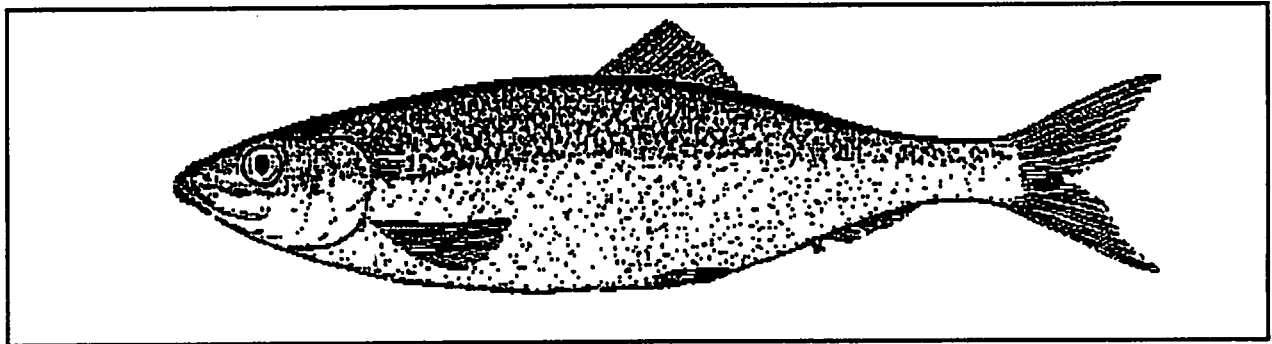


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FINAL
SUPPLEMENTAL ENVIRONMENTAL DOCUMENT

PACIFIC HERRING
COMMERCIAL FISHING REGULATIONS

(Sections 163, 163.5, and 164, Title 14, California Code of Regulations)



2001
STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF FISH AND GAME

**FINAL SUPPLEMENTAL ENVIRONMENTAL DOCUMENT
PACIFIC HERRING COMMERCIAL FISHING REGULATIONS**

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SUMMARY

S.1 Introduction

This Final Supplemental Environmental Document (FSED) to the 2000 Final Supplemental Environmental Document (FSED), and Final Environmental Document (FED), Pacific Herring Commercial Fishing Regulations, 1998, provides the review and analysis required by California Environmental Quality Act (CEQA) Guidelines to assist the California Fish and Game Commission (Commission) in regulating the commercial harvest of Pacific herring throughout the State's ocean and estuarine waters. Specifically, the FSED reviews and evaluates proposed regulatory changes for the 2001-02 fishing season, supplementing, and in some cases replacing, aspects of the proposed project described in the 1998 FED and the Final Supplemental Environmental documents of 1999, and 2000. A Notice of Preparation (NOP) and public scoping meetings were used to identify and incorporate concerns and recommendations of the public, resource and regulatory agencies, and the fishing industry into the review and analysis of the proposed changes contained in these documents.

The FSED includes seven chapters. Chapter 1 discusses the authorities and responsibilities under which the FSED was developed and describes its intended use. Chapter 2 describes the proposed project and alternatives for regulating the commercial harvest of herring. Chapter 3 describes the existing environment where herring fisheries occur. Chapter 4 addresses the impacts of the proposed project and cumulative effects. Chapter 5 describes the impacts of the alternatives to the proposed project. Chapter 6 identifies consultations. Chapter 7 responds to comments received on the Draft Supplemental Environmental Document (DSED).

The proposed project has been selected as the preferred alternative based on the analysis of this FSED. The proposed project is identified as the preferred alternative because it provides a set of regulations most likely to achieve the State's policy with respect to the conservation, sustainability, maintenance, and utilization of the Pacific herring resource.

S.2 Proposed Project

The proposed project is a body of recommended regulations governing the commercial harvest of herring-for-ro-e products, the harvest of herring eggs-on-kelp, and the harvest of herring as fresh fish, for bait, and pet food. The proposed project takes the form of recommendations for continuation, amendment, or change to an existing body of regulations in effect since 2000 (Sections 163, 163.5, and 164, Title 14, California Code of Regulations (CCR)).

The proposed regulatory changes will establish season dates as well as fishing quotas by area for the 2001-02 California Pacific herring fishing season, based, in part, on the most recent assessments of the spawning populations of herring in San Francisco and Tomales bays. The proposed regulatory changes will also include the continued experimental use of a 2-inch mesh size for gill nets used in the roe fishery in Tomales Bay, for the 2001-02 season only. Other changes relating to simultaneously fishing, nighttime noise created by fishing activity, gill net gear issues, herring sampling by buyers, permit suspensions, prohibition of the use of seal bombs, quota allotments, regulatory language pertaining to the herring eggs-on-kelp fishery, and minor editorial changes are recommended to improve the clarity of the regulations or to provide for the efficient harvest and orderly conduct of the fishery, and to protect the resource.

The specific regulatory changes recommended for the 2001-02 season will:

(1) provide for a 4,476-ton quota for San Francisco Bay (12 percent of the 37,300-ton estimated spawning biomass for the 2000-01 season) and set the dates of the roe herring fisheries in San Francisco Bay from 5:00 p.m. on Sunday, December 2, 2001 to noon on Friday, December 21, 2001 ("DH" gill net platoon only), and from 5:00 p.m. on Wednesday, January 2, 2002 to 5:00 p.m. on Friday, March 22, 2002; (2) provide an initial 300-ton (7 percent of the 4,196-ton estimated spawning biomass) quota for Tomales Bay with provisions to increase the quota in-season if escapement goals are achieved by February 15, 2002 and set the dates of the roe herring fishery in Tomales Bay from 5:00 p.m. on Wednesday, December 26, 2001 until noon on Friday, December 28, 2001, and from noon on Wednesday, January 2, 2002 to noon on Friday, March 8, 2002; (3) specify that the mesh size of any gill net used or

possessed in the roe herring fishery in Tomales Bay shall be not less than 2 inches or greater than 2 ½ inches for the 2001-02 season only; (4) provide for one permittee to serve as a temporary substitute on a second permit while simultaneously fishing his or her own permit on a single vessel within the same fishing group, and specify that the permittee who is serving as a temporary substitute while simultaneously fishing his or her own permit shall incur the same penalties on his or her permit for all violations as those incurred against the permit for which he or she is serving as temporary substitute; (5) address nighttime noise created by fishing activity along water fronts bordering residential properties in San Francisco Bay by establishing that during the hours of 10:00 p.m. to 7:00 a.m., noise reduction measures will be implemented by San Francisco Bay herring gill net vessels when fishing within 500 feet of any shoreline adjacent to residential dwellings; (6) require that gill net buoy markers be composed of rigid or non-collapsible material; (7) remove references contained in Sections 163 and 163.5, Title 14, CCR to round haul gear other than those regulations prohibiting the use of round haul gear; (8) clarify the method of measuring gill nets to specify that a peg or nail of no more than 5/32 inch in diameter will be used on certified measuring boards; (9) require fish buyers to take a sample of herring for roe testing purposes from every single boat load after the load has been weighed and recorded; (10) clarify that a permittee whose permit is suspended for a period less than an entire season is prohibited from participating in any herring fishery in the State during the period of time for which the permit has been suspended; (11) prohibit the use of seal bombs or explosives commonly used as marine mammal deterrent devices in San Francisco Bay waters during the San Francisco Bay herring fishery season; (12) transfer 10 tons of quota from the underutilized herring fresh fish fishery to the gill net fishery for use in a gill net mesh size study, for the 2001-02 season only; (13) define "Fishing", "Harvesting", and "Processing" relative to the herring eggs-on-kelp fishery; (14) define criteria establishing a herring eggs-on-kelp permit applicant as a prior permittee; (15) move the notification of kelp suspension requirement currently in Subsection 164(j)(2), Title 14, CCR, Harvesting, Landing, and Processing Requirements to Subsection 164(i), Title 14, CCR, Method of Take; (16) require that a herring eggs-on-kelp permittee provide a local facsimile number or mailing address where in-season kelp suspension notification confirmation

could be sent; (17) revise the Herring Eggs-on-Kelp Monthly Landing and Royalty Report form number; (18) revise all section headings to reflect the proposed regulatory additions, and (19) make minor editorial revisions.

Other aspects of the existing herring regulations (Sections 163, 163.5, and 164, Title 14, California Code of Regulations) will remain unchanged.

S.3 Project Alternatives

Three alternatives are considered in this FSED. These alternatives include: (1) a no fishery alternative; (2) using existing regulations; and (3) establishing individual vessel quotas for gill net vessels in the roe herring fishery. Refer to Section 2.4, Project Alternatives, and Chapter 6, Analysis of Alternatives, of the FED, for a thorough description of alternatives and analysis of their impacts.

S.4 Existing Environment

Although the proposed project consists primarily of regulatory changes for San Francisco Bay and Tomales Bay fisheries, the existing environment potentially affected by the proposed project and alternatives also includes the open ocean and other bays in which herring occur. However, the environments most likely to be affected by the regulatory revisions outlined in this FSED are San Francisco Bay and Tomales Bay. Herring fisheries also occur in the Crescent City area, Humboldt Bay, and the open ocean, primarily within Monterey Bay. Refer to Section 3.3, Specific Biological and Environmental Descriptions of the FED, for a thorough description of these environments.

S.5 Environmental Impacts

S.5.1 Proposed Project

An analysis of the potential impacts of the proposed project described by this FSED did not identify any new potential impacts that are not analyzed in the FED. Several areas of potential concern were identified in the FED. The FED identified the area with the highest potential for impacts as the San Francisco Bay area, which supports the largest roe herring

fishery in the State. Localized, short-term, and less than significant impacts were identified in the FED for several areas of potential concern including: boat and vehicle traffic circulation, water quality, air quality, housing and utilities, geology, scenic quality, recreation, and noise. The FED found biological impacts to have the greatest potential for significant environmental impact, but found these impacts to be localized, short-term, and less than significant, with mitigation provided by the current management strategy and Department of Fish and Game (Department) conducted herring population monitoring. Refer to Chapter 4 of the FED for a thorough environmental impact analysis of the proposed project.

S.5.2 Alternatives

The alternatives proposed in this FSED are the same as those described in the FED. A thorough analysis of the impacts of these alternatives is provided in Chapter 6 of the FED.

Alternative 1 (no fishery)

Localized, short-term, and less than significant impacts to vessel and vehicle traffic circulation, water quality, air quality, housing and utilities, scenic quality, recreational opportunities, and noise levels identified for the proposed project would be eliminated or redistributed in an unpredictable manner.

Potential biological impacts associated with a no fishery alternative include an increased rate of natural mortality, the potential for deterioration in the condition of the herring population as it reaches carrying capacity, and potential impacts to other species that compete with herring for food resources.

Alternative 2 (existing regulations)

In most regards, the environmental impacts will be comparable to those of the proposed project. Although this alternative does provide for an adjustment of quotas and season dates, it does not address certain fishery-related problems considered in amendments or changes to existing regulations. The existing regulation alternative would maintain the herring fishery regulations as amended through 2001 (see FSED, 2000) and would not provide for the consistent management of the State's resources.

Alternative 3 (individual vessel quota)

Individual vessel quotas, rather than the platoon-based quota system currently used in

the roe herring gill net fishery, would add incrementally to most impacts due to longer actual fishing seasons. However, these impacts are still expected to be short-term, localized, and less than significant for most environmental categories.

Wastage of resource could result from sorting catches to remove males from the catch or discarding unripe fish to achieve higher roe content, and therefore, higher ex-vessel prices. However, the competition between permittees for a share of the quota is greatly lessened under an individual quota system and may result in fewer nets likely to be lost, thus reducing impacts from "ghost" net fishing.

S.5.3 Cumulative

An analysis of the cumulative impacts of the proposed project revealed no additional impacts to those addressed in the FED. An analysis of cumulative impacts is provided in Chapter 5 of the FED.

A variety of factors have the capacity to influence Pacific herring population status in California in addition to the proposed project including: (1) biological events; (2) competitive interactions with other pelagic fish and fisheries; (3) oceanographic events; (4) habitat loss; and (5) water quality. However, as with potential impacts from the on-going commercial harvest of herring, continued monitoring of the herring resource and oceanographic conditions should herald any trends long before the stock's reproductive potential is jeopardized.

S.6 Areas of Controversy

The following areas of controversy have been identified regarding commercial herring fishing during the public scoping process and prior fishing seasons:

1. Potential interactions between marine mammals and commercial fishing activities;
2. Importance of herring as a forage species for sea birds, marine mammals, and other fishes;
3. Inadequate knowledge of the resource;
4. Errors in stock assessment;
5. Insufficient management resources;
6. Potential impact of unforeseen events or catastrophes (e.g., oil spills, chemical

spills).

7. Noise generated by commercial fishing activities along the Marin county waterfront.

Item numbers 1 through 6 of these areas of controversy are addressed in detail within Chapter 5 of the FED. Item 7 is discussed in detail within Chapter 2 of this FSED.

S.7 Issues to be Resolved

At issue is whether or not to provide for commercial fishing as an element of herring management in California. If commercial herring fishing is authorized, decisions are needed to specify the areas, seasons, fishing quotas and other appropriate special conditions under which fishing operations may be conducted. This document, the 1998 FED, the 1999 FSED, and the 2000 FSED include a review and discussion of the proposed project as well as alternatives.

Chapter 1. INTRODUCTION

1.1 Background

This Final Supplemental Environmental Document (FSED) presents the review and analysis necessary to aid the California Fish and Game Commission (Commission) in taking action to regulate the commercial harvest of herring in California. It was prepared following the California Environmental Quality Act (CEQA) Guidelines. The project being considered is the proposed changes to the regulations for the 2001-02 California Pacific herring commercial fishing season.

