

M E M O R A N D U M

TO: Council, SSC, and AP members
FROM: Jim H. Branson
Executive Director
DATE: September 15, 1982
SUBJECT: Herring FMP revision

ACTION REQUIRED

Approve for resubmission to Secretarial review by reviewing PDT language changes.

BACKGROUND

Plan Development Team members and General Counsel have incorporated the McVey motion into the FMP. This required certain modifications to the definitions of OY and the management unit as well as other textual revisions.

OY Definition and Determination

The major change is the definition of OY. In order to make an apportionment for the summer fishery in the Aleutian Islands area, that apportionment must be a part of OY. The McVey motion was modified accordingly, and the formula approved by the Council will apply specifically to a winter fishery (after September 30). Thus, OY has two components: a winter apportionment and a summer apportionment. These two components are available to domestic fishermen (and joint ventures) only.

Aleutian Islands Adjustment and Summer Apportionment

The proposed revision addresses the adjustment to ABC to take into account herring stocks which spawn in the Aleutians and Alaska Peninsula. The Team was directed by the Council to decide how to handle these stocks. Given the uncertainty of the stock composition of this year's harvest in the Akutan area, we cannot recommend a better number than the 2,000 mt in the current version. However, we have provided the flexibility to change this adjustment or eliminate it when new stock composition/distribution data become available.

We assumed the Council wants to guarantee a summer bait or food fishery in the area. This fishery probably would not harvest exclusively local Aleutian stocks, so the allowable harvest should not be connected to the ABC adjustment for those stocks. We have proposed a guaranteed apportionment not to exceed 2,000 mt in the FCZ. All harvest south of 55°47'N from either the FCZ or State waters from July 1 to September 30 will be counted against the 2,000 mt apportionment. When 2,000 mt has been harvested the FCZ will be closed. Further harvest in state waters would be at the discretion of ADF&G and the Board of Fisheries and would not be affected by the FMP. The FMP would take into account the actual harvest in determining the winter apportionment.

The proposed text changes to the FMP are included as Agenda Item D-2(a). New language or changes are underlined. The EIS and RIR cannot be finalized until after the Council's decision on the FMP revisions.

SUMMARY

2.0 SUMMARY

The Magnuson Fishery Conservation and Management Act (Magnuson Act) requires each of eight Regional Fishery Management Councils to prepare Fishery Management Plans for fisheries within its area of jurisdiction in the Fishery Conservation Zone (FCZ) from 3 to 200 miles offshore. The purpose of each plan is to provide for an optimum yield of the resource to the fishermen and to the nation, and to promote fair and equitable allocation of the resource.

The present plan has been developed by the North Pacific Fishery Management Council (Council) with the assistance of the Alaska Department of Fish & Game (ADF&G) and the National Marine Fisheries Service (NMFS) as a framework which will govern management of fisheries for herring conducted beyond the three-mile limit on a multi-year basis.

The domestic inshore fishery within three miles has been managed by the State of Alaska since the fishery developed in 1977. This plan proposes to establish a cooperative management policy of the North Pacific Council, State of Alaska Board of Fisheries (Board) and the NMFS, under which efforts will be made to assure that the Federal offshore and State inshore herring management regimes complement each other. It provides the basis for management measures and regulations for herring resources over a period of several years.

This herring fishery management plan (FMP) or plan has evolved over a period of several years. During this period numerous issues have been discussed and alternative management approaches have been considered for each issue. This FMP proposes a conservative approach for managing the Bering Sea herring resource primarily due to the lack of adequate information on the distribution of the stocks involved. The FMP will provide benefits to all domestic herring user groups by assuring that management measures will be designed to maintain reproductively viable herring populations.

The FMP recognizes the preference given to domestic inshore fisheries. These fisheries, both subsistence and commercial, will be managed by the State of Alaska. The FMP protects these fisheries by severely limiting the amount of directed and incidental catch of herring by offshore fisheries. It eliminates directed herring fishing by foreign vessels, and it allows domestic offshore fishing only after the inshore fisheries have been completed, thus reducing competition for the limited resource.

The Fishery Management Plan for Bering/Chukchi Sea Herring proposes the following:

2.1 Management Objectives

The plan proposes the following objectives:

- (a) To maintain the herring resource at a spawning biomass level that will provide the maximum production of recruits to the population on an annual basis.
- (b) To maintain the herring resource at a level that will sustain populations of predatory fish, birds and mammals.
- (c) To maintain the herring resource at a level that will enable the traditional subsistence fishery to harvest herring in the amounts necessary for subsistence purposes.
- (d) To promote full utilization of the herring resource by domestic fisheries.
- (e) To encourage development of herring fisheries in Western Alaska.
- (f) To provide, to the extent possible, a unified management regime between Federal and State jurisdictions.

To achieve these management objectives, it will be necessary to establish a management system which accords preference to the various herring fisheries, in the following order:

- (1) inshore subsistence fishery;
- (2) inshore commercial fisheries;
- (3) offshore domestic fisheries.

It is recognized that the preferences among inshore fisheries are determined and implemented by the State of Alaska. The offshore fisheries will be managed to reduce their impact on the inshore fisheries without unnecessary disruption or restriction of offshore groundfish and herring fishing operations.

2.2 The Fisheries

The subsistence fishery is conducted within territorial waters from the coast of the Alaska Peninsula to the southern part of the Chukchi Sea, with varying degrees of local dependency on the resource. This is a small spring and summer gillnet fishery (average annual catch from 1975-1980 was approximately 100 metric tons) for herring for personal use.

The domestic commercial herring fishery includes a spawn-on-kelp fishery (1980 harvest was 108 mt worth \$168,000) and a herring sac roe fishery (1980 harvest was 26,782 mt worth \$4.1 million). Both fisheries are conducted in a short late spring and early summer season, generally by off-season salmon seiners and gillnetters, within territorial waters. There is also a small bait and food fishery.

Japan and the U.S.S.R. have been the historic participants in the directed distant water herring fishery conducted primarily northeast of the Pribilof Islands. Catches declined since the peak in the late 1960's and early 1970's (Japanese catch in 1968-1969 was 50,857 mt, Soviet catch in 1969-1970 was 92,228 mt, foreign fleet total in 1968-1969 was 128,230 mt). A Preliminary Fishery Management Plan (PMP) for trawl fisheries and herring gillnet fisheries in the Bering Sea and Aleutian Islands was implemented in 1977, substantially ending the foreign directed food and bait herring fishery, and limiting foreign vessels to an incidental harvest of herring in groundfish trawl fisheries. Since a court order was issued in February, 1980, herring have been a prohibited species, i.e. the taking of herring must be avoided and any herring caught by the foreign fishery must be thrown back and not retained. This order also terminated plans of United States fishermen for pioneering joint venture operations with Soviet processing vessels for 1980.

Under this FMP joint venture operations for herring would be allowed under certain circumstances, but directed foreign fishing for herring is prohibited.

2.3 Estimation of Yield

The fishery management plan must establish the Maximum Sustainable Yield (MSY) of the herring fisheries in order to assess the effectiveness of the management regime. MSY is a measure of the average maximum annual yield of the fishery over a long period of time. MSY can be estimated theoretically (for example, using ecosystem modeling) or by averaging historical catches over time. Both of these approaches are examined in this FMP, and the method chosen for the calculation of MSY uses the total annual herring harvests for the period 1962-1976, excluding 1967 due to lack of data. MSY is set at 48,712 metric tons (mt) which is the equivalent of a 20% harvest of the total MSY biomass of 243,560 mt. This estimate may be revised as additional research and catch information become available.

