STATE OF ALASKA

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December 10, 2007

Ms. Kaja Brix
Assistant Regional Administrator
Protected Resources Division
Alaska Region, National Marine Fisheries Division
P.O Box 21668
Juneau, AK 99802

Re: Lynn Canal herring

Ms. Brix:

Enclosed are comments from the State of Alaska regarding requests for information on Lynn Canal herring as noticed in Federal Register Vol. 72, No. 174 dated September 10, 2007.

Alaska Department of Fish and Game (ADF&G) fishery managers and State of Alaska scientists, after review of available information, found that the best available scientific and commercial information support a determination that listing of Lynn Canal herring under the Endangered Species Act (ESA) is <u>not warranted</u> for at least five separate reasons.

1. Lynn Canal herring do not represent a distinct population segment. There is no substantial information available that would support a contrary determination. Herring found in Lynn Canal are part of a larger herring metapopulation that includes all of Southeast Alaska and that may extend beyond Southeast Alaska.
2. Herring found in Lynn Canal are stable or increasing. There is no evidence that the herring in Lynn Canal are in danger of extinction within the foreseeable future. Recent surveys indicate that the documented spawn for herring in Lynn Canal during the recent 4 year period has exceeded 8.0 nautical miles twice, well above the average documented spawn of 3.7 nautical miles since 1982.
3. Herring in Southeast Alaska are very strong. Documented herring spawn in Southeast Alaska in the past 12 years has averaged 55.4

nautical miles, well above the previous average documented spawn from 1969-70 through 1994-95 of 22.9 nautical miles.

4. The Lynn Canal area does not represent a significant portion of the range of the larger Southeast Alaska metapopulation. In addition to representing a small geographic portion of the herrings range, Lynn Canal does not represent an unusual or unique ecological setting for the taxon and is connected directly to Chatham Strait and Stephens Passage, both of which contain numerous bays and inlets offering similar ecological settings that support regular or sporadic herring spawn events.
5. Given the herring population status and other background information, listing could not be justified under the statutory listing factors. Sufficient regulatory measures are in place to protect herring spawning habitats in Lynn Canal and the greater southeast Alaska metapopulation and to provide for sustained yield management of these herring populations.

Based on this, and a detailed analysis of the statutory listing criteria (attached), we do not believe that a listing of Lynn Canal herring as either threatened or endangered under the ESA could be justified at this time.

Attached are more detailed comments that substantiate our position. If you have any questions regarding these materials, please fell free to contact me.

Sincerely,

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cc: Denby Lloyd, ADF&G – Juneau/HQ
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Cora Crome, Governor's Office - Juneau
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I. Herring within Lynn Canal do not represent a Distinct Population Segment (DPS) under the Endangered Species Act (ESA)

A. Background.

To understand whether herring within Lynn Canal can be classified as a DPS under the ESA it is important to understand the concatenated definitions that the NMFS uses to clarify the meaning of "species" in the ESA. These definitions are documented and applied in many places, including the Stout et al. (2001) and Gustafson (2006) status reviews of Pacific Herring in Puget Sound, Washington, that were prepared by NMFS in response to ESA petitions.

1. Species

The ESA as amended in 1978 defines "species" as "any subspecies of fish or wildlife or plants, and any distinct population segment of any {biological} species of vertebrate fish or wildlife which interbreeds when mature."

2. Distinct

The meaning of "distinct population segment" is clarified in a joint US Fish and Wildlife Service and NMFS interagency policy on vertebrate populations (USFWS-NOAA 1996, 61 Fed. Reg. 4722-25): To be considered "distinct" a population must be first "discrete" from other populations and then second "significant" to the biological species as a whole.

a. Discrete

In the many status reviews in response to ESA petitions, NMFS has defined a "discrete" population to be markedly separated from other populations of the same taxon as a consequence of physical, physiological, ecological, or behavioral factors. If physical (geographic) separation is not clear, then quantitative measures of life history, morphological, or genetic discontinuity are used to determine whether a population is "discrete."