This FSED was prepared as a supplement to: (1) the Final Environmental Document (FED), Pacific Herring Commercial Fishing Regulations, certified by the Commission in August 1998; (2) the Final Supplemental Environmental Document (FSED), certified by the Commission in August 1999; and (3) the FSED, certified by the Commission in August 2000. The FED outlines the full proposed project, consisting of the operation and management of California's Pacific herring commercial fishery. The FSED of 1999 provided for the revisions of the proposed project contained in the FED and regulatory revisions necessary for the conductance of the 1999-2000 Pacific herring commercial fishing season. The FSED of 2000 provided for revisions of the proposed project contained in the FED and regulatory revisions necessary for the conductance of the 2000-01 Pacific herring commercial fishing season. This FSED supplements both of these documents and provides for revisions to the regulations for the 2001-02 Pacific herring commercial fishing season.

The California Department of Fish and Game (Department) and Commission hold the public trust for managing the State's wildlife populations, including herring. That responsibility is fulfilled by a staff of experts in marine resource management and enforcement issues related to California's herring resource. The knowledge and training represented by that expertise qualifies them to perform the review and analysis of the proposed commercial herring harvest regulations contained in this document.

1.2 The Functional Equivalent

CEQA requires all public agencies in the State to evaluate the environmental impacts of projects that they approve or carry out. A Final Environmental Document for Pacific Herring Commercial Fishing Regulations was certified by the Commission in 1998. Section 1.2 of the FED provides an explanation of how the FED satisfies the required environmental assessment as mandated by CEQA. A new FED is required: 1) when subsequent changes are proposed in the project which require important revisions of the previous FED due to new significant environmental impacts not considered in a previous FED; or 2) when new information of substantial importance to the project becomes available (CEQA Guidelines Section 15162, Public Resources Code Section 21166).

The CEQA lead agency may choose to prepare a supplement to a FED instead of a new FED if only minor additions or changes are necessary to make the previous FED adequately apply to the project in the changed situation. This supplement to the FED need only contain the information necessary to make the previous FED adequate for the project as revised. The draft supplemental document is given the same notice and public review given to a draft environmental document, and may be circulated by itself without the previous FED. A Notice of Preparation (NOP) for the DSED was circulated to interested parties on March 20, 2001. A 45-day public comment period for this DSED ended August 3, 2001, as explained in the enclosed Notice of Availability (NOA). When the agency decides whether to approve the project, the decision-making body considers the previous FED as revised by the supplemental environmental document (CEQA Guidelines Section 15163).

This FSED is the third SED to the FED prepared by the Department. The first FSED was certified by the Commission on August 1999; the second FSED was certified by the Commission on August 2000. As provided for by CEQA, the Department will continue to use this method of revising Sections 163, 163.5, and 164, Title 14, CCR for a period of approximately five years. At that point, or sooner if deemed necessary, the Department will prepare a new environmental document.

1.3 Scoping Process

The Department invited interested parties to a public meeting held April 4, 2001, to receive input on the proposed project and the content of the DSED. The Department also distributed a NOP to interested parties on March 20, 2001. This provided an opportunity for the concerns of responsible agencies and citizens to be addressed in the DSED.

1.4 Report Availability

This FSED is available at the Fish and Game Commission Office in Sacramento, and Department of Fish and Game offices.

1.5 Authorities and Responsibilities

The California State Legislature formulates the laws and policies regulating the management of fish and wildlife in California. It is the policy of the State to ensure the conservation, sustainable use, and, where feasible the restoration of California's living marine resources for the benefit of all the citizens of the State [Section 7050, California Fish and Game Code (Fish and Game Code)]. It is also the State's policy to promote the development of local fisheries and distant-water fisheries based in California in harmony with international law respecting fishing and the conservation of the living resources of the oceans and other waters under the jurisdiction and influence of the State (Section 1700, Fish and Game Code, Appendix 1 of FED).

The Legislature provides further policy direction regarding herring management in Sections 8550 through 8559, Fish and Game Code; provided in (Appendix 1 of FED). The State Legislature delegated authority to the Commission, whose members are appointed by the Governor, to regulate the commercial harvest and possession of Pacific herring (Section 8553, Fish and Game Code). The remaining code sections provide for a limited entry fishery and require periodic review of regulations and policies. The Commission holds public meetings at its discretion to consider and adopt revisions to these regulations. Recommendations and comments from the Department, other agencies and the public are

typically received at two public meetings each year prior to the Pacific herring commercial fishing season.

The authority to prepare a supplemental environmental document is given in Section 21166 of the Public Resources Code.

Chapter 2. PROJECT DESCRIPTION

2.1 Project Objectives

The proposed project, as defined in the Final Environmental Document (FED), is the regulation of Pacific herring fisheries under the State's jurisdiction. The regulations are considered for inclusion in the California Code of Regulations (CCR) to implement the State's policies for managing the commercial use of Pacific herring (Sections 163, 163.5, and 164, Title 14, CCR). The proposed project and alternatives addressed in this Final Supplemental Environmental Document (FSED) take the form of recommendations for amendment or change to an existing body of regulations. The recommendations and alternatives are based on biological assessments of existing stock conditions and comments received from interested individuals, commercial fishermen, and from the Director's Herring Advisory Committee (DHAC)¹. The California Fish and Game Commission (Commission), whose members are appointed by the Governor, has legislatively-delegated authority to act on these recommendations.

Project objectives include:

- Maintaining healthy Pacific herring stocks in California;
- Controlling commercial harvest of Pacific herring to maintain a sustainable fishery;
- Providing sufficient Pacific herring to support recreational uses; and
- Providing sufficient Pacific herring to conserve living resources of the ocean that utilize herring as a food source.

Under existing law, herring may be taken for commercial purposes only under a revocable permit, subject to such regulations as the Commission shall prescribe (Section 8550 Fish and Game Code, Appendix 1, FED). Current regulations specify: permit qualifications, permit validation requirements, permit limitations, permit areas, seasons, fishing quotas, gear restrictions, and landing and monitoring requirements.

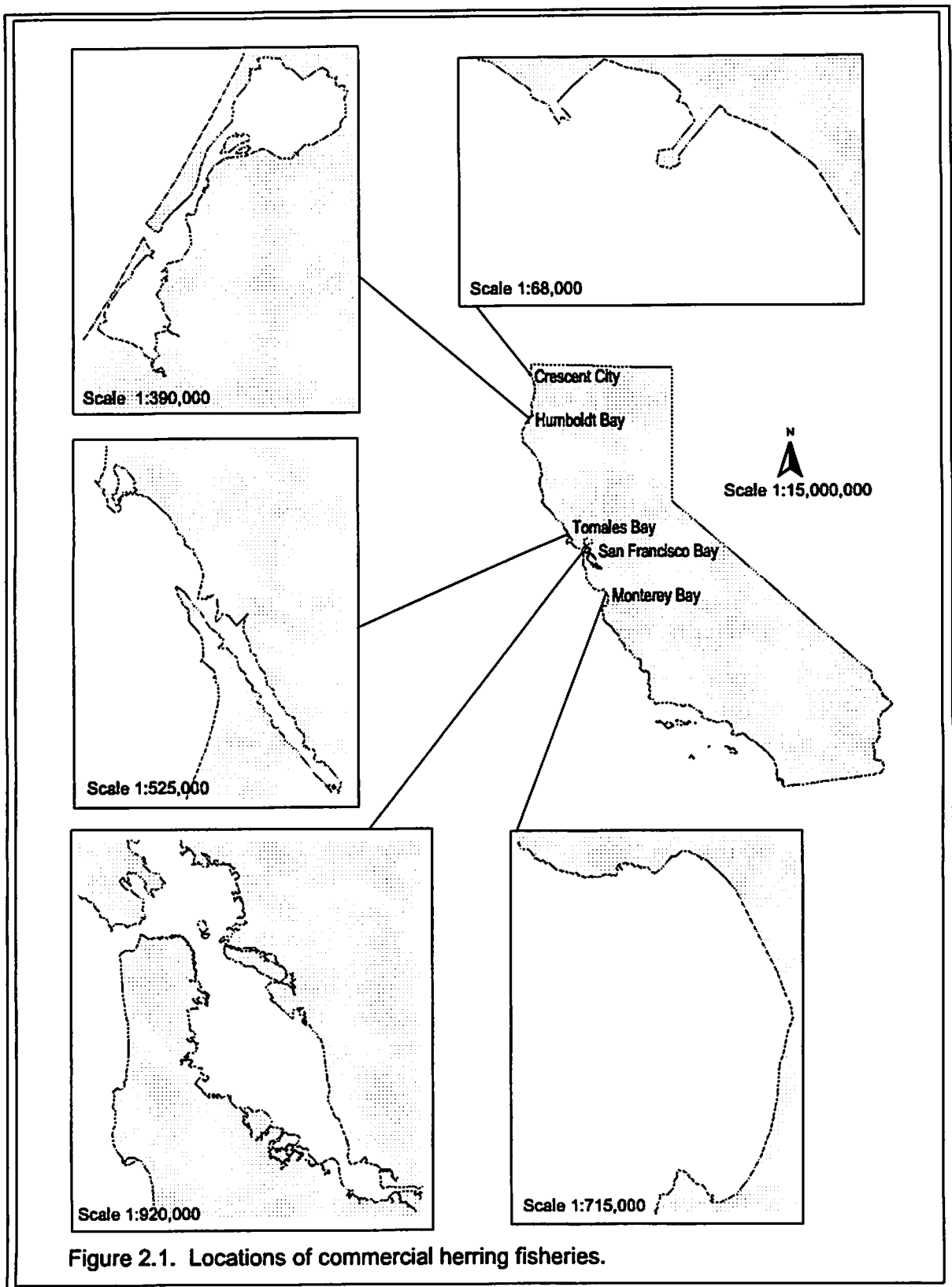
The proposed project addressed by this FSED consists of amendments and changes to

¹ The DHAC consists of 13 representatives from the herring fishery, including buyers and fishermen. They are appointed by the Director and serve at his or her pleasure.

existing regulations for the 2001-02 commercial herring fishing season. The proposed project changes fishing quotas by area and gear type. Quota recommendations for San Francisco Bay and Tomales Bay are based primarily on the most recent assessments by the Department of Fish and Game (Department) of the size of the spawning populations of herring in those areas. Other proposed amendments and changes are intended to improve the efficient and orderly conduct of herring fisheries and the management of herring stocks.

2.2 Project Locations

Permits have been issued for commercial herring fishing in five geographically distinct areas of the ocean and estuarine waters under the jurisdiction of the State of California (Figure 2.1). Many of the regulations considered by this document are specific to an area and type of fishing operation. This section describes each area in which regulatory changes are proposed, including current commercial fisheries for herring, and proposed seasons, quotas, and geographical restrictions for those fisheries. A complete description of commercial herring fishing areas is provided in Section 2.2 of the FED. The environmental setting for each geographical fishing area is detailed in Section 3.3 of the FED.



2.2.1 San Francisco Bay

2.2.1.1 Herring Roe Fishery

Season: 5:00 p.m. on December 2, 2001 until noon on December 21, 2001, and 5:00 p.m. on January 2, 2002 until noon on March 22, 2002.

Note: Herring fishing is not permitted from noon on Friday through 5:00 p.m. on Sunday.

Gill net permittees (DH) December 2-7, December 9-14, December 16-21, and, if necessary, after other platoons have reached their quotas, until DH quota is reached or last day of season.

Gill net permittees (Odd #) January 2-4, January 13-18, January 27-February 1, February 10-15, February 24-March 1, March 10-15.

Gill net permittees (Even #) January 6-11, January 20-25, February 3-8, February 17-22, March 3-8, March 17-22.

Quota: 4,456 tons

Note: The overall quota for the roe herring fishery will be reduced by transfers to the herring eggs-on-kelp fishery.

Area: Waters of Districts 12 and 13 and that portion of District 11 lying south of a line extending from Peninsula Point (the most southerly extremity of Belvedere Island) to the easternmost point of the Sausalito ferry dock.

1) Regulations prohibit the setting or operating of nets within 300 feet of the following piers and recreation areas: Berkeley Pier, Paradise Pier, San Francisco Municipal Pier between the foot of Hyde Street and Van Ness Avenue, Pier 7 (San Francisco), Candlestick Point State Recreation Area, the jetties in Horseshoe Bay, and the fishing pier at Fort Baker. Regulations also prohibit the setting or operating of nets within 70 feet of Mission Rock Pier.

2) Regulations prohibit the setting or operating of nets in Belvedere Cove north of a line drawn from the tip of Peninsula Point to the tip of Elephant Rock. Regulations also prohibit the setting or operating of gill nets from November 15 through February 15 in the area bounded by a line drawn from the middle anchorage of the western section of the Oakland Bay Bridge (Tower C) to the Lash Terminal buoy #5 to the easternmost point at Hunter's Point (Point Avisadero), from Point Avisadero to the Y"A" buoy, from the Y"A" buoy to Alameda NAS entrance buoy #1 (entrance to Alameda Carrier Channel) to the Oakland Harbor Bar Channel buoy #1, and then to from the first Bar Channel buoy to Tower C of the Bay Bridge.

2.2.1.2 Herring Eggs-On-Kelp Fishery

Season: December 1, 2001 to March 31, 2002.

Quota: An individual quota of 2.1 tons for transferred gill net permits, an individual quota of 7.9 tons for transferred "CH" permits.

Note: The combined quota for harvest of herring eggs-on-kelp depends on the number of "CH" and gill net permits transferred to the herring eggs-on-kelp fishery.

Area: Waters of Districts 11, 12, and 13, and that portion of District 2 known as Richardson Bay.

Note: The area open to the herring eggs-on-kelp fishery is further restricted. Rafts and lines may not be placed in any waters or areas otherwise closed or restricted to the use of herring gill net operations, except the areas known as Belvedere Cove and Richardson Bay or except where written permission is granted by the owners or controlling agency (e.g., Navy, Coast Guard). When rafts or lines are placed in Belvedere Cove or Richardson Bay, they must be tied to a permanent structure (e.g., pier or dock).