Herring populations are subject to rapid fluctuations in abundance over relatively short time periods, and annual catches will likewise fluctuate. Thus, each year the estimated allowable catch will be adjusted to match changes in growth rates, recruitment and mortality factors (see Section 9.6.1).

The annual estimate of the Acceptable Biological Catch (ABC) will be calculated by the formula

$$\text{ABC} = \frac{\text{annual biomass}}{\text{MSY biomass}} \times .2 \text{ (exploitation rate at MSY)} \times \text{annual biomass} \\ + \text{an Aleutian/Alaska Peninsula stock adjustment}$$

The maximum exploitation rate allowed by this FMP is 20% (see Section 9.6.2.2).

The best available estimate of biomass will be used in determining ABC. It is expected that the primary basis for these annual estimates will be counts of herring schools made during aerial surveys conducted by ADF&G throughout the spawning season. The greatest amount of available information is from the Bristol Bay/Good News Bay stock grouping, the Kuskokwim/Yukon River Delta and the Norton Sound stock grouping. These tentative stock groupings are based on similarities of distribution, behavior, utilization and abundance. Estimates are not available for the Aleutian/Alaska Peninsula stock grouping or the Port Clarence/Kotzebue Sound stock grouping.

However, an adjustment to the ABC is made to take into account stocks which spawn in the Aleutians area. For the present, this adjustment will be an addition of 2,000 mt, which represents approximately the average harvest in this area in the 1930s. Stock distribution data are currently being developed for these stocks and may indicate that these stocks do not mingle with more northern stocks in the central Bering Sea wintering area. If this is the case the adjustment will be automatically eliminated from the formula. On the other hand population estimates and distribution information may indicate the 2,000 mt estimate should merely be adjusted up or down. The most recent scientific information on these stocks will be reviewed annually in the determination of ABC and adjustments will be made to incorporate new information as it becomes available.

The plan maintenance team (PMT), which will recommend the ABC estimate to the Council each year, may use any other available information to augment the aerial survey counts. It is expected that in some years there may be

inadequate aerial survey data due to weather, ice or other factors. In the absence of spawning survey data the PMT will use virtual population analysis (VPA) outlined in Section 9.6.2.1.

The Allowable Incidental Catch (AIC) of herring in the groundfish trawl fisheries applies to both foreign and domestic groundfish trawl fisheries for the calendar year. AIC will be allocated automatically with the total groundfish allocation to each nation as a percentage of the groundfish allocation. If a nation fails to harvest its AIC the remainder need not be reallocated. The guidelines for adjustment of AIC are specified in Section 9.6.2.4.

The Optimum Yield (OY) is that portion of the ABC which is made available for harvest in the FCZ. OY is divided into two components, a summer apportionment and a winter apportionment. The summer apportionment shall be 2,000 mt, and shall be available for harvest south of 55°47'N latitude during the period July 1 through September 30. When 2,000 mt has been harvested in the FCZ and the territorial sea taken together, the FCZ south of 55°47'N latitude shall be closed to fishing for herring until the next apportionment is made.

The winter apportionment, if any, may be harvested throughout the management unit from October 1 (or the date on which notice of its determination is published in the Federal Register, whichever comes later) until March 31, the end of the fishing year. The winter apportionment for the management unit, to be calculated annually, shall be one-half of the remainder of ABC after subtracting certain quantities, less AIC. The quantities subtracted from ABC shall include:

- (a) the actual amount of herring harvested during the current fishing year by the inshore commercial fisheries;
- (b) an amount corresponding to the Nelson Island ABC;
- (c) the actual harvest in the offshore summer food or bait fishery.

The remainder shall be divided in half (as above), and AIC subtracted from the quotient. These calculations are represented by the following equation:

$$\text{Winter Apportionment} = \frac{\text{total inshore harvest} - \text{Nelson Island ABC} - \text{summer offshore harvest}}{2} - \text{AIC}$$

This apportionment shall be limited as follows:

- (a) If the amount so calculated is less than 2,000 mt, or if the current herring biomass is less than 122,000 mt (one-half of the MSY biomass), this apportionment shall equal zero.
- (b) Under no circumstances shall the apportionment for the winter offshore fishery be greater than 10,000 mt.
- (c) In exceptional circumstances, the amount calculated above may be further reduced if NMFS, in consultation with the Council, finds a serious problem resulting from any of the following factors:
 - (1) condition of the several spawning stocks of herring, with special focus on the availability for subsistence harvest;
 - (2) the abundance of spawning herring and their spawning success;
 - (3) age composition of the herring population;
 - (4) recruitment to the spawning stocks of herring;
 - (5) distribution of preceding inshore and offshore harvests among the several geographical groups of spawning herring.
- (d) This procedure for determining the winter offshore apportionment will be reviewed at the end of three years.

2.4 Allocations to the Fisheries

2.4.1 Fishing year. April 1 to March 31

A fishing year commencing April 1 coincides with the migration of herring into coastal waters for spawning and is a natural division between the fisheries occurring on the winter grounds and those on the spawning grounds.

2.4.2 Aleutian Islands/Alaska Peninsula Offshore Apportionment

Two thousand mt of herring is apportioned to the offshore summer food or bait fishery of the Aleutian Islands/Alaska Peninsula area. This apportionment shall be harvested only south of 55°47'N latitude, during the period July 1 through September 30. In order to assure that the summer offshore apportionment does not cause the fishery to exceed levels, harvests in the inshore (territorial sea) fishery south of 55°47'N latitude from July 1 through September 30 shall be counted against the achievement of the 2,000 mt offshore summer apportionment. When 2,000 mt has been harvested in the FCZ

and the territorial sea taken together, the FCZ south of 55°47'N latitude shall be closed to fishing for herring until the next annual apportionment is made (see Section 14.3).

2.4.3 Determination and allocation of offshore winter allocation

As soon as practicable after completion of the inshore commercial and subsistence fisheries, the Council, upon the recommendation of the PMT, shall propose determinations of ABC and offshore winter allocation for implementation by the NMFS Alaska Regional Director. These values shall be calculated according to the provisions of Section 12.0. Any winter apportionment to the domestic offshore fishery shall be made on or before September 30, or as soon as is practicable thereafter.

2.4.4 Foreign fisheries

Directed foreign fishing for herring is prohibited. An allowable incidental catch (AIC) of herring is allocated to the groundfish fisheries.

2.5 Management Measures

2.5.1 Inshore commercial fishery

Regulations for the orderly conduct of the inshore commercial fishery shall be promulgated by the State of Alaska Board of Fisheries and are not provided for in this plan.