This definition remains unclear because it has not been rigidly applied and does not indicate how much separation is necessary for a population to be "markedly separated". For example,

Gustafson (2006) found the Cherry Point herring to be "somewhat discrete," and to represent a "demographically independent subpopulation" despite evidence of gene flow, while at the same time questioning the biological importance of the low level differentiation observed. While evidence of gene flow should prevent a "discrete" determination, the Service has not rigidly applied the "discrete" component, requiring it to apply the "significant" component.

b. Significant

A "significant" determination is based upon "1) persistence of the discrete population segment in an ecological setting unusual or unique for the taxon, 2) evidence that loss of the discrete population segment would result in a significant gap in the range of the taxon, 3) evidence that the discrete population segment represents the only surviving natural occurrence of a taxon that may be abundant elsewhere as an introduced population outside of its historic range, or 4) evidence that the discrete population segment differed markedly from other population of the species in its genetics characteristics" (Stout et al. 2001).

To address whether herring in Lynn Canal represent a DPS under the ESA, the following two questions must be addressed:

1. What are the limits of the DPS that includes herring in Lynn Canal —do Lynn Canal herring represent a stand-alone DPS?
2. Is the DPS in danger of becoming extinct (endangered) or likely to become extinct (threatened) in a significant portion of its range.

B. Lynn Canal Herring do not represent a "discrete" population.

Pacific herring were petitioned for ESA protection twice in Puget Sound, Washington. The first petition named Puget Sound herring in general; the second focused upon the stock inhabiting Cherry Point. The NMFS completed two comprehensive status reviews in response to these petitions. These included hundreds of references on the biology and distribution of Pacific herring. In reviewing the status and conducting the distinct/discrete/significant determination for Puget Sound, the NMFS also considered all of the research available from British Columbia and Alaska. Since little research has been done in the few years since that time, these reviews provide the best basis for a determination of whether herring within Lynn Canal represent a DPS.

In both of the previous status reviews, NMFS concluded that Pacific herring DPSs follow the metapopulation model of stock and species structure. Many species have a metapopulation structure whereby numerous local aggregations (or stocks) coexist, with some connectivity, with local extinctions and recolonizations occurring routinely through biological time (Levins 1968). This conclusion is soundly supported by NMFS' wide-ranging review of life history, migration and tagging, and population genetics.

The salient feature of metapopulations in this instance is that depressions and extinctions of local subpopulations are naturally occurring phenomena. Waples et al. (2007) further explains that an ESA status review of a metapopulation is a single snapshot in time where one might expect to see some habitat patches occupied by stable populations, some patches vacant, and other patches with increasing or decreasing populations (see Figure 1). In his review of the NMFS status reviews, Waples et al. (2007) points out:

> "*The goal of ESA recovery planning is to restore viable populations in enough strata that the listed unit as a whole is no longer threatened or endangered in all or a significant portion of its range. In a recent review of Pacific herring (Clupea pallasi) in Puget Sound, current status (some populations increasing and others declining) was evaluated in the context of the historical template, and it was concluded that current patterns of distribution and abundance do not depart substantially from what would be expected at any point in time under natural conditions in a large metapopulation.*"

That local stocks of Pacific herring naturally disappear and reappear in Washington, British Columbia, and Alaska is well documented in the existing status reviews. Stout et al. (2001) points out that in Alaska, Skud (1960) failed to find spawning at 37 of the 57 bays where spawning was first documented by Rounsefell (1930). Ware and Tovey (2004) provide excellent long-term data sets demonstrating decline, extirpation, and recolonization of stocks inhabiting bays in British Columbia (see examples extracted for Figure 2). They identified 82 spawn disappearance events. Some of these vacant habitats were recolonized quickly, in five to 35 years. Others remain vacant today.

Stout et al. (2001), reviewing the petition to protect Puget Sound herring, concluded that the dozens of stocks in Georgia Basin--Puget Sound and Southern British Columbia--compose a single metapopulation: the Georgia Basin DPS (see Georgia Basin description at http://www.epa.gov/region10/psgb/). They found that the DPS included

a combination of healthy stocks, declining or depressed stocks, and one critical stock (Cherry Point). In evaluating all of the related factors, the Biological Review Team (BRT) concluded, by a large majority, that the Georgia Basin DPS was acting as a healthy metapopulation, "neither at risk of extinction, nor likely to become so" (Stout et al. 2001). At the same time the BRT recommended, even though the DPS was not at risk, that state conservation activities at the stock level were totally appropriate to promote viable commercial fisheries.