2.2.1.3 Fresh Fish Market Fishery (not for roe purposes): San Francisco Bay

Season: November 2 through November 15, 2001 and April 1 through October 31, 2002.

Quota: 20 tons, except that for the 2001-02 season, 10 tons may be transferred for the San Francisco Bay gill net mesh size study.

Note: No permittee may take or possess herring except in the amount specified on a current daily market order, not to exceed 500 pounds, from a licensed fish dealer.

Area: Same as roe herring fishery

2.2.2 Tomales Bay

2.2.2.1 Roe Herring Fishery

Season: 5:00 p.m. on December 26 until noon on December 28, 2001 and from 5:00 p.m. on January 2 until noon on March 8, 2002.

Note: Herring fishing is not permitted from noon Friday through 5:00 p.m. Sunday.

Quota: The total take of herring for roe purposes shall not exceed 300 tons for the season. However, if spawning escapement, as determined by the Department, reaches or exceeds 3,000 tons prior to February 15, the quota shall be increased as follows: 1) if spawning escapement is more than 3,000 tons, the total take of herring shall not exceed 400 tons for the season; 2) if spawning escapement is more than 4,000 tons, the total take of herring shall not exceed 500 tons for the season.

Area: Tomales Bay includes the waters of District 10 lying south of a line drawn west, 252° magnetic, from the western tip of Tom's Point to the opposite shore.

2.2.2.2 Fresh Fish Market Fishery (not for roe purposes): Tomales Bay

Season: November 2 through November 15, 2001 and April 1 through October 31, 2002.

Quota: 10 tons

Note: No permittee may take or possess herring except in the amount specified on a current daily market order, not to exceed 500 pounds, from a licensed fish dealer.

Area: Same as roe herring fishery.

2.3 Project Characteristics

The proposed project recommends continuation of the existing regulations, as modified by the changes discussed below, for San Francisco Bay and Tomales Bay. These regulations, as amended, will assist in the control of the commercial harvest of herring at a level that meets the State's policy with respect to the use of aquatic resources. This section states the specific purpose of the regulations and summarizes the factual basis for the regulations.

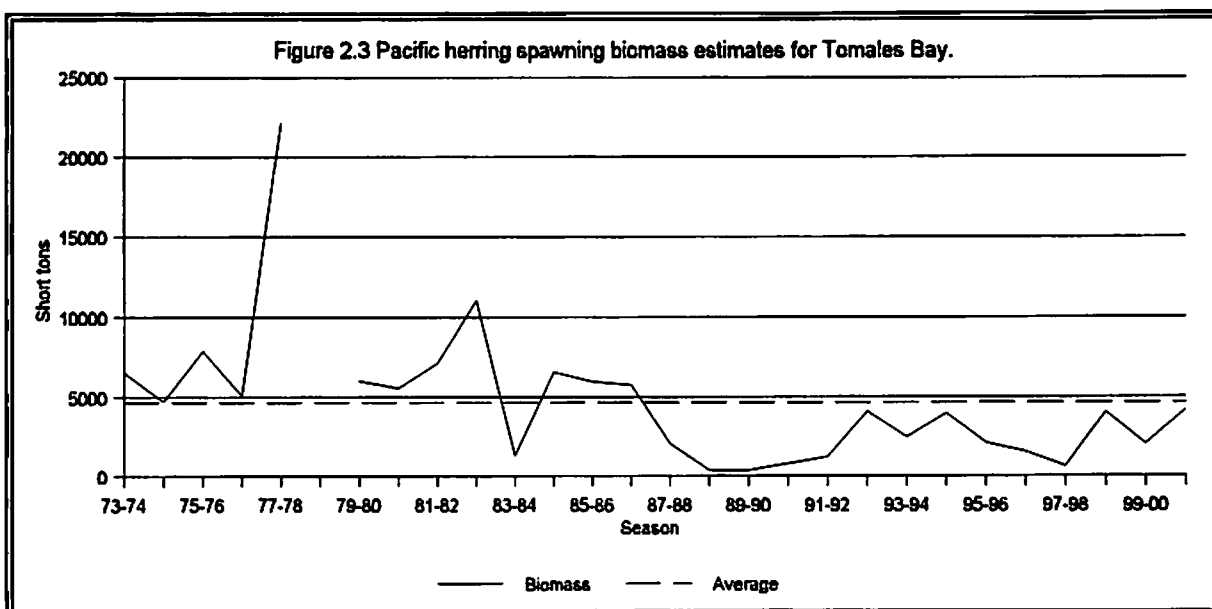
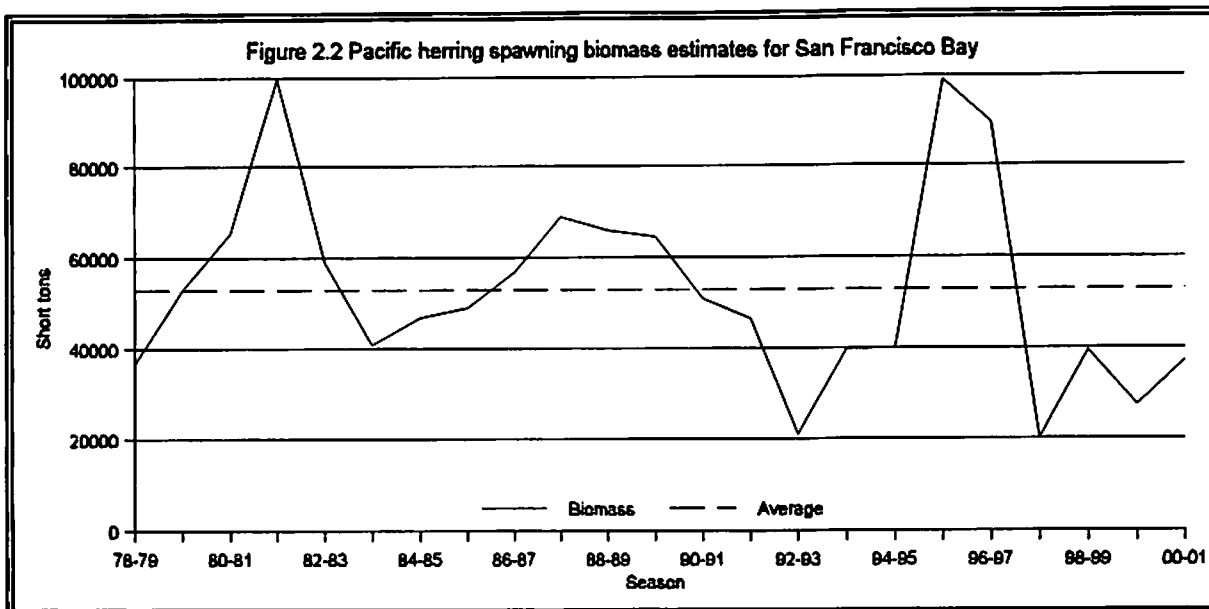
The commercial roe herring and herring eggs-on-kelp fisheries are closely regulated through a catch-quota system to provide for adequate protection and utilization of the Pacific herring resource. The Department conducts annual assessments of the size of the spawning population of herring in San Francisco and Tomales bays (Sec 3.2.2.1, FED). These data serve as the basis for establishing fishing quotas for the following season.

The principal regulatory changes that were proposed for the 2000-01 season

(addressed in the FSED, 2000) included: a 2,740-ton fishing quota for San Francisco Bay and an initial 200-ton fishing quota for Tomales Bay; a change in allowable minimum mesh size requirement for gill nets used in the roe herring fishery in Tomales Bay for the 2000-01 season only. Other changes relating to the Department office location, seasons, permit amendments, permit suspensions, penalties in lieu of suspension or revocation, herring eggs-on-kelp assist boats, herring eggs-on-kelp authorized agents, method of take, harvesting, landing and processing requirements, and minor editorial changes were recommended. The regulatory changes proposed for the 2000-01 season were approved by the Commission as proposed (Section 2.3 of the FSED, 2000). Other changes to the regulations as proposed by the Department in the DSED of 1999, were approved by the Commission as proposed on August 1999 (Section 2.3 of the FSED, 1999).

Annual herring spawning population estimates from biomass surveys in San Francisco and Tomales bays have been conducted by the Department since 1973. In San Francisco Bay, hydroacoustic and spawning ground surveys are used to estimate spawning biomass. In Tomales Bay, spawning biomass estimates are based solely on spawning ground surveys. For the first time since the 1991-92 season, a population assessment using spawning ground surveys was completed during the 2000-01 season for Humboldt Bay. Hydroacoustic surveys use an echo sounder which transmits sound waves from a transducer on a boat and records returning echoes to determine the size and density of fish schools (Section 3.2.2.1.2 of the FED). Spawning ground surveys assess the total number of eggs spawned and back-calculate the parental population size (Section 3.2.2.1.1 of the FED). Spawning biomass estimates for San Francisco Bay and Tomales Bay are shown in Figure 2.2 and 2.3, respectively.

Annual fishing quotas are conservative and limit the total commercial catch to no more than 20 percent (exploitation rate) of the previous season's spawning biomass. The previous season's biomass is used as the best available estimate of the quantity of fish returning the following season. This exploitation level was selected, based on computer simulations developed by the Pacific Fisheries Management Council (Section 3.2.4 of the FED), to help ensure adequate protection for the herring resource and to provide for the long-term yield of the fishery. Typically, exploitation rates of no more than 15 percent are



recommended to prevent the 20 percent maximum from being exceeded. Quotas are not determined by a fixed percentage; they are modified based on additional biological and fishery data collected each season, such as growth rates, strength and importance of individual year-classes, and recruitment of incoming year-classes.

The 2000-01 spawning biomass estimate for San Francisco Bay is 37,300 tons, which is a 26.5 percent increase from the 1999-2000 season. Landings from the San Francisco Bay roe herring fishery totaled 2,991 tons, 472 tons over the 2,519-ton quota. This harvest level is 8.0 percent of the season's spawning biomass estimate. The 2000-01 spawning biomass estimate for Tomales Bay is 4,196 tons, which is a 47.9 percent increase from the 1999-2000 season. Roe herring landings in Tomales Bay totaled 298 tons, 102 tons less than the 400-ton season quota. This harvest level is 7.1 percent of this season's spawning biomass estimate. For both fisheries, landings did not exceed the Department's goal of 20 percent of the spawning biomass.

The 2000-01 spawning biomass estimate for Humboldt Bay is 446 tons. Humboldt Bay roe herring landings for the 2000-01 season totaled 61.2 tons, 1.2 tons more than the 60-ton quota. The Crescent City fishery landed a total of 10.4 tons from the 30-ton quota, which is 34.7 percent of the annual quota. Annual spawning biomass surveys and population assessments are not conducted for the Crescent City stock.

In addition to annual changes in the quota, management recommendations to improve or provide for the efficient harvest and orderly conduct of the herring fisheries are solicited from interested fishermen, individuals at public meetings, and from the Director's Herring Advisory Committee (DHAC), which is composed of various representatives from the commercial herring fishing industry. The proposed amendments to Section 163, 163.5 and 164, Title 14, CCR, addressed by this FSED, reflect both Department and public recommendations.

2.3.1. Herring Roe Fisheries

2.3.1.1. San Francisco Bay 2001-02 Quota

The 2000-01 spawning biomass estimate for San Francisco Bay is 37,300 tons

(including catch), a 26.5 percent increase from last season's estimate, but below the 23-year average of 52,996 tons (Figure 2.2). The San Francisco Bay Pacific herring stock continues to respond to favorable oceanic conditions following the 1997-98 El Niño; weights of returning fish were above average for all size groups sampled.. Preliminary results from herring samples indicate slightly higher than average recruitment of young fish, 2- and 3-year-olds combined, and the largest showing of 1-year-old herring since the Department began conducting annual assessments. Older fish, however, (4- , 5- , 6- and 7-year-olds), were well below average abundance during the 2000-01 season and are the primary reason for the season's below average spawning biomass.

Typically, herring schools enter the Bay, ripen, spawn, and leave the Bay. Similar to the 1999-2000 season, and not illustrating typical spawning behavior, several large herring schools were detected by hydroacoustic surveys in mid-January that did not spawn en masse. Rather, a significant portion of the schools appeared to have held for an extended period without spawning. These fish then spawned later in the season when conditions in the Bay were more favorable. This change in behavior may have been induced by higher-than-normal salinities in the Bay due to the late arrival of winter rainfall and subsequent runoff.

A fishing quota of 4,476 tons, which is 12 percent of the 37,300-ton spawning biomass estimate, is proposed for the 2001-02 San Francisco Bay herring fishery. This proposed quota accounts for the below-average 2000-01 spawning biomass estimate, and the weakness of older age classes, but also recognizes the continuation of favorable oceanic conditions reflected by the return of healthy herring to the Bay. This harvest level also recognizes the above-average recruitment of younger year classes to the spawning population and indications of a stronger return for the 2001-02 season.

Within the overall quota in San Francisco Bay, separate quotas are established for each gill net platoon (i.e., December, Odd and Even). The overall quota is divided among the three platoons in proportion to the number of permits assigned to each platoon minus the number of suspended permits. Slight annual adjustments in the quota assignments for each gill net platoon are needed to account for attrition of permittees and the use of roe herring permits in the herring eggs-on-kelp fishery.

2.3.1.2. Tomales Bay 2001-02 Quota

The 2000-01 spawning biomass estimate for Tomales Bay is 4,196 tons and more than twice last season's 2,011 ton biomass (Figure 2.3). Although the 2000-01 season biomass estimate is 10 percent less than the 28-year long-term average of 4,653 tons, it is the largest spawning biomass estimate in the past 15 years. Abundances of 2- and 3-year-old herring, 1999 and 1998 year classes, respectively, as well as older year classes (5-, 6- and 7-year-olds), were higher in the 2000-01 season than the 1999-2000 season and contributed to the increase in spawning biomass.