Rationale

The roe fishery is currently managed exclusively by the State of Alaska because the entire fishery occurs within State waters. It is expected that the roe fishery will continue inside of three miles in the future since roe quality and recovery rates are greatest in close proximity to the spawning grounds. It is desirable to continue restricting the roe fishery to State waters because product quality will be highest, management and regulation of the fishery will be simplified, aerial biomass surveys will be more easily performed, and fishing on discrete stocks is facilitated. Management of the roe fishery by the State is based on the following considerations:

- (a) the effect of overall fishing effort;
- (b) the catch per unit effort and rate of harvest;

- (c) the relative abundance of herring in comparison with pre-season expectations;
- (d) the performance of the roe fishery;
- (e) the proportion of immature or spawned out herring and the age structure of the populations;
- (f) general information on the condition of herring;
- (g) information pertaining to the optimum yield for herring;
- (h) timeliness and accuracy of catch reporting by buyers to the extent that such timeliness or accuracy may reasonably be expected to affect proper management; and
- (i) any other factors necessary for the conservation and management of the herring resource.

These considerations allow adjustment of harvest levels during the fishery.

2.5.2 Offshore commercial fisheries

- i. Provisions for allocation, see Sections 14.2.2 and 14.2.3.
- ii. The FCZ will be closed to directed fishing for herring from the beginning of the fishing year, April 1 until July 1, south of 55°47'N latitude, and until September 30 or the date on which the winter apportionment is noticed (whichever comes later), north of 55°47'N latitude. However, the Regional Director, in consultation with ADF&G and the Council, may open the FCZ by emergency regulation if ice conditions or other factors preclude full development of the inshore commercial and subsistence fishery.

Rationale

See the rationale discussed above.

- iii. All or part of the Herring Savings Area as described in Appendix 18.2 will be closed to herring and groundfish trawl fisheries by the Regional Director, if:

- a. DAH and AIC have been harvested;
- b. The amount of remaining DAH and AIC can be harvested within one reporting period (one week).

The Regional Director will inform the Council of his decision and the reasons therefore as soon as practicable after such closure.

Rationale

To simplify the accounting of herring harvested as DAH or AIC, all herring caught will be charged against DAH until DAH is attained. All subsequent herring harvest will be charged against AIC. If no domestic allocation remains (either DAH or AIC), the Herring Savings Area Closure would be implemented to protect the feeding stocks against further harvesting by the winter fisheries. If there is a small amount of remaining DAH or AIC outstanding that can be taken in one reporting period, an in-season closure could be implemented by the Regional Director in order to avoid exceeding the OY between reporting periods (see In-season Adjustment of Time and Area, Section 14.5).

2.5.3 Other regulations

Regulations in the Bering Sea/Aleutian Islands Groundfish FMP for time and area closures shall also apply to all herring fisheries.

Rationale

Any herring trawl fishery in the FCZ is conducted in conjunction with domestic groundfisheries. The restrictions on groundfishing operations have been developed to protect incidentally caught species and prevent gear conflicts. As herring fishing gear is similar to gear used for groundfish (e.g. pollock), the herring fishery has potentially the same impact. Thus, the Bering Sea Groundfish FMP implementing regulations specifying time and area closures shall also apply to the herring fisheries to minimize adverse impacts and to maintain consistency of regulations.

2.5.4 Statistical reporting requirements

The operator of any vessel or processing facility involved in the harvest, processing or transportation of herring shall submit a completed State of

Alaska fish ticket or equivalent document for each sale or delivery of herring delivered or landed outside of Alaska state waters. If requested by the Regional Director, but not more than once a year, each operator who has landed herring must report other information needed for management of the resource. Such information may include catches by ½ degree latitude x 1 degree longitude areas, by gear type and vessel class, and by month; effort (e.g., hours towed, number of landings, number of trips) by gear type and vessel class, and by month.

2.5.5 Permit requirements

All U.S. vessels operating in the FCZ portion of the Bering/Chukchi Sea must have on board a permit issued by the Secretary of Commerce or a State of Alaska vessel license.

2.6 Management Measures and Rationale for the Foreign Fishery

2.6.1 Existing area closures

- i. Directed fishing for herring is not allowed within the Bering/Chukchi Sea management area.
- ii. All or part of the Herring Savings Area, as described in Appendix 18.2 will be closed to herring and groundfish trawl fisheries by the Regional Director, in consultation with the Council if:
 - a. there is no remaining AIC; or
 - b. the amount of remaining AIC can be harvested within one reporting period.

Rationale

The purpose of this time/area closure is to restrict the incidental catch of herring by foreign groundfish trawl fisheries. An in-season closure provision is necessary to allow the Regional Director to act within a reasonable amount of time to protect herring stocks from being over harvested during one reporting period (see Section 10.3).

This closure applies to trawl gear only. Longline, pot or other gear types which are not utilized to fish for herring or catch herring above trace amounts (less than 0.001% of total catch) are exempt from this time-area restriction.

2.6.2 Foreign reporting requirements

The operators of all foreign vessels must maintain an accurate log of catch and effort information in accordance with the requirements of the implementing regulations of the Bering Sea/Aleutian Islands Groundfish Fishery Management Plan and other Foreign Fishing Regulations, 50 CFR Part 611.

2.6.3 Permit requirements

All foreign vessels fishing for groundfish and potentially retaining herring in the FCZ must have on board a permit issued by the Secretary of Commerce, as required by the Magnuson Act.

2.6.4 Prohibited species

The retention of salmonids, Pacific halibut, Tanner crab, king crab, coral, snails, scallops, shrimp, surf clams, horsehair crab, lyre crab, or Dungeness crab, or other continental shelf fishery resources is prohibited. This prevents covert targeting on species of importance to U.S. fishermen.

2.7 In-season Adjustment of Time and Area

The Regional Director of the National Marine Fisheries Service, Alaska Region, or his designee, may issue field orders adjusting time and area restrictions.

4.0 INTRODUCTION

This Fishery Management Plan (FMP) has been developed by the North Pacific Fishery Management Council (NPFMC or Council) to manage the fishery for Pacific herring (Clupea harengus pallasii) of the Bering Sea and Chukchi Sea. It replaces that portion of the Preliminary Fishery Management Plan for the Trawl Fisheries and Herring Gillnet Fishery of the Bering Sea and Northeast Pacific (PMP) which applies to this fishery. This FMP also governs the incidental catch of herring in the Bering Sea groundfish trawl fishery, a fishery which is otherwise governed by the Bering Sea/Aleutian Islands Groundfish FMP (Groundfish FMP). This FMP was developed by the Council and submitted to the Assistant Administrator for Fisheries (Assistant Administrator), National Oceanic and Atmospheric Administration (NOAA), United States Department of Commerce, for approval and implementation by regulation under the Magnuson Fishery Conservation and Management Act, Public Law 94-265, as amended (Magnuson Act). The Assistant Administrator directs the National Marine Fisheries Service (NMFS).

4.1 Description of the Management Unit

The Bering Sea/Chukchi Sea region for the purposes of this plan is defined as those waters under Federal fishery management jurisdiction adjacent to the territorial waters of the State of Alaska lying south of Point Hope in the Chukchi Sea, east of the U.S./USSR convention line of 1867, and extending south of the Aleutian Islands between the convention line and 170°W. longitude (Figure 1). Waters lying south of lines joining headlands in the Aleutian Islands east of 170°W. longitude are considered a part of the Gulf of Alaska management unit.

Because the herring resource occurs in both state and federal waters at different times of the year, the management regime for both must be considered jointly if they are to complement one another and be effective in achieving effective conservation of the herring resource.