Gustafson et al (2006), reviewing the petition to protect the Cherry Point stock, supported the designation of the Georgia Basin DPS by Stout et al. (2006). There was significant support in the BRT to actually enlarge the Georgia Basin DPS. Substantial evidence including tagging studies (Hay et al. 2001) and genetic studies (Grant and Utter 1984; Beacham et al. 2001, 2002; and Small et al. 2005) demonstrates extensive straying beyond the Georgia Basin and substantial genetic homogeneity of Pacific herring stocks throughout the Pacific Northwest and British Columbia. However, the final recommendation was to support the Georgia Basin DPS designation based upon ecological and age composition evidence (Gustafson et al. 2006 p. 68).

This support of the Georgia Basin DPS in the Cherry Point review demonstrates the importance of the distinct/discrete/significant definitions above. Gustafson (2006) reported that some local stocks or stock groups in Puget Sound have distinguishing characteristics: *discrete* and persistent spawning location, spawn timing, size at age, migration behavior, genetic differentiation, and many others. The microsatellite DNA study of Small et al. (2005) described a weak but stable signal indicating restricted gene flow between the Cherry Point stock and other stocks in the Georgia Basin DPS. Considering these factors Gustafson (2006 p. 132) refined the description of the Georgia Basin DPS to include eight "*discrete*" or "somewhat *discrete*" subpopulations (Figure 3) in a slightly modified metapopulation. In this refinement, Cherry Point was determined to be a *discrete* subpopulation, a demographically independent subpopulation, but not *significant* to the species as a whole; thus the Cherry Point stock did not constitute a stand-alone DPS.

In reviewing the extinction question, the BRT concluded that "abundance is declining within some of these {distinct subpopulations} and increasing in others. These patterns of abundance and distribution within the Georgia Basin DPS appeared to be fairly typical of what is seen in other Pacific herring populations throughout northwestern North America, including many relatively pristine areas in southeastern Alaska and British Columbia" (Gustafson et al. 2006 p. xiv).

NMFS expressed concern that recolonization might take longer than that observed in classical metapopulations, should the Cherry Point subpopulation become extinct. However, this still did not present a threatened or endangered risk to the DPS in a significant portion of its range.

Lynn Canal herring are not markedly separated from other populations. Herring have generally been divided into migratory and resident life history categories (reviewed in Stout et al. 2001):

1. migratory stocks that are long-lived and make extensive summer feeding migrations
2. resident stocks that make comparatively very short feeding migrations (or no migrations at all).

Studies suggest that most of the herring that spawn in Lynn Canal are resident, and more or less demographically discrete, while most other herring in Southeast Alaska are migratory (Carlson 1980). While this factor might provide some support for a discreteness determination for herring stocks in Lynn Canal, there is no physical isolation, and historical genetic (allozyme) data show no differences between Lynn Canal herring and other Gulf of Alaska herring, including Kodiak, and suggest that these herring are closely related to those from British Columbia and Washington (Grant and Utter 1984).

These results are consistent with contemporary microsatellite data that suggest that Pacific herring are characterized by high levels of gene flow among populations across fairly large geographic areas (Beacham et al. 2001, 2002). Therefore, although the herring of Southeast Alaska are managed as a number of stocks for purposes of fishery management, these "stocks," including the herring found in Lynn Canal, should be considered subpopulations within a larger metapopulation comprised of subpopulations occurring throughout at least all of Southeast Alaska and probably extending significantly beyond Southeast Alaska into the Gulf of Alaska and British Columbia.

C. Even if considered "discrete", "stocks" of herring in Lynn Canal cannot be considered significant.

First, Lynn Canal does not represent an unusual or unique ecological setting for the taxon. Lynn Canal is connected directly to Chatham Strait and Stephens Passage, both of which contain numerous bays and inlets offering similar ecological settings, and both of which are known sites of

occasional herring spawning events (Pritchett 2005; Coonradt, Gordon, Harris, and Monagle 2006; Marc Pritchett personal communication[1]).

Second, even in the unlikely event that the Lynn Canal spawning aggregation was to temporarily disappear, it would not result in a significant gap in the range of the taxon. Pacific herring range from California to the Bering Sea, and even if the metapopulation is considered to include only Southeast Alaska – a definition that would appear inconsistent with genetic evidence – it would not create a gap in the range of the taxon. Spawning events have been reported in nearby areas including Oliver Inlet, Taku Harbor, Couverden Island, Icy Strait, Tenakee Inlet, and Port Fredrick (Marc Pritchett personal communication[1]), recolonization could certainly be expected from herring spawning in these areas or even from more distant, but still relatively close, areas such as Hobart Bay, Port Houghton, Seymour Canal, Mud Bay, Idaho Inlet, and Lisianski Inlet (Table 1, Figure 5).