For the 2001-02 Tomales Bay herring season, the Department proposes an initial fishing quota of 300 tons, which is seven percent of the 2000-01 spawning biomass estimate of 4,196 tons. The proposed initial quota is lower than the 10 percent exploitation rate usually applied. Historic landings trends for the Tomales Bay herring fishery, however, indicate that large initial catch quotas (greater than 300 tons) have resulted in high exploitation rates in some seasons, (e.g., 1986-87 and 1995-96 seasons, 36.4 percent and 17.2 percent respectively), exceeding the Department's conservative management strategy.

The proposed regulations contain provisions to increase the Tomales Bay herring catch quota based on in-season estimates of spawning escapement. If spawning escapement, as determined by the Department, reaches or exceeds 3,000 tons prior to February 15, 2002, the quota shall be increased as follows: (1) if spawning escapement is more than 3,000 tons, the quota shall not exceed 400 tons for the season; (2) if spawning escapement exceeds 4,000 tons, then the quota shall not exceed 500 tons for the season.

2.3.1.3. Humboldt Bay and Crescent City 2000-01 Quota

The 2000-01 Pacific herring spawning biomass estimate for Humboldt Bay is 446 tons. This estimate is the result of the first Humboldt Bay spawning ground survey, fishery monitoring, and population assessment conducted by the Department since the 1991-92 season. The 1991-92 estimated spawning biomass from spawning ground surveys was 225 tons. Preliminary ageing of samples taken from research nets indicates that herring, ages 2 through 7, were represented in the 2000-01 spawning population.

Based on observations by permittees and reflected by landings, the Humboldt Bay herring stock has historically fluctuated in abundance. Commercial catch information indicates that the Humboldt Bay spawning biomass appears to have rebounded from the effects of the 1997-98 El Niño; however, landings declined during the 1998-99 and 1999-2000 season, 1.3 tons and 1.1 tons, respectively. The 60-ton catch quota for Humboldt Bay was met for the first time since the 1994-95 season. Total landings for the 2000-01 Humboldt Bay fishery was 61.2 tons.

The Department proposes no changes to quotas for the Humboldt Bay or Crescent City herring fisheries for the 2001-02 season. The proposed quota for Humboldt Bay is 60 tons and the quota proposed for Crescent City is 30 tons.

2.3.1.4. Season Dates

Season opening and closing dates for San Francisco and Tomales bays, as well as the dates of various provisions of the regulations governing the management of California's herring fisheries, such as the application due date, are adjusted each year to account for annual changes in the calendar. In accordance with a consensus of the Director's Herring Advisory Committee (DHAC) which met on March 20, 2001, the Department proposes to set the dates of the roe herring fisheries in San Francisco Bay from 5:00 p.m. on Sunday, December 2, 2001 to noon on Friday, December 21, 2001 ("DH" gill net platoon only), and from 5:00 p.m. on Wednesday, January 2, 2002 to 5:00 p.m. on Friday, March 22, 2002. Also in accordance with a consensus of the DHAC, the Department proposes to set the dates for the Tomales Bay fishery from 5:00 p.m. on Wednesday, December 26, 2001 until noon on Friday, December 28, 2001, and from noon on Wednesday, January 2, 2002 to noon on Friday, March 8, 2002.

2.3.1.5. Gill Net Mesh Length Reduction

The size of the mesh for a gill net controls the size of fish caught by a gill net fishery. Existing regulations for the Tomales Bay commercial fishery provide for the experimental use of a gill net mesh size of no less than 2 inches and no greater than 2 ½ inches during the 2000-01 roe herring fishery. The minimum mesh size of 2 inches in the Tomales Bay gill net

fishery allowed the Department to begin to: 1) evaluate the size composition of herring caught by this mesh size; 2) assess whether a reduction in the gill net mesh size to 2 inches maintains the Department's management goal of not exceeding 10 percent for this fishery, or less, exploitation rate; and 3) determine whether this mesh size catches herring age 4 years and older.

The Department has found that management goals regarding age classes caught were maintained with the use of the experimental 2-inch mesh size during the 2000-01 season. The current regulation specifies that the mesh size shall revert to not less than 2 1/8 inches or greater than 2 1/2 inches after the 2000-01 season. The Department believes that a study period of longer than one year is necessary to obtain sufficient data to evaluate the use of 2-inch mesh size. The Department, therefore, is proposing the continuation of experimental 2-inch mesh size in Tomales Bay for the 2001-02 roe herring fishery season.

2.3.1.6. Simultaneous Fishing of Two Permits by One Individual

The first, unnumbered, paragraph of Section 163, Title 14, CCR provides for two permits to be jointly (i.e., simultaneously) fished on a single vessel. However, this same provision prohibits the simultaneous fishing of two herring permits by one individual. The permittees have requested a regulatory change that would provide them the option of serving as temporary substitute for one permit while simultaneously fishing their own permit, thus assigning them legal responsibility for both permits fished on their vessel. While such substitutions were permissible during the 1993-94 season, at that time, the Department found that simultaneous fishing of two permits by one individual created difficulties in the enforcement of commercial herring laws and regulations with respect to assigning permit culpability for violations; as a result, the Department amended the regulations to prohibit the simultaneous fishing of two permits by one individual.

Since the time that the regulation prohibiting simultaneous fishing of two permits by one individual was enacted in 1994, further regulation changes to Section 163.5, Title 14, CCR have served to clarify the assignment of penalties due to violations of the regulations. With these proposed changes to the regulations, the Department is now able to address

enforcement concerns in regards to culpability of violations. The Department proposes to amend the regulation to remove the restriction of simultaneous fishing of two permits by one individual, provided that one of the permits is fished by the permit owner, and the permit owner fishes a second permit temporarily transferred to him or her. This condition ensures that at least one person is vested in the fishery over the long-term. Department enforcement staff find that, in contrast to 1994, they are supportive of this change that would assign culpability for violations against the permits of both the permittee and that of the permit belonging to the temporary substitute on the permit receiving the violation. Further regulatory amendments are proposed by the Department to ensure this (see Section 2.3.1.12).

2.3.1.7. Implementation of Noise Reduction Measures

During the 2000-01 season and the public-scoping process, the Department heard from residents regarding transient nighttime noise created by herring fishing activity near residential properties bordering the shoreline of San Francisco Bay. The herring fishing industry has expressed to the Department a willingness to address the nighttime noise issues, and in coordination with the Department and residents, industry members have brought forward a list of actions that would reduce noise produced by fishing activities. The public has proposed alternate measures, such as closing certain waters to fishing offshore from residential shoreline properties, or to restrict fishing at a certain distance from their privately owned docks.

At this time, noise levels have not been measured to determine ambient levels versus the noise levels of nighttime fishing activity. The Department proposes to collect noise level data with the assistance of local city officials for the 2001-02 herring fishing season. Ambient nighttime noise levels, as well as, noise levels during fishing activity will be monitored throughout the herring fishing season. Noise levels will then be compared to threshold levels established by city ordinances.

The Department proposes to adopt a regulation within Subsection 163 (f), Title 14, CCR requiring herring gill net permittees to implement noise reduction measures, when fishing within 500 feet of any shoreline with residential dwellings, during nighttime hours (in

accordance with local city ordinances) for the 2001-02 season. Noise reduction measures are those developed by the herring fishing industry and approved by the Department. Examples of voluntary noise reduction measures include, but are not limited to: onboard noise dampening devices for net shakers and anchor chains, muffled engine exhaust systems, limited use of deck speakers, and reduced speed within 500 feet of shore.

Currently, the Department does not support a fishery closure in shallow waterfront zones as these are often prime locations for fishing herring and have been important throughout the history of the San Francisco Bay herring fishery. The potential economic loss that might result from reduction of available fishing area cannot be justified until alternate measures are implemented and their effectiveness evaluated. The results of noise level monitoring during the 2001-02 herring season will be presented to the Director's Herring Advisory Committee (DHAC) and public meetings.

2.3.1.8. Gill Net Buoy Markers

Current regulations in Subsection 163(f)(2)(F), Title 14, CCR require that gill nets be marked at both ends with a buoy, and further require that each buoy be marked at both ends with matching flags, acceptable to the Department, that bear the herring permit number. The visibility of the herring permit number on the flags is critical for identification of the permit responsible for the gill net gear while the net is actively fished, both for enforcement and fishery management purposes.

The Department has found that flags composed of collapsible material hinder enforcement and fishery management staff from identifying the herring permit number written on the flag. Fishing grounds are often crowded with several set nets over shallow water habitat, resulting in navigational hazards. As a result, enforcement and management staff must be able to observe identification markers easily from a distance.

The proposed change to Subsection 163(f)(2)(F), Title 14, CCR requires that buoy markers be composed of rigid or non-collapsible material (e.g., polyethylene plastic). This change will enable enforcement to more successfully enforce several herring regulations, such as gill net mesh size, net length, and proximity of the permittee's vessel to the net. The

proposed change provides for some flexibility in the equipment used by each permittee facilitating innovation in adapting for the different methods of gear rigging currently in use. The economic investment required by permittees to comply with the new regulation is believed to be minimal.

2.3.1.9. References to Round Haul Gear

Existing regulations prohibit the use of round haul nets to take herring for roe purposes. The proposed change will delete from the regulations remaining references to round haul gear other than those regulations prohibiting the use of round haul gear. References to round haul equipment and associated penalties in Subsection 163.5(f)(1)(B), Title 14, CCR and reference to round haul information formerly present in Subsection 163(g)(4)(A), Title 14, CCR will be deleted from the regulations.

2.3.1.10. Gill Net Measuring Device Specifications

Subsection 163(f)(2)(B), Title 14, CCR identifies the specific conditions by which the meshes of gill nets shall be measured. Herring permittees have expressed concern over their ability to measure their own nets for compliance, using methods that will approximate those used by Department enforcement staff during the season. Of particular concern is the size of the peg or nail that is used by Department enforcement staff to suspend gill net webbing from in determining mesh size of gill nets.

The method used to measure mesh size of a herring gill net as described by the existing regulation, Subsection 163(f)(2)(B), Title 14, CCR, states that the length of mesh shall be the average length of any 10 consecutive meshes measured from the inside of the first knot and including the last knot when wet after use, while meshes are suspended vertically from a single peg or nail under one pound weight. The proposed amendment specifies the composition (stainless steel) and size of the peg or nail (5/32 inch) used by Department enforcement staff to measure net mesh size, and is intended to aid herring permittees in effectively measuring their nets for compliance to gill net mesh size regulations.

2.3.1.11. Herring Sampling by Buyers

It is common practice for fish buyers to test a herring landing for roe content (roe weight as a percent of total fish weight). Fish used for testing purposes are not marketable after testing; however, they still make up a portion of the herring removed from the population and subsequently, landed. Existing regulations [Subsection 163(j)(2), Title 14, CCR] specifies that no herring will be taken for testing purposes that have not been weighed and recorded. Modifications in language are proposed for clarity. Section 79 of the Fish and Game Code states that “shall” is mandatory and “may” is permissive. To be consistent with the Code and to clarify that the provisions are mandatory, the Department proposes changing “may” to “shall” when describing the requirement to weigh and record every fish load prior to taking herring for testing purposes.

The proposed amendment to Subsection 163(j)(2), Title 14, CCR also requires that a sample be taken from every single boat load. This amendment is intended to assist with effective enforcement of this regulation. The proposed amendment requires the fish buyers to continue with activities already practiced, and, thus, places no additional burden on the fish buyers.

2.3.1.12. Permit Suspensions

Existing regulations, Subsection 163 (i), provide that any herring permit may be suspended or revoked by the Commission for cause. In addition, the regulations specify that a person whose herring permit has been suspended for the entire season shall not participate in any herring fishery during the season the permit is suspended. The proposed amendment to Subsection 163(i), Title 14, CCR would apply the same penalty to the permittee, if his or her permit is suspended for less than the entire season, such that during the period that the permit is suspended the permittee could not participate in any herring fishery. Under existing regulations, a permittee whose permit has been suspended for less than the entire season could fish as a temporary substitute for another permit during the period that his or her permit is suspended, and thus, the penalty of suspension does not reflect the intent of the penalty. The Department proposed amendment of Subsection 163(i) corrects this loophole.

2.3.1.13. Prohibition on Seal Bomb Usage

The Department proposes to add language to the regulations prohibiting the use of seal bombs, or explosives commonly used as marine mammal deterrent devices, within San Francisco Bay during the herring fishery season. This measure is consistent with City and County of San Francisco ordinances that prohibit the use of these explosive devices within City and County limits and the Golden Gate National Recreation Area. This proposed amendment will also contribute to noise control.

2.3.1.14. Quota Allotment for Research Study Participants

Existing regulations provide for a mesh size study in San Francisco Bay. The Department initiated a mesh size study during the 1999-2000 herring season. During the 2000-01 season, research was suspended due to low quota levels. However, the Department now wishes to resume the mesh size study, which is critical for evaluating the optimal mesh size for selecting age classes of herring specified in the Department's management goals. The regulations, Subsection 163(f)(B), state that mesh size study participants may use Department approved research nets measuring less than 2 1/8 inches, and specifies the tonnage of herring that participants may take during the season. To encourage participation in the study, and to help offset costs associated with participation, such as nets, fuel, and additional time requirements on the water, the Department proposes to modify the regulations to provide for an increased quota allocation.

In order to avoid unfair reduction of herring quota available to gill net permittees that do not participate in the study, the Department proposes to take half of the initial tonnage from the allowable San Francisco Bay Fresh Fish Market take of herring, which is historically underutilized. Existing regulations allocate twenty tons of herring from within the overall San Francisco Bay quota to the Fresh Fish Market fishery, to which a maximum of 10 permits are assigned. No landings have been made in the herring fresh fish fishery during the past several years. The Department finds, based on the historical underutilization of the fresh fish quota, that a re-allocation of half of the current quota would not result in economic hardship for those who wish to participate in the fresh fish fishery.