Waters under State jurisdiction lie within a boundary line that follows the coastline three miles offshore. Waters under Federal jurisdiction are termed the Fishery Conservation Zone (FCZ) and lie between three and two hundred miles offshore. Although this FMP devotes much discussion to the management regime and fishery occurring in State waters, it prescribes regulations only for waters of the FCZ.

In terms of both the fishery and the herring resource, the Bering Sea/Chukchi Sea region forms a distinct management unit. The history of fisheries development, the species composition, the bathymetry, and the oceanography of this region are distinct from those of the adjacent Gulf of Alaska. Stocks of species common to both regions, with only a few exceptions (e.g. halibut and perhaps sablefish), are believed to be distinct and separate.

A description of the more prominent physical features of the planning region is included in the Bering Sea/Aleutian Islands Groundfish FMP. Figure 2 presents geographical locations in the Bering and Chukchi Seas.

4.2 Definition of Terms

- a. Maximum sustainable yield (MSY). MSY is an average, over a reasonable length of time, of the largest catch which can be taken continuously from a stock under current environmental conditions. It should normally be presented with a range of values around its point estimate. Where sufficient scientific data as to the biological characteristics of the stock do not exist or the period of exploitation or investigation has not been long enough for adequate understanding of stock dynamics, the MSY will be estimated from the best information available. MSY applies to the combined state and federal management areas.
- b. Acceptable biological catch (ABC). ABC is a seasonally determined catch based primarily on the ratio of the annual biomass estimate to the MSY biomass level. ABC may be less than or equal to MSY, depending on stock conditions. ABC also applies to the combined state and federal management areas.
- c. Optimum yield (OY). OY is that portion of the Acceptable Biological Catch which is available for harvest in the FCZ. OY will vary from year to year based on herring abundance and the degree to which the stocks are exploited in the inshore fisheries. OY is apportioned to a summer fishery south of 55°47'N latitude and a winter fishery throughout the FCZ.

- d. Domestic annual fishing capacity (DAC). DAC is the total potential physical capacity of United States fishing fleets, modified by logistic factors to harvest the OY during the fishing year. The components of the concept are:
- (1) An inventory of total potential physical capacity, defined in terms of appropriate vessel and gear characteristics (e.g., size, horsepower, etc.).
 - (2) Logistic factors determining total annual fishing capacity, (e.g., variations in vessel and gear performance, trip length, etc.).
- e. Expected domestic annual harvest (DAH). DAH is an estimate of the amount of the OY that will be harvested during a fishing year by United States fishing vessels. It is the sum of DAP and JVP (defined below), and is derived by assessing the extent to which DAC will be utilized in light of market conditions and other economic factors.
- f. Domestic annual processing capacity (DAP). DAP is the estimated portion of DAH that is expected to be processed by U.S. fish processors. It is determined primarily on the basis of surveys of the intent of United States processors.
- g. Joint venture processing capacity (JVP). JVP is that portion of DAH which is in excess of DAP and DNP, and is therefore permitted to be delivered to foreign processors who are authorized to receive such U.S. harvested fish in the FCZ.
- h. Allowable incidental catch (AIC). AIC is that amount of herring allowed to be taken incidentally to United States and foreign groundfisheries. It is subtracted from herring ABC in the procedure to obtain herring OY, and the AIC is then added to the OY of the Bering Sea groundfish fishery and allocated to groundfish DAH and TALFF (defined below) in accordance with the relative amounts of DAH and TALFF for groundfish species other than herring.

- i. Total allowable level of foreign fishing (TALFF). TALFF is an estimate of that part of the OY from a fishery which will not be harvested during a fishing year by United States fishing vessels. Since the herring resource is fully utilized by domestic fishermen, this FMP establishes TALFF equal to zero.

The AIC is allocated as part of the groundfish DAH and TALFF, however.

9.6.2.3 Annual determination of ABC

Aerial and ground survey data are compiled after the inshore roe fishery, to establish biomass estimates. As offshore biomass data become available they will also be considered in establishing this estimate. ABC for the combined state and federal management areas will be calculated using the formula:

$$\begin{aligned} \text{ABC} &= E_t \times B_t + \text{Aleutian Island/Alaska Peninsula adjustment} \\ &= \frac{\text{spawning biomass}}{\text{MSY biomass}} \times .2 \times \text{spawning biomass} + \text{an Aleutian Island/Alaska} \\ &\quad \text{Peninsula adjustment} \end{aligned}$$

For example, the 1979 biomass estimate (Barton and Steinhoff, 1980) was 258,079 mt and using an exploitation rate of 20% ($258,079/243,560 \times .20 = 0.21$ but .20 is the maximum allowed), ABC was equal to 51,616 mt before adjustment.

This unadjusted ABC does not include a component from the Aleutian Island/Alaska Peninsula stock unit or from the Port Clarence/Kotzebue Sound stock unit. Reliable spawning biomass estimates do not presently exist for either of these stocks. ABC is adjusted to include a harvestable biomass increment for Aleutian Island/Alaska Peninsula stocks. For the present, this adjustment will be an addition of 2,000 mt, which represents approximately the average harvest in this area in the 1930s. Stock distribution data are currently being developed for these stocks and may indicate that these stocks do not mingle with more northern stocks in the Bering Sea wintering area. If this is the case, the adjustment will be automatically eliminated from the formula. On the other hand, population estimates and distribution information may indicate that the 2,000 mt increment should merely be adjusted up or down. The most recent scientific information on these stocks will be reviewed annually in the determination of ABC and adjustments will be made to incorporate new information as it becomes available. Thus, the adjusted ABC in the above example is equal to 53,616 mt.

ABC will be estimated by a Plan Maintenance Team appointed by the Council. The Team will submit its recommended estimates of ABC, AIC, and OY to the Council (as well as the Board). The Council will then recommend its own estimates for these figures to the Assistant Administrator or the Alaska Regional Director, NMFS, who will specify the final values.

10.0 HERRING MANAGEMENT ISSUES

This section directly addresses several issues which are relevant to the consideration of OY.

10.1 Maintenance of the Subsistence Herring Fishery

The inshore subsistence harvest of herring during the spawning season has been an important source of food to Alaska Natives living along the Bering Sea coast for centuries. This subsistence fishery is described above in Section 5.1 of this FMP.

By far the greater part of the subsistence harvest has, in recent years, been taken in and around Nelson Island. The herring stocks spawning in this area are believed, however, to constitute a very small portion of the total Bering Sea herring biomass, and are dwarfed by the stocks that are harvested commercially around Togiak. There is little direct evidence of the migratory pattern followed by the Nelson Island stocks when they move offshore, or on the extent to which these stocks remain discrete while at sea, rather than mixing more-or-less randomly with stocks spawning in other areas. As a result, Alaska Natives who are dependent upon the Nelson Island stocks for subsistence have expressed concern that even a limited and closely regulated offshore harvest of herring could pose a significant danger to their livelihood.

This FMP addresses this concern in a number of ways. Inasmuch as inshore herring fisheries are inherently more amenable to sound management than offshore fisheries due to the inshore segregation of the various spawning stocks and their greater visibility, this FMP recognizes the preference accorded inshore, and particularly, subsistence fisheries.