Third, there is no evidence that Lynn Canal herring represent the only natural occurrence of a taxon that might be more abundant elsewhere as an introduced population outside its historic range. The available genetic information directly contradicts this factor by showing that herring populations are interrelated with high levels of gene flow.

Fourth, known and expected genetic characteristics of Lynn Canal herring do not differ markedly from other subpopulations of the species. Genetic differentiation is one of the central elements in many DPS determinations. Genetic differentiation is easily quantifiable, provides direct evidence of potential restrictions in gene flow (discreteness), and is not masked by environmental variables that can influence false signals of discreteness. Genetic studies of Pacific herring nearly always identify extensive gene flow (no discrete stocks) over broad geographic areas spanning hundreds (or thousands) of miles (see additional papers including Kobayashi (1993) and Bentzen et al. (1998) as reviewed in Seeb et al. (1999) that includes mtDNA and microsatellite data from North Gulf of Alaska and Bering Sea stocks). The Alaska Fisheries Science Center has plans for a microsatellite study that includes the Lynn Canal stock; however, there may not be sufficient time to complete the study in time for the DPS determination. Absent an extremely unlikely biological event, the results of such a study should be no more informative than those of Small et al. (2005) which were not sufficient to warrant designating the Cherry Point stock as a DPS.

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[1] Marc Pritchett, Biologist at the Alaska Department of Fish and Game, Douglas, Alaska. (907) 465-4244.

D. Summary of Distinct Population Segment Analysis

Based on the application of best available scientific and commercial data, and using the interagency policy regarding the recognition of distinct vertebrate population segments, the Department concludes that the herring that inhabit Lynn Canal cannot be considered a DPS under the ESA. Further, classifying herring within Lynn Canal as a DPS would be inconsistent with previous determinations of distinct population segmentation in Pacific herring.

II. Lynn Canal herring are stable or increasing and adequate measures are in place to prevent over-harvest.

ADF&G conducts aerial, skiff, and scuba dive surveys to monitor the primary areas where the Lynn Canal herring are known to spawn. Aerial and skiff surveys have been conduced since 1970 to identify the dates and extent of herring spawns (miles of spawn along shoreline). A 2004 dive survey provided the first estimate of spawning biomass escapement by the department for the Lynn Canal area since a 1984 dive survey and a 1992 hydroacoustic estimate. Using dive surveys, the department estimates the total number of herring eggs in the Lynn Canal spawning grounds and converts this to an estimate of spawning biomass through use of a fecundity relationship and weight-at-age data. Monitoring of the Lynn Canal spawning through aerial, skiff, and spawn deposition scuba dive surveys continued in 2007 as reported here.

The Department in conjunction with the Alaska Board of Fisheries adopted regulations to assure for the sustainability of southeast Alaska herring stocks, including those within Lynn Canal. These regulations relating to commercial fisheries, the only potentially significant harvest source[2], are:

> **5 AAC 27.190. Herring Management Plan for Southeastern Alaska Area.** For the management of herring fisheries in the Southeastern Alaska Area, the department
>
> (1) shall identify stocks of herring on a spawning area basis;
> (2) shall establish minimum spawning biomass thresholds below which fishing will not be allowed;
> (3) shall assess the abundance of mature herring for each stock before allowing fishing to occur;
> (4) except as provided elsewhere, may allow a harvest of herring at an exploitation rate between 10 percent and 20 percent of the estimated spawning biomass when that biomass is above the minimum threshold level;
> (5) may identify and consider sources of mortality in setting harvest guideline;
> (6) by emergency order, may modify fishing periods to minimize incidental mortalities during commercial fisheries.

[2] As discussed more fully below in Section IV, subsistence harvest is not a concern because the major spawning areas (and all road accessible spawning areas) are within the Juneau nonsubsistence area defined in 5 AAC 00.015(a)(2). There is no significant personal use or sport harvest, and both personal use and sport harvest would be subject to restrictive regulations found at 5 AAC 77.672 and 5 AAC 75.030.