2.3.2. Herring Eggs-on-Kelp Fishery

2.3.2.1. Define Fishing, Harvesting, and Processing

Existing regulations, Section 164, Title 14, CCR do not define fishing, harvesting, and processing as they pertain to the herring eggs-on-kelp fishery. The permittees have requested of the Department the ability to hire workers to assist in the processing of herring eggs-on-kelp. Sections 7850 and 7850.5 of the Fish and Game Code describe those required to obtain a commercial fishing license and those who fall under non-applicability. It is proposed by the Department, in defining fishing, harvesting, and processing for the herring eggs-on-kelp fishery, that a person engaged in the act of fishing and harvesting or both, be required to hold a commercial fishing license, and that a person employed to process herring eggs-on-kelp product not be required to hold a commercial fishing license. The following are proposed definitions for the purposes of the herring eggs-on-kelp fishery:

- “Fishing” is defined as: the act of pulling and retrieving or both herring eggs-on-kelp product directly from the water.
- “Harvesting” is defined as: the act of removing herring eggs-on-kelp from the water for the purposes of processing for sale and transport or both, to market.
- “Processing” is defined as: the act of pulling individual blades from the stipe once the herring eggs-on-kelp has been pulled from the water.

2.3.2.2. Prior Herring Eggs-on-Kelp Permittee

A prior permittee is currently defined under Subsection 164(e)(1), Title 14, CCR, as any applicant who held a herring eggs-on-kelp permit and actively fished during the immediately preceding herring eggs-on-kelp season. The definition of actively fished has not been established within Section 164, Title 14, CCR of the regulations. The proposed regulatory language would define a prior permittee as an applicant who:

- has met all the requirements under subsection (g) of these regulations; and
- suspended kelp for herring eggs-on-kelp fishing during the immediately preceding

herring eggs-on-kelp season.

2.3.2.3. Kelp Suspension Notification

In the current regulations, Subsection 164(j)(2), Title 14, CCR, Harvesting, Landing and Processing Requirements, establishes the requirement that a permittee notify the Department's San Francisco Bay Area Marine Region office prior to the suspension of kelp on a raft and/or lines. The permittees have requested that the notification of kelp suspension requirement be eliminated from the regulations. The Department does not support the elimination of this regulation. The Department proposes, however, that the notification of kelp suspension requirement be moved in the regulations to Subsection 164(i), Title 14, CCR Method of Take moving this requirement will not change its purpose. The regulation requiring notification of kelp suspension may be more accurately addressed by inclusion in Subsection 164(i), Title 14, CCR than in its current location in Subsection 164(j)(2), Title 14, CCR. This regulation was established to facilitate management of the herring eggs-on-kelp fishery, and is considered by the Department to be a necessary tool for cooperative management and biological research of the fishery.

2.3.2.4. Prior Written Approval for Using Permanent Structures

Existing regulations require that each permittee obtain prior written approval from the appropriate owners or controlling agency (e.g., wharfinger, Coast Guard, Navy or private owner) if they are to suspend kelp lines, or a raft, to a permanent structure (e.g., pier or dock). The herring eggs-on-kelp permittees have requested that this requirement be eliminated. The Department does not support the elimination of this requirement. Written approval from the appropriate owners or controlling agency is necessary for enforcement purposes and helps prevent potential conflicts between permittees, and either controlling agencies or private property owners. The Department supports facilitating the written permission process for publicly owned permanent structures, and will pursue contacting the appropriate officials. Prior to the beginning of the 2001-02 season, the Department will organize the written approval process in an effort to facilitate successful completion of the

written approval process by the permittees

2.3.2.5. Corrections and Clarifications

The following changes relating to kelp suspension and the Herring Eggs-on-Kelp Monthly Landings and Royalty Report form are proposed by the Department to provide for the efficient operation and orderly conduct of the fishery, to improve the clarity of the regulations, and to provide for the protection of the resources:

- Require that the permittee provide the Department a local facsimile telephone number or mailing address where the Department shall send in-season kelp suspension notification confirmations.
- Revise the Herring Eggs-on-Kelp Monthly Landing and Royalty Report form number from FG 143 HR (5/00) to FG 143 HR (5/01).
- Renumber all section headings to reflect the proposed regulatory additions.

2.4 Project Alternatives

Three alternatives to the proposed project are considered. Two of these alternatives take the form of additional changes to the existing regulations that could feasibly be joined. The third alternative is a no project (no fishery) alternative, as described in the FED. In evaluating alternatives, the comparative merits and impacts of individual alternatives that could be logically and feasibly joined should be considered as so joined unless otherwise stated.

The alternatives to be considered are:

Alternative 1 (no project, i.e., no fishery, alternative). Under this alternative as described in Chapter 6 of the FED, the commercial harvest of herring would be prohibited.

Alternative 2 (existing regulations). Under this alternative, existing regulations would be modified only by adjusting quotas to reflect current biomass estimates and by

adjusting dates to reflect changes in the calendar.

Alternative 3 (individual vessel quota for gill net vessels in herring roe fishery). Under this alternative the proposed regulations would be modified by establishing an individual vessel quota for all gill net vessels. The proposed individual gill net vessel quota would equal the overall gill net quota divided by the number of permittees using gill net gear.

The following section states the specific purpose of the alternatives and summarizes the factual basis for determining that the alternatives are reasonably necessary:

2.4.1 Alternative 1 (no project)

This is a CEQA-required alternative. It provides a reference for comparison to the proposed project and alternatives 2 and 3. This alternative is fully explained in Chapter 6 of the FED.

2.4.2 Alternative 2 (existing regulations)

The existing regulations for the commercial herring fishery are for the 2000-01 season. This alternative would apply those 2000-01 season regulations to the 2001-02 season, with changes in the quotas to reflect current biomass estimates and changes in season dates to reflect annual changes in the calendar. Regulatory changes for the 2000-01 season are described in the FSED of 2000. None of the other amendments to the regulations contained in the proposed project would be considered.

2.4.3 Alternative 3 (individual vessel quota)

This alternative would establish an individual herring quota for each San Francisco Bay gill net permittee. Under existing regulations [Section 163(g)(4)(C), Title 14, CCR] an overall herring quota is established for each of three gill net groups (platoons) in San Francisco Bay, allowing individual permittees to take and land as much fish (tonnage) as they are capable of until the overall quota for their respective group is reached. An individual permit quota has been suggested each season for the past several years. However, there has never been a clear consensus of support or opposition among industry members about this

issue.

The Department has used individual vessel quotas as a management tool for several fisheries, including, the roe herring round haul fishery and herring eggs-on-kelp fishery in San Francisco Bay. Providing for an individual vessel quotas for the San Francisco Bay roe herring gill net fishery for San Francisco Bay, however, raises subtle environmental implications and fishery monitoring issues.

Localized, short-term, and less than significant environmental impacts of this alternative are discussed in Section 6.3 in the FED. Individual vessel quotas requires closely monitoring the daily landings and fishing activities of a large number of fishing vessels over an extended period of time, therefore, increasing the Department's enforcement and monitoring efforts. See Section 2.4.3 of the FED for a full description of this alternative.

Chapter 3. ENVIRONMENTAL SETTING

3.1 General

Pacific herring, *Clupea pallasii*, are found throughout the coastal zone from northern Baja California on the North American coast, around the rim of the North Pacific Basin to Korea on the Asian coast (Outram and Humphreys 1974, Hart 1973). In California, herring are found offshore foraging in the open ocean during the Spring and Summer months. Beginning as early as October and continuing as late as April, schools of adult herring migrate inshore to bays and estuaries to spawn. Schools first appear in deep water channels of bays to ripen (gonadal maturation) for up to two weeks, then gradually move into shallow areas to spawn. The largest spawning aggregations occur in San Francisco and Tomales bays.

Spawning occurs in the intertidal and shallow subtidal zones. Males release milt into the water column while females extrude adhesive eggs on a variety of surfaces including vegetation, rocks, and man-made structures such as pier pilings. Embryos (fertilized eggs) typically hatch in about ten days, depending on water temperature. Larval herring metamorphose into juvenile herring in about ten to twelve weeks. In San Francisco Bay, juvenile herring typically stay in the Bay through summer, then migrate out to sea.

It is during spawning season that most of the herring harvest occurs. The roe herring or gill net fisheries harvest herring as they move into the shallows to spawn, when the eggs in the females are ripest. The product from this fishery is the roe (eggs) in the females. The California fisheries occur in the Crescent City area, Humboldt Bay, Tomales Bay, and San Francisco Bay.

The herring eggs-on-kelp fishery suspends giant kelp, *Macrocystis pyrifera*, from rafts for herring to spawn on. The product from this fishery is the egg-coated kelp. This fishery takes place in San Francisco Bay.

The only existing ocean fishery occurs during the non-spawning season in Monterey Bay. Small fisheries for fresh fish are permitted during the non-spawning season in Tomales and San Francisco bays.

Herring are a food source for many species of birds, fish, invertebrates, and mammals. Predation is particularly high during spawning when adult fish and eggs are concentrated and available in shallow areas. Predation during the egg stage is a significant cause of natural mortality for herring.

The roe herring fishery in California has been intensively regulated by the Fish and Game Commission (Commission) and by the Department of Fish and Game (Department) since its inception in 1973. Estimates of the spawning population have provided the major source of information used to set fishery quotas to control the harvest of herring and provide for the long-term health of the herring resource. Annual estimates of spawning biomass are made by the Department in Tomales Bay using egg deposition surveys. In San Francisco Bay, spawning biomass is estimated by the Department annually using egg deposition surveys and hydroacoustic surveys. In addition to these estimates of spawning biomass, the Department also collects age composition data on the population as well as the fishery, and assesses the strength of each year's young-of-the-year herring. The gathered information is used by the Department to assess the status of the population.

A thorough description of the environmental setting is provided in Chapter 3 of the Final Environmental Document (FED), including Pacific herring life history, ecology, status of stocks, and fisheries, and biological and environmental descriptions of herring fishery locations (Crescent City area, Humboldt Bay, Tomales Bay, San Francisco Bay, Monterey Bay).

3.2 Status of the San Francisco Bay Spawning Population

The 2000-01 spawning biomass estimate for San Francisco Bay is 37,300 tons (including catch), a 26.5% increase from last season's estimate, and approximately half of the 23-year average of 52,996 tons. The San Francisco Bay stock continues to respond to favorable oceanographic conditions following the devastation resulting from the 1997-98 El Niño. Preliminary results from sampled herring this season indicate slightly higher than average recruitment of young fish, 2- and 3-year-olds combined, and the largest showing of 1-year-olds in the spawning population in 28 years (Table 3.1). However, older fish (4- through 7-year-olds) were well below average abundance this season. This low abundance of older

age classes is the primary reason for the 2000-01 season's below average spawning biomass estimate.

Recruitment of younger herring into the spawning population is highly variable, and is a primary reason for annual fluctuations in spawning biomass. The abundance of young fish is greatly affected by a number of environmental factors, such as prevailing oceanographic conditions and delta outflow. Oceanographic conditions are forecasted by the National Oceanic and Atmospheric Administration's Climate Prediction Center to be favorable to the survival and growth of herring for the 2001-02 season. The San Francisco stock age structure has strengthened based on the estimated numbers of young fish recruiting to the spawning population during the 2000-01 season, in particular the abundance of the 2000 year class as 1-year-olds. The older year classes, the weakened 1996, 1995, and 1994 year classes as 5-, 6-, and 7-year-olds respectively, will gradually be replaced by stronger post-1997-98 El Niño year classes if favorable oceanographic conditions continue.

Pacific herring young-of-the-year (YOY) are commonly caught by the Department's Central Valley Bay-Delta Branch San Francisco Bay Study (SFBS) during the Spring and early Summer. The SFBS conducts surveys to determine the abundance and distribution of invertebrates and fish in the Western Delta and San Francisco Bay. Stations are sampled using a variety of research nets and assorted sampling equipment, including a midwater trawl, that is towed obliquely through the water column to capture species inhabiting varying depths. An index of abundance is calculated for YOY Pacific herring (Interagency Ecological Program Technical Report 63).

The herring YOY index from the SFBS for the 2000 year class, born during the 1999-2000 season, is 305, the highest YOY herring index of abundance since 1986. The 2000 year class will recruit as 2-year-olds in the 2001-02 season. However, preliminary results of the 2000-01 season assessment indicate that a significant number of the 2000 year class recruited to the spawning population as 1-year-olds. Preliminary results from the 2001 SFBS data suggest that the index of abundance for the 2001 year class may also be high (Kathy Hieb, Central Valley Bay-Delta Branch, San Francisco Bay Study, California Department of Fish and Game, personal communication).

Table 3.1. Estimated Numbers (x 1,000) of Herring-at-Age in the San Francisco Bay Spawning Population, 1982-83 to present

Season	Age								
	1	2	3	4	5	6	7	8	9
82-83	*	87,908	149,971	182,936	118,040	30,478	17,177	8,121	797
%		14.8	25.2	30.7	19.8	5.1	2.9	1.4	0.1
83-84	*	332,699	69,654	92,565	73,840	17,306	1,168	117	0
%		56.6	11.9	15.8	12.6	2.9	0.2	0	0
84-85	*	184,695	190,998	46,613	22,153	25,914	6,652	688	0
%		38.7	40.0	9.8	4.6	5.4	1.4	0.1	0
85-86	*	162,422	160,613	126,535	26,790	16,038	7,752	717	182
%		32.4	32.1	25.3	5.3	3.2	1.5	0.1	0
86-87	*	168,962	194,365	134,528	64,598	9,182	6,175	1,065	246
%		29.2	33.6	23.2	11.2	1.6	1.1	0.2	0
87-88	*	233,193	292,508	136,604	66,494	25,337	5,027	3,939	0
%		30.6	38.3	17.9	8.7	3.3	0.7	0.5	0
88-89	*	146,525	222,058	139,906	44,435	12,310	3,030	534	0
%		25.8	39.0	24.6	7.8	2.2	0.5	0.1	0
89-90	*	294,631	237,377	136,248	84,361	23,970	6,572	0	0
%		37.6	30.3	17.4	10.8	3.1	0.8	0	0
90-91	Incomplete data								
91-92	1,356	13,666	126,016	206,930	82,870	23,764	3,490	0	0
%	0.3	3.0	28.0	45.2	18.1	5.2	0.8	0	0
92-93	0	48,925	50,398	79,045	51,713	8,642	0	0	0
%	0	20.5	21.1	33.1	21.7	3.6	0	0	0
93-94	11,485	22,403	134,870	160,335	63,331	25,926	4,808	355	0
%	2.6	5.1	31.0	36.9	14.6	6.0	1.1	0.08	0
94-95	2,276	39,363	236,783	94,833	42,850	18,223	3,196	0	0
%	0.5	9.0	54.1	21.7	9.8	4.2	0.7	0	0

Table 3.1 (continued). Estimated Numbers (x 1,000) of Herring at Age in the San Francisco Bay Spawning Population, 1982-83 to present.