This FMP provides for an incidental offshore harvest of herring in the domestic trawl fisheries but sharply limits it by prescribing the closure of the herring savings area to groundfish trawling when the groundfish trawl fishery has harvested the allowable incidental catch (AIC) of herring.

The FMP also protects inshore subsistence fisheries from possible damage by the directed offshore harvest of herring through its specification of a conservative MSY biomass estimate and conservative exploitation rates. Nevertheless, concern has been expressed by some subsistence users regarding the need to obtain more direct information on offshore stock distribution, a process that may take many years. These concerns are offset to some degree by such evidence as the fact that during 1976, 1977, and 1978, the offshore

harvest of herring was considerably higher than it will ever be under the FMP; yet, during the same three years the Nelson Island stock increased by three times, the Bristol Bay stock by twenty times, and the Goodnews Bay/Security Cove stock by almost 62 times (see Tables 6, 11 and 12). While such evidence is not conclusive, it establishes the extreme unlikelihood that the smaller herring stocks utilized for subsistence are distributed offshore in such a pattern as to facilitate the catastrophic results feared by some subsistence users. These data seem, instead, to strengthen the theory of those scientists who believe that the stocks spawning from Bristol Bay to the Yukon Delta mix fairly randomly while offshore, a condition that would tend to protect the smaller stocks during the offshore sojourn.

In order to further allay any continuing concerns of subsistence fishermen, the Council has selected a very conservative management system for the offshore fisheries. For example, in the formula for calculation of that portion of OY apportioned to the winter offshore fishery, the entire Nelson Island ABC is subtracted rather than the actual harvest. The average harvest has been 100 mt or less while the ABC has been 600-800 mt in recent years. Also, the formula allows less than half of the ABC remaining after the inshore fisheries to be harvested offshore. The winter apportionment as so calculated must be at least 2,000 mt if there is to be any winter offshore fishery, and under no circumstances shall this component of OY exceed 10,000 mt. The winter apportionment of OY may be further reduced if problems arise, with special focus on the availability of herring for subsistence harvest (see Section 12.0).

10.2 Development of Domestic Herring Fisheries on the High Seas

Considerable interest has been expressed by domestic fishermen and processors in a fishery for food or bait herring in the Bering Sea. In spring of 1979, a food fishery was conducted off the Pribilof Islands by American fishermen for the first time, in a joint venture with a Russian processing vessel. The total catch was low due to the displacement of the operation by unseasonal ice conditions. This fishery would probably occur during the winter months when the oil content of herring is high and when the fish are concentrated on their wintering grounds.

The major advantage of a high seas herring fishery is that it would allow improved utilization of the herring resource. Because of unusually high

herring abundance, adverse weather, or ice conditions, the inshore fisheries may not consistently take the allowable harvest, even after the fishery has fully developed and stabilized.

A second advantage of a high seas fishery is that the domestic fishery would not be entirely dependent on the Japanese roe market. If a high seas fishery were developed to a limited extent, there would be greater potential to rapidly expand this fishery should the roe market fail for some reason.

An offshore fishery would also generate data on offshore distribution and abundance, age structure and possibly mixing ratios of various stocks. There would be no other way to generate this information without a massive outlay of research dollars.

The major disadvantage of a high seas fishery is that it would operate on mixed stocks of herring, raising concerns about the over-harvesting of small stock units. The inshore fisheries have the advantage of operating on more segregated stocks so that the harvest from individual stocks can be closely regulated.

Other disadvantages of the high seas fishery include 1) fisheries monitoring is more difficult to perform on the high seas, which reduces the potential for in-season management adjustments; and 2) the high seas fishery has historically had a lower value relative to the roe fishery. The value of roe herring taken during the 1979 Bristol Bay fishery was approximately \$1500 per short ton delivered in Kodiak compared to an estimated \$800 per ton for bait herring taken in the Gulf of Alaska. If a high seas fishery were to develop and capture herring which otherwise would have been taken by the inshore roe fishery, the total value of the harvest might be substantially less than its potential. Recently, however, there have been indications that prices paid for food herring might come to equal or exceed those paid for roe herring, in view of the recent decline in the roe market.

11.0 CATCH AND CAPACITY DESCRIPTORS

Although OY is calculated only for that portion of the harvest which takes place in the management unit, Bering/Chukchi Sea herring are managed throughout their range in cooperation with the State of Alaska. The inshore fisheries are managed by the State, while the fisheries in the FCZ are under Federal management. Each is described below.

11.1 Subsistence Fishery

During the period 1975-80, the subsistence harvest of herring along the Bering Sea coast averaged approximately 100 mt annually (see Section 5.1.3). While there is a potential for increased subsistence harvests because of the greater abundance of herring in recent years, this is not expected to occur. Harvests of approximately 100 mt appear adequate to meet the needs of subsistence users of herring. Therefore the expected catch of subsistence fishery is estimated to be 100 mt. It must be noted that this is not a quota. The estimated subsistence harvest is part of the estimate of domestic annual processing (DAP), which with joint venture processing (JVP), is an element of DAH. This is not the amount used in the formulation of OY, however. In the calculation of the winter offshore apportionment the entire ABC is subtracted, a procedure which reduces the winter apportionment by an additional 200-300 mt.

11.2 Togiak Roe Fishery

Because the roe fishery in Bristol Bay is still developing, historical catch data cannot be used to estimate the domestic harvest for this fishery. Instead, the physical capacity of the vessels and processors expected to participate in the fishery is more indicative. Prior to the 1979 fishery, the ADF&G performed a telephone survey of processors. Results of this survey were that 30 processors, 300 gillnetters and 170 purse seine vessels intended to participate in the 1979 fishery. Processing capacity was estimated to be approximately 36,400+ mt for the entire season. Fishing capacity (DAC) was thought to be higher.

Reports from the 1979 fishery indicate that the number of vessels and processors predicted by the survey was reasonably accurate. However, the total catch from the fishery was only 10,000 mt. The major reason the season's catch was low relative to pre-season estimates of capacity is that bad weather prevented both processing and fishing vessels from reaching the grounds at the

beginning of the season. This problem was compounded when the spawning season peaked relatively early on May 5, only five days after the season had begun. If all vessels which participated in the fishery had been on hand at the beginning of the season, it is estimated that the total harvest would have been in the range of 20,000-25,000 mt.

Participation in the 1980 roe fishery was similar to that of 1979 even though market prices were considerably lower. The expected harvest for this fishery was established at 25,000 mt which was the upper limit of the estimated potential harvest during 1979. Although herring abundance was lower during the 1980 season and bad weather severely hampered fishing operations, the catch, including the estimation of wastage, exceeded 20,000 mt. This fishery may be fully developed and there should be sufficient processor and fishing capability to take a large part of all allowable harvests in future years.

11.3 Roe Fishery North of Cape Newenham

The roe fishery north of Cape Newenham is less developed than the Togiak fishery. Large-scale processing capacity was available for the first time in 1979. The 1980 season yielded a total catch of 3,787 mt, which was more than double the harvest in 1979. The harvest can be expected to increase in this area over the short term.

11.4 Food or Bait Fishery

The domestic fishing industry has expressed considerable interest in an offshore herring fishery, and it may be anticipated that should winter apportionment be available, a winter offshore fishery will commence. Many trawlers and multipurpose vessels now engaged in the king crab fishery, are seeking alternative or supplementary fishing opportunities.

