estimate that our catch would total around 12,955 MT, broken down as follows:

Herring	3500 MT
Pollock	7500
Pacific cod	1500
Atka mackerel	150
Sablefish	120
POP	50
Rockfish	25
Squid	10
Other species	<u>100</u>

Total: 12955 MT

The primary research aim of this joint activity would be to collect samples, and biological and hydroacoustic data on the dominant aggregations of herring throughout the Eastern Bering Sea. A secondary aim would be to obtain production information on the catching success of large U.S. trawlers in this area during the late fall.

We expect that the proposed joint research/experimental production project will provide information on the following:



- 1) Age structure of the Eastern Bering Sea herring stocks;
- 2) Relative strength of the various year classes presently making up the population;
- 3) Late fall distribution pattern of the herring resource;
- 4) Acoustic signatures of herring relative to other midwater species in this area at this time;
- 5) Availability of herring during the late fall to large U.S. trawlers;
- 6) Daily production capabilities of large U.S. trawlers on herring, pollock and cod during the late fall.

Other information which may be generated include:

- 1) Relative abundance of the Eastern Bering Sea herring resource;
- 2) Offshore distribution of the western Alaskan herring stocks during late fall;
- 3) Spatial relationship between herring and the other pelagic resources in this area;
- 4) Oceanographic factors influencing the offshore distribution of herring during late fall.

A detailed research plan would be developed in concert with the various agencies involved in research on the Eastern Bering Sea herring resource. In this regard we would suggest the immediate formation of an ad hoc committee to formulate a reasonable and attainable research plan.

#### FUNDING

We are not requesting any funds to carry out the suggested research activities. The various survey and sampling efforts would be pursued as an integral part of our experimental production fishery. The various research agencies themselves would be responsible for supporting their own personnel, including their specific catch sampling and data analysis requirements.