Age									
Season	1	2	3	4	5	6	7	8	9
95-96	3,142	483,164	359,357	282,069	81,768	28,904	1,687	0	0
%	0.3	38.9	29.0	22.7	6.6	2.3	0.1	0	0
96-97	1,184	290,497	359,459	183,370	120,029	33,098	8,935	270	0
%	0.1	29.1	36.0	18.4	12.0	3.3	0.9	0.02	0
97-98	42	45,092	129,411	65,637	18,724	2,259	1,430	0	0
%	0.01	17.2	49.3	25.0	7.1	0.9	0.5	0	0
98-99	1,931	256,816	54,306	114,835	56,915	9,729	558	978	^b
%	0.4	52.0	11.0	23.2	11.5	2.0	0.1	0.2	^b
99-00	1,440	103,490	154,260	48,150	29,000	4,310	0	0	0
%	0.4	30.4	45.3	14.1	8.5	1.3	0	0	0
00-01 ^c	50,449	163,690	196,664	67,225	12,301	2,724	0	0	0
%	10.3	33.4	40.1	13.7	2.5	0.1	0	0	0
^a 1-year-olds were excluded in age assigning program. ^b Age 1 and 9 fish were excluded from age assigning program. ^c Preliminary - based on fish lengths.									

3.3 Status of the Tomales Bay Spawning Population

The 2000-01 spawning biomass estimate for Tomales Bay is 4,196-tons and twice the 1999-2000 biomass estimate of 2,011-tons. While the 2000-01 season biomass estimate is 10 percent less than the 28-year long-term average of 4,653-tons, it is 76 percent greater than the 8-year average of 2,594-tons. The 8-year average is based on the period of time since the Tomales Bay herring fishery re-opened following the 1991-92 season closure. This is the largest spawning biomass estimate in the past 15 years (Table 3.2).

Table 3.2. Tomales Bay Herring Biomass Estimates 1973-74 through 2000-01 Season.			
Season	Spawn Escapement (Tons)	Catch (Tons)	Spawning Biomass (Tons)
1973-74	6,041	521	6,562
1974-75	4,210	518	4,728
1975-76	7,769	144	7,913
1976-77	4,739	344	5,083
1977-78	21,513	646	55,159
1978-79	*	448	*
1979-80	5,420	603	6,023
1980-81	5,128	448	5,576
1981-82	6,298	851	7,149
1982-83	10,218	822	11,040
1983-84	1,170	110	1,280
1984-85	6,156	430	6,586
1985-86	435	771	6000 ^b
1986-87	4,931	867	5,798
1987-88	1,311	750	2,061
1988-89	167	213	380
1989-90	345	0 ^c	345
1990-91	779	0 ^c	779
1991-92	1,214	0 ^c	1,214
1992-93	3,856	222	4,078
1993-94	2,244	219	2,463
1994-95	3,704	275	3,979
1995-96	1,704	355	2,059
1996-97	1,288	222	1,510
1997-98	586	0	586
1998-99	4,015	54	4,069

Table 3.2. (continued) Tomales Bay Herring Biomass Estimates 1973-74 through 2000-01 Season.

Season	Spawn Escapement (Tons)	Catch (Tons)	Spawning Biomass (Tons)
1999-2000	1,969	42	2,011
2000-01	3,898	298	4,196
Average	4,115	363	4,653
^a Spawning ground surveys not conducted. ^b Spawning biomass estimated by cohort analysis ^c Fishery was closed due to low spawning biomass.			

The pattern of spawning escapement was unusual during the 2000-01 because such a large percentage (72 percent) occurred within the month of December. January and February estimates (24 percent and 4 percent respectively) contributed slightly over a quarter of the total spawning escapement for the season.

The red algae, *Gracilaria* spp., was an important spawning substrate this year. It was estimated that 41 percent of the total spawning escapement this season occurred on *Gracilaria* spp. The increased use of *Gracilaria* spp. may be related to the decline in eelgrass bed densities within Tomales Bay. Eelgrass bed density within Tomales Bay appeared to decline overall, based on a comparison of 2000-01 estimates with 1999-2000 estimates. The comparison was limited to 17 bed areas that had complete time series of data on eelgrass. Seven beds south of the town of Marshall showed a decrease of 25 percent in bed density from the 1999-2000 to the 2000-01 season. Density in eleven eelgrass beds north of Marshall was reduced by 42 percent from the 1999-2000 estimates.

Pacific herring that were caught in Tomales Bay during the 2000-01 season were slightly larger than those caught in 1999-2000. Commercial catch data from this season has shown that fishermen caught a higher percentage of 5- and 7-year-old fish and a lower percentage of a 3- to 5-year-old fish than in 1999-2000. Research catch data using an

experimental multi-panel variable size mesh gill net this season indicated a more distinct change in the population. There was a much lower percentage of herring in the 3- to 5-year-old age range, but a higher percentage of 5- to 7-year-old fish than last season. Two and three-year-old herring appeared to compose a greater percentage of the population than in 1999-2000. The Department proposes to continue using the 2-inch experimental mesh for commercial gill nets through the 2001-02 season. It is recognized that more time must be allowed to evaluate the potential impacts of 2-inch mesh on the herring population in Tomales Bay.

3.4 Status of the Humboldt Bay and Crescent City Spawning Populations

For the first time since the 1991-1992 season, spawning-ground surveys and commercial fishery monitoring and assessment was carried out in Humboldt Bay by the Department. Based on the 1990-91 season spawning biomass estimate of 400 tons, a 60-ton commercial quota has been allocated.

During the 2000-01 season, spawn escapement estimation was problematic due to the patchy distribution of eelgrass in the North Bay. Current data on vegetation density, essential to spawn escapement calculations, was not available. Eelgrass density data were used from a study completed in 1979 by Harding and Butler in Humboldt Bay, to develop spawn escapement estimates this season. Spawn escapement for 2000-01 season is 385 tons. The total spawning biomass estimate for Humboldt Bay is 446 tons.

The Department is currently working with the California Sea Grant College Program and Humboldt State University to develop a coordinated Bay wide eelgrass monitoring program for Humboldt Bay. Information gathered from these studies will greatly benefit herring research within the Bay and will be applicable on a statewide basis.

The mean size of herring sampled from the commercial catch was 199.7 mm (range 172-219 mm) with herring from the Department's research net averaging 187.7 mm (range 155-211 mm). Preliminary ageing of research-net caught fish shows an age range from two to seven years in this season's spawning population. During the 2000-01 season, Pacific herring returned to Humboldt Bay in numbers that have not been witnessed in recent years.

Permittees filled the 60-ton quota for Humboldt Bay for the first time since the 1994 herring season, landing 61.2 tons. Roe percentages of the catch averaged approximately 14 percent.

Spawning ground surveys and commercial fishery assessments were not conducted in the Crescent City area for the 2000-01 season. During the 2000-01 season herring landings totaled slightly more than 10 tons. This total is less than the allowable 30-ton quota and less than the 29-year average of 23 tons. The Department does not plan to conduct spawning ground surveys and commercial fishery assessments in the Crescent City area for the 2001-02 season.

Chapter 4. ENVIRONMENTAL IMPACT ANALYSIS AND CUMULATIVE EFFECTS

This chapter addresses the impacts and cumulative effects of the proposed project, as explained in Section 2.3 of this report. The proposed project is the Department of Fish and Game's (Department) proposed amendments to the California commercial herring fishing regulations (see Sections 163, 163.5, and 164, Title 14, CCR), on the existing environment described in Chapter 3 of this document, the Final Environmental Document (FED), Final Supplemental Environmental Document (FSED) of 1999, and FSED of 2000. The proposed project and two of the three alternatives will permit a continuation of the regulated commercial harvest of Pacific herring in California. An analysis of the impacts of the proposed project and its cumulative effects for the 2001-02 commercial herring season identified no new impacts that were not already addressed in the FED.

Existing regulations permit the commercial harvest of herring in five geographical areas: San Francisco Bay, Tomales Bay, Humboldt Bay, the Crescent City area, and the open ocean. The FED examined the environmental sensitivity of each of these areas at existing harvest levels (see Chapter 4). Thirteen environmental categories were considered, including: land use, traffic circulation, water quality, air quality, housing, public utilities, geological, biological, archaeological, scenic, recreation, noise, and growth inducement. Three categories (land use, archaeology, and growth inducement) were considered to have no environmental sensitivity to commercial herring fishery activity in any of the five geographical areas and were not considered in the impact analysis. The basis for this assessment is provided in detail in Section 4.1 of the FED.

The FED also provided a detailed impact analysis for the ten categories found to have environmental sensitivity to commercial herring fishery activity (See Section 4.2 FED 1998). Potential impacts to circulation of traffic, water quality, air quality, housing and utilities, geology, and scenic, recreation, and noise that were identified as an aspect of herring fisheries varied in degree with geographic area, but all were considered to be localized, short-term, and less than significant. Some of these potential impacts are mitigated by various existing

regulations; in addition, proposed changes to the regulations for the 2001-02 season further address issues regarding transient nighttime noise created by herring fishing activity near residential properties along the shoreline of San Francisco Bay and are described in Chapter 2.3.1.7 of this FSED.

Section 4.2.6 of the FED provided a detailed analysis of the potential environmental impacts to biological resources that exist from commercial herring fisheries. The proposed project does not change the original impacts analysis. The FED divided potential impacts into two categories: (1) direct fishery-related harvest impacts; and (2) ecosystem trophic level impacts. Short and long-term potential adverse impacts exist within each of these categories. Many of these potential impacts are mitigated by current management practices including annual stock assessments and regulations that control harvest and fishery impacts. Others are considered localized, short-term and less than significant.

Chapter 5 of the FED provided a detailed analysis of the factors that have the capacity to influence future Pacific herring population status in California in addition to the existing herring fisheries or alternatives (cumulative effects). The proposed project introduces no new cumulative effects to those addressed by the FED. The FED discussed in detail the factors with greatest potential for cumulative effects, including: continued commercial harvest of herring, unusual biological events, competitive interactions with other pelagic fish, unusual weather events, habitat loss, and water quality. Mitigation for these potential cumulative effects are provided by annual stock assessments, and annual changes in the permitted level of harvest.

Chapter 5. ANALYSIS OF ALTERNATIVES

An analysis of the potential environmental impacts of the three alternatives described in Section 2.4 is provided in Chapter 6 of the Final Environmental Document (FED). The three commercial harvest alternatives were selected for consideration by the Fish and Game Commission (Commission) based on Department of Fish and Game's (Department) consideration, public comment received during the normal review process, or in response to the Notice of Preparation (NOP). These alternatives were selected to provide the Commission with a range of commercial harvest alternatives. The two commercial harvest alternatives contain common elements with only selected elements of the management framework considered as alternatives. A "no project" (no commercial harvest of herring within California state waters) alternative is also provided.

5.1 Alternative 1 (no project)

The "no project" alternative would eliminate the commercial harvest within California waters of Pacific herring resources. Selection of this alternative would be expected to: (1) reduce total mortality and allow herring stocks to increase to carrying capacity; (2) reduce the health of stocks through density dependent competition between individual herring; (3) increase competition between species (e.g., sardines and anchovies) occupying the same ecological niche as Pacific herring and reduce standing crops of these species; (4) increase the availability of herring to predators by reducing search effort and increasing capture success; (5) eliminate the ethical concern of those opposed to the commercial harvest of herring and the scientific information on herring derived from sampling the commercial harvest; (6) eliminate revenues to local and regional economies, and State and Federal agencies derived from the commercial harvest of herring.

Localized, short-term, and less than significant impacts to traffic circulation, water quality, air quality, housing, utilities, scenic quality, recreational opportunities, and noise levels would also be eliminated under the no project alternative. Section 6.1 of the FED provides a full analysis of the potential impacts associated with this alternative.

5.2 Alternative 2 (existing regulations)

Existing regulations, adopted in 2000, are for the 2000-01 Pacific herring commercial fishing season. These regulations reflect the amendments as adopted by the Commission and detailed in the FSED of 2000. Under alternative 2, the only changes to the 2000-01 regulations would be to revise the herring fishing seasons, by location, and adjust quotas to reflect the 2000-01 biomass estimates determined by the Department. In most regards, the environmental impacts of alternative 2 will be similar to those of the proposed project. However, alternative 2 does not address problems or conditions that are addressed by the proposed project. Some of the changes and amendments in the proposed project address simultaneous fishing of two permits by one individual, gear specifications, implementation of noise reduction measures during hours of nighttime fishing, prohibition on the usage of seal bombs in San Francisco Bay, gear requirements, herring eggs-on-kelp fishery issues, or are simply clarification changes and are without apparent environmental implications.