A conservative projection of the domestic harvest of groundfish in the Bering Sea/Aleutian Islands area for 1982 is 125,000 mt; it is estimated that by 1986 this domestic harvest could reach 470,000 mt. Domestic groundfish processing capacity in the area for 1982 is conservatively estimated at 25,000 mt, and could reach 70,000 mt by 1986. Joint venture processing capacity in the area for 1982 is conservatively estimated at 100,000 mt, and could reach 400,000 mt by 1986. Although the extent to which domestic groundfish processors intend to process herring for food is not clear, domestic

harvesters and joint venture processors have expressed a strong interest in harvesting and processing any winter apportionment. It is clear that they have the capacity to do so, and that no portion of the apportionment will be available for foreign harvest.

11.5 Joint Ventures

A joint venture operation between United States fishermen and a Soviet processing vessel was started in the spring of 1980 and an allocation of 4,900 mt of herring was made. In a "joint venture" operation, United States fishermen deliver their catches at sea to foreign processing vessels. The 1980 fishery was terminated on February 7, 1980 by a court order based on procedural defects in the rulemaking process. Prior to that time, the catch was limited to 36.9 mt due to heavy icing and adverse conditions. It is evident that the harvesting of herring in the offshore waters by domestic fishermen can be successful in conjunction with a floating processor. (The high seas domestic floating processor capability for herring has yet to be demonstrated.) A joint venture processing (JVP) component of DAH can be allowed only if domestic processors will not utilize the fish proposed to be taken by the United States fishermen. If the surplus is available, it is highly probable that a joint venture operation would be formed to take the allowed allocation. A determination will be made each year of JVP given available surplus yield.

11.6 Determination of Domestic Annual Harvest

Given the limits on OY (see Section 12.0) and the extent to which domestic vessels working independently or in joint venture operations will harvest any OY, DAH shall be equal to OY (see Section 13.0).

12.0 OPTIMUM YIELD DETERMINATION

The Council, upon the recommendation of the PMT, shall propose determinations of ABC, OY, and AIC for implementation by NMFS Alaska Regional Director.

OY is that portion of the ABC which is made available for harvest in the FCZ. OY will vary from year to year, depending upon the abundance of herring and the degree to which the stocks are harvested in the inshore fisheries.

OY is divided into two components, a summer apportionment and a winter apportionment. The summer apportionment shall be 2,000 mt, and shall be available for harvest south of 55°47'N latitude during the period of July 1 through September 30. In order to assure that this summer offshore apportionment does not cause the fishery to exceed historic levels, harvests in the inshore (territorial sea) fishery south of 55°47'N latitude from July 1 through September 30 shall be counted against the achievement of the 2,000 mt offshore summer apportionment. When 2,000 mt has been harvested in the FCZ and the territorial sea taken together, the FCZ south of 55°47'N latitude shall be closed to fishing for herring until the next apportionment is made. In exceptional circumstances, the summer apportionment may be reduced if NMFS, in consultation with the Council, finds a serious problem resulting from any of the following factors:

- (a) condition of the several spawning stocks of herring with special focus on the availability for subsistence harvest;
- (b) the abundance of spawning herring and their spawning success;
- (c) age composition of the herring population;
- (d) recruitment to the spawning stocks of herring;
- (e) distribution of preceding inshore and offshore harvests among the several geographical groups of spawning herring;
- (f) extent to which inshore fisheries may have harvested ABC.

The winter apportionment, if any, may be harvested throughout the management unit from October 1 (or the date on which notice of its determination is filed with the Federal Register, whichever comes later) until March 31, the end of the fishing year. The winter apportionment for the management unit, to be calculated annually, shall be one-half of the remainder of the ABC after subtracting certain quantities, less AIC. The quantities subtracted from ABC shall include:

- (a) the actual amount of herring harvested during the current fishing year by the inshore commercial fisheries;

(b) an amount corresponding to the Nelson Island ABC;

(c) the actual harvest in the offshore summer food or bait fishery.

The remainder shall be divided in half (as above), and AIC subtracted from the quotient. These calculations are represented by the following equation:

$$\text{Winter Apportionment} = \frac{\text{ABC} - \frac{\text{total inshore harvest} + \text{Nelson Island harvest} + \text{summer offshore harvest}}{2} - \text{AIC}}$$

This apportionment shall be limited as follows:

(a) if the amount so calculated is less than 2,000 mt, or if the current herring biomass is less than one-half of the MSY biomass, the apportionment shall equal zero;

(b) under no circumstances shall the apportionment for the winter offshore fishery be greater than 10,000 mt;

(c) in exceptional circumstances, the amount calculated above may be further reduced if NMFS, in consultation with the Council, finds a serious problem resulting from any of the following factors:

(1) condition of the several spawning stocks of herring with special focus on the availability for subsistence harvest;

(2) the abundance of spawning herring and their spawning success;

(3) age composition of the herring population;

(4) recruitment to the spawning stocks of herring;

(5) distribution of preceding inshore and offshore harvests among the several geographical groups of spawning herring.

(d) This procedure for determining the offshore herring apportionment will be reviewed at the end of three years.

13.0 TOTAL ALLOWABLE LEVEL OF FOREIGN FISHING

Total Allowable Level of Foreign Fishing (TALFF) shall be equal to zero.

The maximum allowable summer offshore harvest is 2,000 mt. The 1982 food and bait harvest in the territorial sea along the Aleutian Islands south of 55°47'N latitude was 3,000 mt. The maximum allowable winter offshore harvest is 10,000 mt. Groundfish harvesting and processing capacities are indicative of capacity to harvest and process herring. A conservative projection of the domestic harvest of groundfish in the Bering Sea/Aleutian Islands area for 1982 is 125,000 mt; it is estimated that by 1986 this domestic harvest could reach 470,000 mt. Domestic groundfish processing capacity in the area for 1982 is conservatively estimated at 25,000 mt, and could reach 70,000 mt by 1986. Joint venture processing capacity in the area for 1982 is conservatively estimated at 100,000 mt, and could reach 400,000 mt by 1986. Although the extent to which domestic groundfish processors intend to process herring for food is not clear, domestic harvesters and joint venture processors have expressed a strong interest in harvesting and processing any winter apportionment. It is clear that they have the capacity to do so, and that no portion of the apportionment will be available for foreign harvest.

14.0 MANAGEMENT SYSTEM

This section prescribes the management regime for herring fishing operations in the the FCZ of the Bering/Chukchi Sea. The inshore fisheries will continue to be managed by the State through regulations promulgated by the Alaska Board of Fisheries, and are beyond the scope of this FMP and this management regime.

14.1 Objectives

This FMP has been prepared in accordance with the National Standards set forth in Section 301(a) of the Magnuson Act. In addition, the management regime of this FMP is intended to achieve these specific objectives:

- (1) To maintain the herring resource at a spawning biomass level that will provide the maximum production of recruits to the population on an annual basis;
- (2) To maintain the herring resource at a level that will sustain prevailing levels of predation by fish, birds, and mammals;
- (3) To maintain the herring resource at a level that will enable the traditional subsistence fishery to harvest herring in the amounts necessary for subsistence purposes;
- (4) To promote full utilization of the herring resource by domestic fisheries;
- (5) To encourage development of herring fisheries in Western Alaska;
- (6) To provide to the extent possible a unified management regime between Federal and State jurisdictions.