Under these regulations, the established spawning biomass threshold level for Lynn Canal herring has been established as 5,000 tons. This means that before a directed herring fishery may be considered on Lynn Canal herring, a forecast of spawning biomass must meet or exceed 5,000 tons.

Prior to 1983 herring within Lynn Canal supported several commercial fisheries including a sac roe fishery, bait fishery, and a winter food and bait fishery. Herring within Lynn Canal declined in 1981-82. As a result, no commercial harvest has occurred in the Juneau area since the 1981-82 season. Alaska's fisheries are subject to a constitutional sustained yield management requirement and these closures will remain in force to allow the herring within the Lynn Canal area to rebuild until it can support a fishery without threatening sustained yield.

From 1953 to 1981 Lynn Canal herring spawned from Auke Bay to Point Sherman including Berners Bay and Cascade Point. The documented spawn for Lynn Canal herring during this period ranged from 5.7 to 28.1 nautical miles (nmi), averaging approximately 12 nmi (Table 1, Figure 4). While significant spawning occurred in the vicinity of Auke Bay prior to 1981, there has been very limited spawning in Auke Bay in recent years. Recently, spawning activity for Lynn Canal herring has centered between Bridget Cove and the east shoreline of Berners Bay. Since 1982 the documented spawn has ranged from 0.5 to 9.0 nmi, averaging 3.7 nmi (Table 1, Figure 4). ADF&G records since 1971 document herring spawn between Echo Cove and the Berners Bay flats in most years, with few exceptions. Pacific herring have been documented to spawn at Cascade Point as early as April 18 and as late as May 24. There is no significant difference in time of spawn between Lynn Canal and adjacent waters.

While not sufficient to allow a commercial harvest, herring levels within Lynn Canal are not declining or in danger of becoming extinct or threatened with extinction within the foreseeable future. Recent surveys indicate that the documented spawn for herring in Lynn Canal during the recent 4 year period has exceeded 8.0 nmi twice (Table 1). This suggests the stock is stable and may be rebuilding. Further, actual spawn deposition may exceed documented spawn in many years where spawning occurs outside of more common areas or time frames. The department monitors only areas that are or have been commercially exploited where significant spawn events are known to occur. Limited resources are not expended monitoring small populations or spawn events. The department has received reports of herring spawn events in a number of nearby locations, including sites in Port Fredrick, Cross Sound, portions of Icy Strait, Lisianski Inlet, Olivers Inlet, Taku Harbor (Marc Pritchett

personal communication[3]). These sites are not surveyed on a regular basis and observed spawn from some of these locations is generally not counted in determining the cumulative miles of spawn attributable to the Lynn Canal herring.

The reasons for the decline and slow recovery of Lynn Canal herring are not clear, but fluctuations of herring within larger herring metapopulations are not uncommon (Ware and Tovey 2004). In Alaska, Pritchett (2005) showed the West Behm Canal spawning aggregate forecast increased from 283 tons in 1991 to 15,968 tons in 1999 and fell back to 454 tons in 2005; similarly Hobart Bay/Port Houghton miles of herring spawn ranged between 0 in the late 1970's/early 1980's to 19.1 nautical miles (nmi) in 1998-99 (Table 1, Marc Pritchett personal communication[4]). Additionally, recovery from overfishing may be slowed by natural population cycles or by a number of predation factors including increasing salmon returns (Bachman 2007), growth in Southeast Alaska stellar sea lion populations (Pitcher et al. 2007), and increasing humpback and killer whale (Angliss and Outlaw 2006) populations in Southeast Alaska.

Further, the larger metapopulation of herring in southeast Alaska and beyond, of which herring in Lynn Canal herring is a part, is quite strong. Documented spawn for the overall southeast Alaska portion of the herring metapopulation in the past 12 years has averaged 55.4 nmi, well above the previous average documented spawn from 1969-70 through 1994-95 of 22.9 nmi (Table 1, Figure 4).

Summary

While herring within Lynn Canal are at levels below historic highs, the best available information does not indicate they are in danger of becoming extinct within the foreseeable future. Also, the larger metapopulation of herring within southeast Alaska is at record high levels. Finally, adequate regulatory mechanisms are in place to assure against over-harvest.

[3] Marc Pritchett, Herring biologist at the Alaska Department of Fish and Game, Douglas, Alaska. (907) 465-4244.
[4] Marc Pritchett, Biologist at the Alaska Department of Fish and Game, Douglas, Alaska. (907) 465-4244.