5.3 Alternative 3 (individual vessel quota)

This alternative modifies alternative 2 by establishing individual boat quotas for the roe herring gill net fishery in San Francisco Bay. Localized, short-term, and less than significant impacts of this alternative to circulation of traffic, water quality, air quality, housing, utilities, scenic quality, recreational opportunities, and noise levels are expected to be comparable to the proposed project. However, fishing effort could extend further into the season since the economic incentive would direct effort toward higher roe counts rather than quantity. Without individual boat quotas, overall quotas have typically been met long before season closure. Having the latitude to strive for higher roe counts could add incrementally to the potential impacts associated with the fishery. Section 6.3 of the FED provides further analysis of the potential environmental impacts of this alternative.

5.4 Proposed Project

The proposed project, described in full in Chapter 2 of this Final Supplemental

Environmental Document (FSED) is a body of recommended regulations governing the commercial harvest of herring for roe products, the harvest of herring eggs-on-kelp, and the harvest of herring for the fresh fish market, bait, and pet food. The proposed project is identified as the preferred alternative because it provides a set of regulations most likely to achieve the State's policy with respect to the conservation, maintenance and utilization of the Pacific herring resource.

Chapter 6. CONSULTATION

Chapter 7 of the Final Environmental Document (FED) explains the role that consultation with other agencies, professionals, and the public plays in the Department's marine resource management programs.

Consultations also occur during the annual review of regulations guiding the commercial harvest of herring. The process began this year when the Department presented the results of its annual population assessment and discussed possible regulatory changes for the 2001-02 season with the Director's Herring Advisory Committee on March 20, 2001.

The Department's recommendations were modified, as necessary, based on the Committee's comments, and presented at a public hearing on April 4, 2001. This meeting also served as a scoping session for the content of the Draft Supplemental Environmental Document (DSED). The recommendations were again modified, as necessary, based on information and comments received during the public hearing, and will be presented to the Fish and Game Commission.

Prior to preparation of the DSED, the Department initiated a broader consultation by distributing a Notice of Preparation (NOP) that announced the intent to prepare the document. In the NOP, the Department requested submission of views on the scope and content of the environmental information to be contained therein. The notice was distributed to members of the public and interested organizations that had expressed prior interest in herring management. The NOP was also provided to the State Clearinghouse for distribution to appropriate responsible and trustee agencies.

Every effort has been made to consider relevant issues brought forth in response to the NOP in the DSED, including development of alternatives to the proposed project. One issue that was raised during the Public Scoping process was in regards to a perceived lack of herring spawn activity from Kiel Cove to the Paradise Cay area of the Marin County San Francisco Bay shoreline following the inception of the San Francisco Bay roe herring fishery in 1973 (1972-73 season).

San Francisco Bay's herring spawns have been documented by the Department's

annual spawn surveys utilizing locations within San Pablo Bay to Redwood Creek in Redwood City, and the shoreline west of the Golden Gate Bridge as spawning grounds. From 1973 through the 2000-2001 season, the Department has documented 90 spawning events in the Tiburon area (Kiel Cove to Paradise Cay). Tiburon spawns represented 24.5 percent of all spawns; the Department documented a total of 368 spawns during this time period. Other important spawning areas include, Golden Gate to Sausalito (n = 122 spawns, 35.8 percent by number overall), San Francisco (n = 84, 22.8 percent by number), and San Leandro to Richmond (n = 41, 11.1 percent). Further information regarding herring spawning characteristics is presented in Section 3.2.1.3 of the FED.

Chapter 7. RESPONSES TO COMMENTS REGARDING THE PROPOSED PROJECT

Pursuant to Sections 2180.5(d)(2)(vi) and 2180.5(d)(3)(ii) of the Public Resources Code, a copy of the Draft Supplemental Environmental Document (DSED) was placed on file and made available for public review for a 45-day period. Notice was also given at the time of filing that any person interested could submit statements in writing relevant to the environmental document until 5:00 p.m. August 4, 2001, at the Fish and Game Commission (Commission) office in Sacramento. Written and oral comments relative to the DSED were also solicited by the Commission at its August 4, 2001 meeting in Sacramento.

7.1 Summary of Comments Received

Written comments regarding the DSED were received from Catharine Benediktsson of Tiburon, CA by the Commission office on August 2, 2001, and from Linda Lyons of Garberville, CA by the Department's Marine Region office in Belmont on July 30, 2001. No written or oral comments relative to the DSED were received at the August 4, 2001 Commission meeting in Sacramento.

7.2 Department Response to Comments

Catharine Benediktsson Letter dated 8/2/2001

Comment 1

This comment refers to the Summary section of the 2001 Draft Supplemental Environmental (DSED). Subsection 2.3.1.1 of the DSED provides a detailed discussion on the quota determination process and the data used for the San Francisco Bay roe herring fishery. Additionally, please see responses to Comment 6, 14, 17, and 19.

Comment 2

This comment refers to the Summary section of the 2001 DSED. The San Francisco Bay roe

herring round haul fishery, which included purse seine gear, was closed following the 1997-98 season. Presently, within the California commercial roe herring fishery, only the use of gill nets is allowed by regulation.

Comment 3

This comment refers to the Summary section of the 2001 DSED. Season dates are explained in Subsection 2.3.1.4 within the 2001 DSED. Additionally, please see response to Comment 8.

Comment 4

This comment refers to the Summary section of the 2001 DSED. The nighttime noise issue and noise reduction measures are described in detail within Subsection 2.3.1.7 of the DSED. Additionally, please see responses to Comments 9, 10, 11, 12, 13, 16, 18, and 20.

Comment 5

This comment is in reference to alternatives as required by the California Environmental Quality Act (CEQA). The methods used to evaluate and select the alternatives and preferred alternative are discussed in Chapter 6 of the 1998 Final Environmental Document (FED) as well as Section 2.4 of the DSED. This comment appears to combine several issues with noise level issues. Additionally, please see response to Comment 21.

Comment 6

The process of quota selection for the 2001-02 season is detailed in Subsection 2.3.1.1 of this DSED. Quota levels for the San Francisco and Tomales Bay roe herring fisheries are recommended annually and are adjusted based on Department of Fish and Game (Department) estimates of the spawning biomass. The Department management goal is not to exceed a 20% harvest rate of the spawning biomass. The proposed quota for the 2001-02 San Francisco Bay roe herring fishery is 4,476-tons, a conservative 12% of the spawning biomass. Additionally, please see response to Comments 1, 14, 17, and 18.

Comment 7

The roe herring fishing activity in San Francisco Bay does not appear to impact the schooling behavior of herring. The Department has monitored herring spawning activity since the inception of the roe herring fishery in 1973. Differences in herring spawning behavior during the roe herring fishery, versus when the fishery is closed, have not been observed. Radar screens are used for navigational purposes and have no subsurface impact. Both harbor seals and sea lions are routinely observed feeding on herring caught in herring gill nets, and do not appear to be repelled by noises associated with boat noises. In fact, sea lions have been observed following Department vessels in San Francisco Bay and feeding on herring caught in research nets.

Comment 8

Subsection 2.3.1.4 of the DSED and Chapter 2.3 of the FED discusses the season date selection process. Season dates are set in consultation with the fishing industry and reflect a logical time-frame for fishing activities and separation of fishing platoons. Recreational use of the bay increases substantially during weekends and holidays. To avoid user conflicts due to congestion issues, the Department recommends and industry concurs, that a closure during weekends and holidays reduces the potential for conflicts. Further, industry prefers to close buying stations during the holidays due to labor shortages which create transportation and processing difficulties, and may result in resource wastage due to a lack of available workers.

Comment 9

The distance of 500 feet from shoreline for a noise reduction zone was recommended by the herring fishing industry as a sufficient distance from the receptors to reduce noise and this was approved by the Department. This measure's effectiveness will be evaluated by the Department during the 2001-02 season. Subsection 2.3.1.7 of the DSED details why the Department is developing noise reduction measures as opposed to area closures. Because this noise reduction measure will be effective on a Bay-wide basis, the DSED states that noise reduction measures would be implemented in accordance with local ordinances. Local noise ordinances vary by location. The intent of the proposed regulation is to enforce compliance for all herring fishing

locations in the Bay. Additionally, please see responses to Comments 4, 10, 11, 12, 13, 16, 18, and 20.

Comment 10

Nighttime noise reduction measures by the roe herring fishing industry are mandatory. The effectiveness of these measures will not be known until evaluated during the season. Further regulatory amendments may be necessary based on the findings from the 2001-02 season noise evaluation. A Marin county municipality has agreed to participate in the evaluation of transient noise related to nighttime fishing activities. Noise problems associated with the roe herring fishery during the 2001-02 season, should be reported to the Department's CalTIP line: 1-888-334-2258. Additionally, please see responses to Comments 4, 9, 11, 12, 13, 16, 18, and 20.

Comment 11

The commentator's offer to assist the Department in noise data collection for the evaluation of noise levels is appreciated. Methods the Department will use to evaluate noise associated with fishing activities are in the process of development. The Department will use local experts in the field to evaluate collected noise level data as determined and recommended by the local municipalities. Additionally, please see responses to Comments 4, 9, 10, 12, 13, 16, 18, and 20.

Comment 12

The Department concurs that the term "voluntary" is confusing. Compliance with noise reduction measures is mandatory. The word "voluntary" has been stricken from the proposed regulation for clarity purposes. The use of the term "voluntary" was intended to imply that the methods to achieve noise reduction may differ from vessel to vessel due to differences in design, construction, and equipment. However, the implementation of noise reduction measures is mandatory for herring permittees who choose to fish between the hours of 10:00 p.m. and 7:00 a.m. within 500-feet of shoreline residential dwellings. Additionally, please see responses to Comments 4, 9, 10, 11, 13, 16, 18, and 20.

Comment 13

The Department is aware that the noise associated with the roe herring fleet's fishing activities is an issue for residents living adjacently to San Francisco Bay's shoreline. The recommended regulation is an attempt by the Department to deal with this issue. The herring fishing industry has been made aware of the problem and has agreed to the implementation of measures to reduce nighttime noise. The Department believes the noise reduction measures warrant an evaluation period to determine their effectiveness. Further amendments to the regulations to reduce noise will be proposed by the Department if found to be necessary. Additionally, please see responses to Comments 4, 9, 10, 11, 12, 16, 18, and 20.

Comment 14

Protection of the resource and management for sustainable fisheries are both principal goals for the Department. Quota selection is explained in detail in the 1998 FED and the 2001 DSED. Additionally, please see responses to Comments 1, 6, 17, and 19.

Comment 15

The proposed regulation change referred to by the comment is proposed to define the terms "fishing," "harvesting," and "processing" as they pertain to the herring eggs-on-kelp fishery. Processing of product in the herring eggs-on-kelp fishery often occurs adjacently to the fishing structure or raft where harvesting occurs, and requires several persons to assist. It is the goal of the Department in defining the terms fishing, harvesting, and processing that a person engaged in the act of fishing and/or harvesting are required to hold a commercial fishing license. This requirement does not apply to a person employed to process herring eggs-on-kelp product under Sections 7850 and 7850.5 of the Fish and Game Code.

Current regulations require that the holder of a herring eggs-on-kelp permit, or one of his or her designated alternates, be present during the harvest process. Both the permittees and the designated alternates are required to hold a commercial fishing license.

Comment 16

This comment is in response to the noise reduction measures proposed by the Department as outlined in Subsection 2.3.1.7. As discussed in this section, the Department in consultation with the fishing industry, has developed a list of noise reduction measures. The effect of the noise reduction measures will be evaluated during the 2001-02 season. Should further measures be necessary, then the Department will take appropriate action as warranted. Additionally, please see responses to Comments 4, 9, 10, 11, 12, 13, 18, and 20.

Comment 17

Section 2.3 of the 1998 FED describes the Department's annual assessment process for San Francisco Bay's herring stock. As discussed in Section 3.2 of the 2001 DSED, the proposed quota for the 2001-02 San Francisco roe herring fishery is set at a conservative level and based on the Department's assessment of the 2000-2001 spawning biomass. Additionally, please see responses to Comments 1, 6, 14, and 19.

Comment 18

The Department is taking steps to address the issue of noise associated with nighttime roe herring fishing activities. Please refer to Section 2.3.1.7 of the 2001 DSED. Additionally, please see responses to Comments 4, 9, 10, 11, 12, 13, 16, and 20.

Comment 19

Section 3.2.4 of the 1998 FED explains in detail the Department's management goals for the herring fishery. The overage of the quota during the 2000-01 did not exceed the Department's management goal of 20% maximum harvest relative to the spawning biomass. Total landings for the 2000-2001 San Francisco Bay roe herring season were 2,991 tons, 472 tons over the 2,519 ton quota, or the 19% referred to in the comment. This translates to a conservative 8.0% harvest rate of the 37,300 ton estimated spawning biomass. Additionally, please see responses to Comments 1, 6, 14, and 17.

Comment 20

The Department has found that the proposed regulations relative to noise reducing measures for the San Francisco Bay roe herring fishery will not result in a cost to cities bordering the Bay. The Department is not mandating that a program be implemented by local agencies. Responding to noise complaints is an existing responsibility of local municipalities. The Department has taken the noise issue associated with the roe herring fishery seriously, and has taken action by proposing an amendment of the regulations governing the herring fishery to address this issue. Additionally, please see responses to Comments 4, 9, 10, 11, 12, 13, 16, 18, and 21.

Comment 21

The comment appears to misconstrue "project alternatives" as addressing project noise issues, which it does not. The project alternatives selection processes are explained in detail within the 1998 FED and the 2001 DSED. The Department's proposed resolution to noise issues is addressed in Section 2.3.1.7 of the 2001 DSED. Additionally, please see response to Comments 4, 9, 10, 11, 12, 13, 16, 18, and 20.

Linda Lyons Letter dated July 26, 2001

Comment 1

These comments are in support of the herring fishery.

Comment 2

Comments are noted.