To achieve these management objectives, it will be necessary to establish a management system which accords preference to the various herring fisheries, in the following order:

- (1) inshore subsistence fishery;
- (2) inshore commercial fisheries;
- (3) offshore domestic fisheries;

It is recognized that the preferences among inshore fisheries are determined and implemented by the State of Alaska, and that minor adjustments are made to accommodate herring AIC and the Aleutian Islands/Alaska Peninsula offshore summer fishery.

Also necessary to achieve these objectives on a long-term basis is the establishment of a conservative management regime for the near future. The rationale for supporting a conservative management regime is that the abundance of herring declined sharply in the early 1970's and only recently has an increase become apparent. Although several hypotheses could be advanced to explain the cause of the observed decline, data are insufficient to establish conclusively a causal factor. Also, present knowledge of the resource is rudimentary and inferences on many aspects of life history must be drawn from other more thoroughly studied populations. Since rapid, marked changes in abundance are expected to occur in the future, based on historic patterns in world herring fisheries, and as management and research are at an embryonic stage, it is prudent to manage the resource conservatively until basic management data become available.

Justification and Rationale of Objectives

Herring managers world-wide have recognized the importance of maintaining a strong spawning biomass. In the North Atlantic Ocean, management is based on setting yield at or below the $F_{0.1}$ level (see Section 9.6.2) to maintain a sufficiently large multi-age spawning biomass. In British Columbia, management is based on escapement where the fish surplus to spawning requirements are allocated to the fishery on data that egg survival is greatest at moderate densities and a maximum number survive to the critical larval stage.

At present, data are insufficient to determine the level of biomass that will produce maximum recruitment; however, assuming that MSY is an indicator of long-term average yield achievable at a harvest level of 0.2, then at least average recruitment should be maintained at this biomass level.

Achieving the first objective insures that the second objective is met since resource surveys will be conducted annually and deviation about the mean biomass level reflects changes in the survival of herring year-classes of which predation is a major component. If a strong predator-prey relationship exists between herring and a mammal, bird, or fish species, then managing herring to dampen strong stock fluctuation should also dampen fluctuations in the predatory species. Also, limiting yields to or below the $F_{0.1}$ level should insure an adequate amount of herring for use by other species.

Objectives 3, 4, and 5 may conflict to some degree depending on the level of fishing in each fishery and the relationship of individual spawning stocks.

Two factors support reduced allocations to the food fishery at the present time. There are unknown stock mixtures in offshore waters and the capacity and capability of the domestic food herring fishery are currently unknown.

Harvesting herring during the spawning period maximizes the likelihood that harvests are on discrete spawning stocks. The food fishery harvests from several mixed stocks, possibly at different rates. If a higher proportion were taken from the smaller stocks then there could be impacts on the viability of the roe fisheries being established on them, as well as on the subsistence fisheries.

The results of mixed stock fishing are not entirely predictable at this time, as there are few data available. Most of the world's major herring fisheries are on mixed spawning stocks and studies carried out on these stocks have indicated no adverse impacts from this practice. During years for which data on both offshore herring harvests in the Bering Sea and on the abundance of individual spawning stocks exists, the individual stocks appear to have multiplied many times despite exploitation by offshore fisheries much larger than any likely to be permitted under this FMP.

However, with a commercial inshore fishery in an area of low economic opportunity, and important subsistence fisheries, the benefits of concentrating harvests inshore and cautious development of a food fishery appear to exceed the costs.

14.2 Allocations to the Fisheries

14.2.1 Fishing year. April 1 to March 31

A fishing year commencing April 1 coincides with the migration of herring into coastal waters for spawning and is a natural division between the fisheries occurring on the winter grounds and those on the spawning grounds.

14.2.2 Aleutian Islands/Alaska Peninsula offshore apportionment

Two thousand mt of herring is apportioned to the offshore summer food and bait fishery of the Aleutian Islands/Alaska Peninsula area. This apportionment shall be harvested only south of 55°47'N latitude, during the period July 1 through September 30. In order to assure that the summer offshore apportionment does not cause the fishery to exceed historic levels, harvests in the inshore (territorial sea) fishery south of 55°47'N latitude from July 1 through September 30 shall be counted against the achievement of the 2,000 mt

offshore summer apportionment. When 2,000 mt has been harvested in the FCZ and the territorial sea taken together, the FCZ south of 55°47'N latitude shall be closed to fishing for herring until the next apportionment is made.

14.2.3 Determination and allocation of offshore winter allocation

As soon as practicable after completion of the inshore commercial and subsistence fisheries, the Council, upon the recommendation of the PMT, shall propose determinations of ABC and offshore winter allocation for implementation by the NMFS Alaska Regional Director. These values shall be calculated according to the provisions of Section 12.0. Any winter apportionment to the domestic offshore fishery shall be made on or before September 30, or as soon as is practicable thereafter.

14.3 Management Measures

14.3.1 Inshore commercial fisheries

Regulations for the orderly conduct of the inshore commercial fisheries shall be promulgated by the State of Alaska Board of Fisheries, and are beyond the scope of this FMP.

Rationale

The inshore commercial, primarily roe, fisheries are currently managed exclusively by the State of Alaska. It is expected that the roe fishery will continue inside of three miles in the future since roe quality and recovery rates are greatest in close proximity to the spawning grounds. It is desirable to continue restricting the roe fishery to State waters because product quality will be highest, management and regulation of the fishery will be simplified, aerial biomass surveys will be more easily performed, and fishing on discrete stocks is facilitated. Management of the roe fishery by the State is based on the following considerations:

- (1) the effect of overall fishing effort;
- (2) the catch per unit effort and rate of harvest;
- (3) the relative abundance of herring in comparison with pre-season expectations;
- (4) the performance of the roe fishery;

- (5) the proportion of immature or spawned out herring and the age structure of the population;
- (6) general information on the condition of herring;
- (7) information pertaining to the optimum yield for herring;
- (8) timeliness and accuracy of catch reporting by buyers to the extent that such timeliness or accuracy may reasonably be expected to affect proper management; and
- (9) any other factors necessary for the conservation and management of the herring resource.

These considerations allow an adjustment of harvest levels during the fishery.

14.3.2 Offshore commercial fisheries

- i. Provisions for allocation, see subsections 14.2.2, 14.2.3.
- ii. The FCZ will be closed to directed fishing for herring from the beginning of the fishing year, April 1 until July 1, south of 55°47'N latitude. The FCZ will be closed for directed fishing for herring until September 30 or the date on which the winter apportionment is noticed (whichever come later), north of 55°47'N latitude. However, the Regional Director, in consultation with ADF&G and the Council, may open the FCZ by emergency regulation if ice conditions or other factors preclude adequate development of the inshore commercial and subsistence fishery.

Rationale

See the rationale discussed above.

- iii. All or part of the Herring Savings Area as described in Appendix 18.2 will be closed to herring and groundfish trawl fisheries by the Regional Director, if:
 - (a) DAH and AIC have been harvested; or
 - (b) the amount of remaining DAH and AIC can be harvested within one reporting period (one week).