7.3 Copies of Letters Received

Catharine Benediktsson letter dated August 2, 2001

3 AUG 01 12 31 -

Dear Mr. Duffy,

**Review and comments on the Draft Supplemental Environmental Document
Relative to proposed 2001-2002 Commercial Herring Fishing Regulations.**
Notes and comments pertaining to SF Bay fishery only. Not commenting on: Crescent
City, Humboldt Bay, Tomales Bay and Monterey Bay.

OBJECTION TO: AMOUNT OF FISH TAKEN, NIGHT FISHING.

S-2

Summary: regulatory changes to season dates and fishing quotas to 2001-2002 pacific
herring season in SF Bay and T Bay. Includes nighttime noise created by fishing activity.
Changes the quota from 2740 tons last year to 4476 tons for SFBAY. ¹ There is no data
to support the increase of catch. ² Request the elimination of seine fishery. (Page 2-7)
³ Closes fishery during Christmas time when people are home (Dec 21st-Jan 2nd) Are you
trying to hide from the residents during the time they might be home? Perhaps you are
concerned with the fishermen getting a Christmas vacation. Whatever it is, it is an
appreciated respite from the noise. ⁴ Suggest also giving the fishermen evenings off from
10PM to 7AM.

S-5

Three alternative are presented. More alternatives, such as closing fishery in Marin
communities from 10PM til 7AM. This would do many things. Let us all sleep,
including the fisherman, and allow a few herring to get to the beaches. This year there
were none on the whole Tiburon Mar East, stretch. This comes under the SHARE the
resources with others clause.

5

Page 2-8

Graph shows that this is one of the lowest years for herring "spawning biomass" since
1978. Note highest year in 1982 is when attached photo was taken. Despite the
biological excuses of "el Nino" and the salinity from the Delta, it has been 20 years since
this quantity of herring have been seen! Request lowering the catch to at least the 2000
amount.

6

2-10

Spawning is not "en masse" last year similar to 1999-2000. This could be because the
boats with their radar screens are chasing the fish schools. Scaring them off from the
beaches and spawning. Think what they must be doing to the seal hearing.
They attribute it to salinity or other factors. How do they know it isn't the harassing
nature of the fishing boats chasing the schools?

7

2-12

Season dates. What is the reason for the break at Christmas? Are these set for the fishermen to have a Christmas vacation or is it related to the herring or is it to keep the residents from seeing what is going on with the fishery.

8

2-14

How was the 500 feet of the shoreline established? The municipal noise regulations don't infer any distance the noise can be made away from the property. They are based on the noise level at the receiving property. Why not restate the decibel level allowed at the receiving property as the city regulations are written. Is this in legal conflict with the city?

9

Page 2-15

If the measurements for the noise levels turn out to be over the levels allowed by the city, ...if they exceed the noise ordinance of Tiburon - what will be the action taken and by whom? Do I call the police to enforce the city ordinance? The sheriff?

10

Regarding the noise level data collection:

Who is doing the collecting? Fish and Game? Have they experience in this? Where the meters are placed is critical to the quality of the data obtained. They must be placed as close to on the water as possible, not three stories above the water. I would like to be a monitoring point since I am well versed in data collection, and have expressed that it is a problem. The occurrence over the decibel level allowed by the city is a violation. Ambient nighttime noise levels are not pertinent to the discussion, only the noise generated by a source which exceeds the levels allowed during nighttime and daytime hours. To be truly effective, the fisherman cannot know the location of the equipment, otherwise they will avoid them. Perhaps that is reason enough to request one on the water on this property.

11

You have no scientific basis to adopt "voluntary" noise reduction measures.... Anyway, what is that? Voluntary measures to meet regulatory standards set by the city? I don't think that is voluntary. Either it is a requirement - or not.

12

The potential economic loss that "might" result from reduction of available fishing area until alternate measures are implemented and their effectiveness evaluated....
When the fishing boats go over the value once, that is officially a violation and considered non-compliance with the city ordinance.

13

Page 2-18

Concerning the quota allotment for research - The mesh size study was suspended due to low quota levels. Determining the optimum mesh size is a department priority. How about the amount of fish that spawn on the beaches being a department priority?

14

7-10

Page 2-19

You don't have to have a commercial license to be employed by eggs on kelp harvestors. How do we know these people understand the regulations and will apply them? Commercial fishermen go through a process to get their license. At least require a commercial fishermen to be present.

15

Page 2-22

Alternatives

Why is the alternative to limit fishing from 10PM to 7 AM not listed as an alternative. It was presented as an alternative by oral and written comments, and has not been included. This needs to be changed. It is a valid alternative which was presented.

16

Page 3-2

Talk about spin!!! 26% increase, SF Bay stock responding favorable conditions..... The truth.... It is the fifth lowest (check this) year since data was gathered in 1972. See attached photo of what it used to be like..... twenty years ago.

17

Page 4-1

You all in your ivory palaces may consider the noise to be less than significant, but I assure you, we the sufferers of the noise do not agree. What would have to be the case for the noise to be significant? This question needs to be answered.

18

Last of all, if last year 19% over the quota was collected, what is the point in a quota? Is it just a nice goal, or how much over the quota is allowed, and if the Policy is less than 20% of the biomass, has this been more if the quota was exceeded?

19

With regard to your statement on the Title 14 Notice of Proposed Changes, item (e) which is Nondiscretionary costs/to local agencies: NONE. I think when local residents call the police over enforcement of the noise regulation is going to be more than NONE. There will be a cost to the city. Also, programs mandated on local agencies: Noise monitoring is a program with costs. The Notice says none. Again, who is going to do the noise monitoring?

20

The closing statement : No reasonable alternative considered or presented would be less burdensome to affected private persons than the proposed action. This is not true. Closing the fishery from 10PM to 7AM would be less burdensome to the private parties along the Marin waterfront. Please Mr. Duffy, do not sign this without these changes.

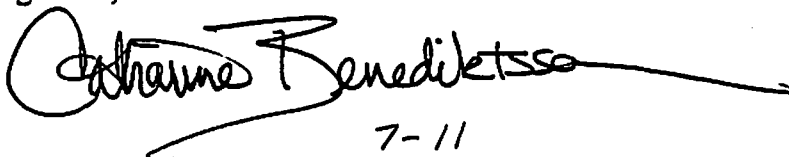
21

I request a reply to my questions. Thank you.

Catharine Benediktsson

2352 Mar East St. Tiburon, CA 94920 ccben@pacbell.net

Thursday, August 02, 2001



7-11



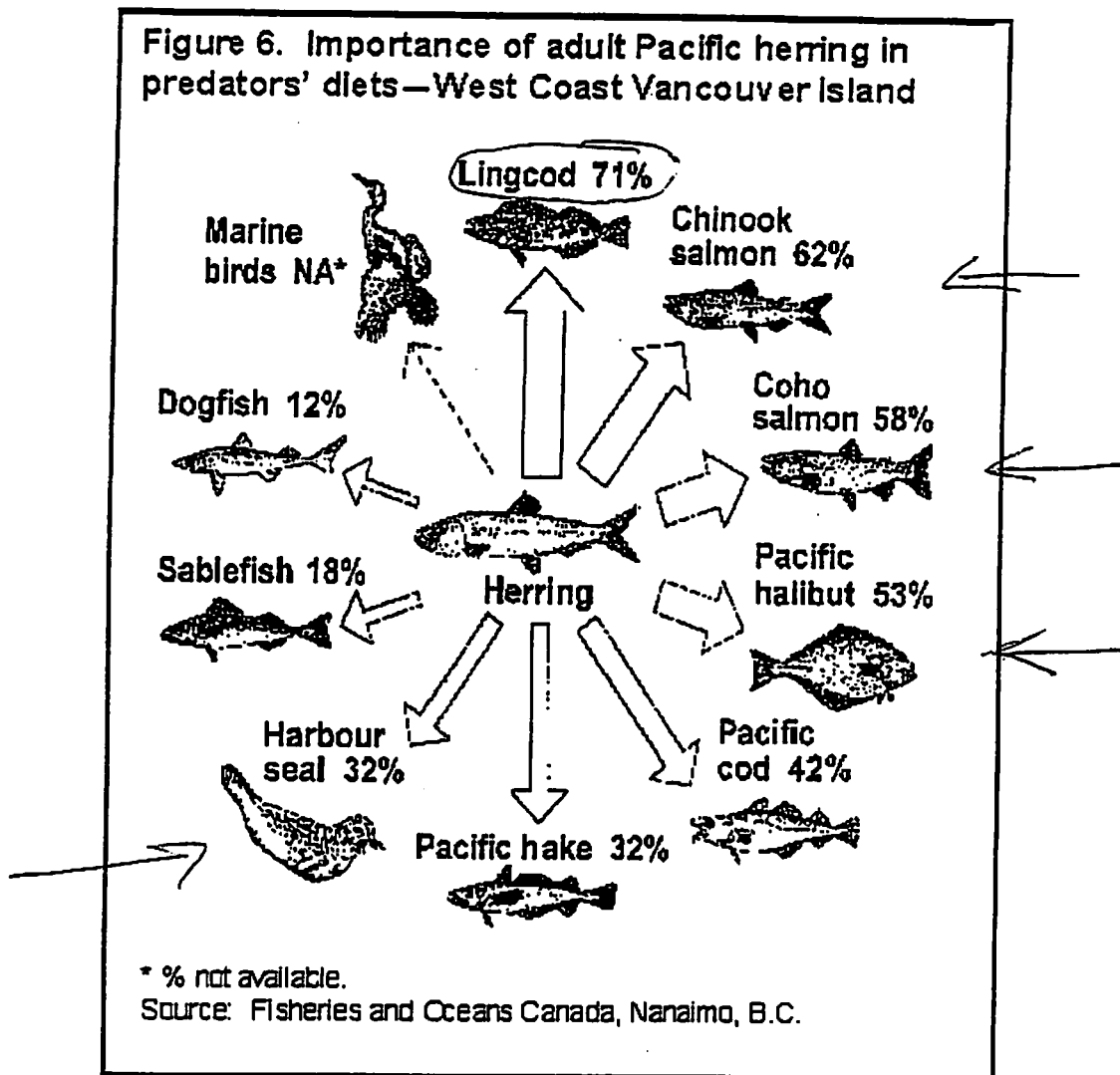


Table 7. Proportion of Pacific herring in the diet of predators. 1983–1991

REFERENCES

Table 6

The commercial catch data of the West Coast Vancouver Island stock are published in Schweigert, J.F. and C. Fort. 1994. Stock assessment for British Columbia herring in 1993 and forecasts of the potential catch in 1994. Can. Tech. Rep. Fish. Aquat. Sci. 1971. 67 pp.

The data of herring biomass eaten are unpublished. The contact for these data is Dan Ware, Pacific Biological Station, Nanaimo, B.C.

Table 7

Ware, D.M. and G.A. McFarlane. Climate-induced changes in Pacific hake (*Merluccius productus*) abundance and pelagic community interactions in the Vancouver Island upwelling system. Can. Spec. Publ. Fish. Aquat. Sci.

Olesiuk, P.F. 1993. Annual prey consumption by harbour seals (*Phoca vitulina*) in the

Linda Lyons letter dated July 26, 2001

5562 Wilder Ridge Rd.
Garberville, CA 95542
July 26, 2001

Dept. of Fish & Game Commission
270 Harbor Blvd., Suite 270D
Belmont, CA 94002

Hello,

Recently I became aware of a letter and/or a petition from some Sausalito waterfront residents who are opposed to the herring fishery occurring in front of their residences. I don't know how long they have lived there but since the herring fishery has been in existence since 1973, I have a feeling that these individuals have moved to Sausalito since then.

Not only is the herring fishery an attraction which has been written up as such but it is also a legitimate livelihood in an industry that has been hard hit with regulations on other fisheries.

I am a third generation Sausalitan. I grew up there as did both of my parents. My grandparents came there in the 1880's. I own residential property on the boardwalk at the corner of Richardson St. and Bridgeway which has been in my family since the early 1920's. I do not find the seasonal herring fishery in the least bothersome and neither do the 6 tenants residing in my building. There has to be room for ordinary people to live and work in Sausalito as has historically been done for decades.

The following is a quote from San Francisco Magazine Online: "Watching the herring fishermen from atop a Sausalito bluff is one of the most spectacular sights in the Bay Area. The boats display tiny red and green lights at the top of their masts, which flicker across the night water like Christmas trees. When the fishermen reel in their nets, they shine a white floodlight on them, and the thousands of herring, flapping in the weave of the nets, glitter like huge silver chains." Several articles such as this have been written touting the herring fishery as an attraction.

My husband had one of the original herring permits issued in the early '70's. He told me that the purpose of the flood light is to see whether or not there are fish in the net. He also feels that the proposed 500 ft. boundary off the shore

of Sausalito is a hindrance to catching fish. My son has fished the last two seasons in the herring fishery on two different boats and feels very strongly that it should not be limited to please disgruntled residents who more than likely are "Johnny come latelies".

As far as nuisances on the bay are concerned, I find the jet skis and speed boats that roar around all hours of the day and, in the case of the cigarette boats, night to be very intrusive. Many of these boats show no courtesy or safety savvy and are truly a hazard.

It would be a shame and a disservice to working fishermen to further limit their ability to earn a living just to please a few residents.

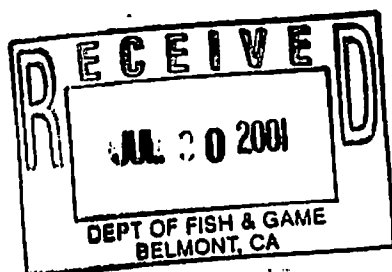
Sincerely,

A handwritten signature in cursive script that reads "Linda Lyons". The signature is written in dark ink and is positioned above the printed name.

Linda Lyons

7-17

Linda Lyons
5562 Wilder Ridge
Garberville, CA 95542



Dept. of Fish and Game
ATTN: Susan Ashcroft
270 Harbor Blvd., Suite 270 D
Belmont, CA 94002

94002+4017



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