Rationale

To simplify the accounting of herring harvested as DAH or AIC, all herring caught will be charged against DAH until DAH is attained. All subsequent herring harvest will be charged against AIC. If no domestic allocation remains (either DAH or AIC), the Herring Savings Area Closure would be implemented to protect the feeding stocks against further harvesting by the winter fisheries. If there is a small amount of DAH or AIC outstanding that can be taken in one reporting period, an in-season closure could be implemented by the Regional Director in order to avoid exceeding the OY between reporting periods (see In-season Adjustment of Time and Area, Section 14.5)

14.3.3 Other regulations

Regulations in the Bering Sea/Aleutian Islands Groundfish FMP for time and area closures shall also apply to all herring fisheries.

Rationale

Any herring trawl fishery in the FCZ is conducted in conjunction with domestic groundfisheries. The restrictions on groundfishing operations have been developed to protect incidentally caught species and prevent gear conflicts. As herring fishing gear is similar to groundfishing gear (e.g. pollock), the herring fishery has potentially the same impact. Thus, the Bering Sea Groundfish FMP implementing regulations specifying time and area closures shall also apply to the herring fisheries to minimize adverse impacts and to maintain consistency of regulations.

14.3.4 Statistical reporting requirements

All operators of vessels and processing facilities involved in the harvest, transportation or processing of herring are required by Alaska state law to submit a completed Alaska fish ticket or equivalent document for each sale or delivery of herring in areas managed by the State of Alaska.

This FMP requires all operators of vessels or processing facilities to submit a completed Alaska fish ticket or equivalent document for each landing or delivery of herring outside of state waters.

If requested by the Regional Director, but no more than once a year, fishermen who have reported landings of herring must report, or otherwise make available through logbooks or interviews, other information needed for manage-

ment of the resource. Needed information may include (1) catches by ½ degree latitude x 1 degree longitude areas, and (2) effort (e.g., hours towed, number of landings, number of trips) by gear type and vessel class, and by month. These reports may be required from vessels which deliver their catches from the management unit to Alaska ports, to U.S. vessels at sea, to foreign vessels at sea engaged in joint ventures, and to ports outside of Alaska.

If requested by the Regional Director, but not more than two times a year, each United States fish processor who intends to process United States caught herring in the management unit shall complete a written survey received from the Regional Director, to include the quantity of herring that the processor has the capacity to process during the period specified by the survey, and the quantity of herring that the processor expects to process in areas and during periods specified by the survey.

If requested by the Regional Director, but not more than two times a year, each joint venture representative whose company or association intends to deliver herring harvested by United States fishermen from the management unit to foreign processors shall complete a written survey received from the Regional Director to include the quantity of the United States-harvested herring that the joint venture operator expects to deliver to foreign processors.

14.3.5 Permit requirements

All U.S. vessels operating in the FCZ portion of the Bering/Chukchi Sea must have on board a permit issued by the Secretary of Commerce or a State of Alaska vessel license.

14.4 Management Measures and Rationale for the Foreign Fishery

14.4.1 Existing area closures

- i. Directed fishing for herring is not allowed within the Management Unit.
- ii. All or part of the Herring Savings Area, as described in Appendix 18.2, will be closed to groundfish trawl fisheries by the Regional Director, if:

- (a) there is no remaining AIC;
- (b) the amount of remaining AIC can be harvested within one reporting period (one week).

Rationale

The purpose of this time/area closure is to restrict the incidental catch of herring by foreign groundfish trawl fisheries. An in-season closure provision is necessary to allow the Regional Director to act within a reasonable amount of time to protect herring stocks from being over harvested during one reporting period.

This closure applies to trawl gear only. Longline, pot or other gear which are not utilized to fish for herring or catch herring above trace amounts (less than 0.001% of total catch) are exempt from this time/area restriction.

14.4.2 Foreign reporting requirements

The operators of all foreign vessels must maintain an accurate log of catch and effort information in accordance with the requirements of the implementing regulations of the Bering Sea/Aleutina Islands Groundfish FMP and other foreign fishing regulations, 50 CFR Part 611.

14.4.3 Permit requirements

All foreign vessels fishing for groundfish in the FCZ must have on board a permit issued by the Secretary of Commerce, as required by the Magnuson Act.

14.4.4 Prohibited species

The retention of salmonids, Pacific halibut, Tanner Crab, king crab, coral, snails, scallops, shrimp, surf clams, horsehair crab, lyre crab, or Dungeness crab, or other continental shelf fishery resources is prohibited. This prevents covert targeting on species of importance to US fishermen.

14.5 In-season Adjustment of Time and Area

The Alaska Regional Director of NMFS, or his designee, may issue field orders adjusting time and area restrictions. The field orders may open or close fishing areas or parts thereof and fishing seasons based on the following considerations:

- (a) the effect of overall fishing effort;
- (b) the catch per unit effort and rate of harvest;
- (c) the relative abundance of herring in comparison with pre-season expectation;
- (d) the performance of the roe fishery;
- (e) the proportion of immature or spawned out herring and the age structure of the population;
- (f) general information on the condition of herring;
- (g) information pertaining to the optimum yield for herring;
- (h) timeliness and accuracy of catch reporting by buyers to the extent that such timeliness or accuracy may reasonably be expected to affect proper management; and
- (i) any other factors necessary for the conservation and management of the herring resource.

Rationale

Success of any management program is greatly dependent on deliberately building flexibility into the governing system to allow timely changes in regulations to meet changing needs and conditions. This type of flexibility results in many benefits:

- (a) New information and data relating to resource management can be immediately incorporated into the management program, even when the fishery is in progress.
- (b) The management approach adopted before the season can be adjusted and refined during the season on the basis of assessments of actual resource conditions.
- (c) Unanticipated resource conditions can be reacted to immediately to prevent both underfishing and wasteful under-utilization.
- (d) The dangers posed by high effort levels and efficient harvesting units (as where fleet capacity equals or exceeds an OY) can be closely controlled.
- (e) Unexpected developments with respect to economic and social factors (natural disaster, changes in marketing conditions, cannery fires, etc.) can be accommodated so the herring resources are distributed and allocated in a manner which maximizes overall public benefits.

- (f) Management philosophies and policies formulated through legislative and administrative processes may be carried out in the field by biologists familiar with local conditions.
- (g) Management approaches which are proving unworkable or which are imposing undue hardships on users may be changed at once.
- (h) Necessary in-season refinements in management programs can be accomplished primarily in the field with the advice and assistance of the users most directly affected.

In order to assume effective management of the herring resource as a unit throughout its range, in-season adjustments made by the Regional Director should be coordinated with similar actions taken by the State in waters under State jurisdiction, when such actions are consistent with this FMP and the Magnuson Act. It is necessary that the Regional Director, to the extent possible, act in conjunction with ADF&G in order to effect uniformity of management in State waters and the FCZ. As a result, any changes proposed by the Regional Director will be accompanied by advance notice to the State to allow for opportunity to maintain such uniformity. In all cases, continuous consultation between ADF&G and the Regional Director will be maintained.

It is expected that the actual opening and/or closing dates for the seasons prescribed in this plan will be adjusted by the Regional Director pursuant to the authority described in this section. Such action is not considered an action that would require amendment of this FMP, or of regulations implementing this FMP.