III. Lynn Canal does not represent a significant portion of the range of the herring DPS found in Southeast Alaska

Given the broad range of pacific herring from California to the Bering Sea, or even of a separate DPS limited to Southeast Alaska and Gulf of Alaska stocks, even if the herring found in the approximately 40 mile long Lynn Canal were to disappear, it would not result in loss of a significant portion of the range of the species or of the DPS.

Simple geographic scale is enough to show that there is no way that Lynn Canal could reasonably be considered a significant portion of the range even if the DPS were limited to herring found Southeast Alaska. This is bolstered by many of the same factors discussed in the DPS section of this analysis. In addition to representing a small geographic portion of the herring's range, Lynn Canal does not represent an unusual or unique ecological setting for the taxon and is connected directly to Chatham Strait and Stephens Passage, both of which contain numerous bays and inlets offering similar ecological settings that supporting regular or sporadic herring spawn events.

IV. Listing of Herring in Lynn Canal Could Not be Justified Under Statutory Listing Factors Because the Population is Healthy and Adequate Regulatory Measures are in Place to Protect Herring and Herring Habitat.

As indicated in prior sections, an analysis of the ESA listing factors should be made with reference to the herring metapopulation that extends throughout Southeast Alaska and beyond. However, even if the Service were to consider the Lynn Canal herring to be a DPS, application of the listing factors would not support a listing. Herring that utilize Lynn Canal are not at significant risk as a result of any of the five statutory factors.

A. *Present or threatened destruction, modification, or curtailment of habitat or range is not a significant factor.*

Herring in Lynn Canal are not threatened by present or threatened destruction, modification, or curtailment of habitat or range. There is no scientific evidence to tie the decline of the Lynn Canal herring to the destruction or modification of habitat. Because Cascade Point and adjacent areas of Berners Bay are within primary spawning grounds for Lynn Canal herring, listing proponents postulate that proposed development of a marine facility in this area could have an impact on herring within Lynn Canal. Increased disturbance from vessel traffic, transient lighting, increased turbidity and sedimentation, and increased petroleum hydrocarbons in the water from oil or gas spills are also postulated as concerns by the listing proponents.

Observations of effects of development from nearby areas illustrates that development does not necessarily cause harm to herring, and in some cases may improve or increase spawning habitat by providing protected waters and/or increased surface area for spawn deposition. Herring near Sitka consistently spawn around the new Thompson Harbor breakwater and in fact sometimes spawn inside the boat harbor. Spawn frequently occurs along the well developed waterfront road system to the ferry terminal. Boat traffic does not appear to disrupt spawning. Commercial and subsistence vessels near Sitka are often operating in the area of peak spawn or pre spawn biomass with no apparent detriment to herring. Despite significant development and boat traffic, the herring biomass in the Sitka Sound area is at near record high levels. Similarly, in Lynn Canal, herring were observed spawning adjacent to a new dock and fill at Adlersheim during 2007.

Herring stocks are also fairly resilient to change. The resiliency of herring stocks is demonstrated by the fact that herring stocks naturally disappear and reappear in Washington, British Columbia, and Alaska even when reduced to very low numbers (Stout et al . 2001). It is also illustrated by the fact that large scale fluctuations in spawning biomass have been observed in Southeast Alaska. Pritchett (2005) documented a West Behm Canal spawning aggregate forecast increase from 283 tons in 1991 to 15,968 tons in 1999 followed by a decline to 454 tons in 2005. Similarly, ADF&G data show that Hobart Bay/Port Houghton miles of herring spawn ranged between 0 in the late 1970's/early 1980's to 19.1 nmi in 1998-99 (Table 1, Figure 4).

Herring resiliency and demonstrated ability to successfully spawn in developed areas weighs heavily against a determination that heavily regulated development such as that proposed for the Kensington mine would threaten significant destruction, modification, or curtailment of habitat or range.

Additionally, sufficient regulatory mechanisms are in place to assure that such developments do not significantly impact herring or their spawning habitats. A description of these regulatory mechanisms is summarized in subsection D below.

B. Overutilization for commercial, recreational, scientific, or educational purposes is not a significant factor.

Herring in Lynn Canal are not threatened by overutilization for commercial, recreational, scientific, or educational purposes. There is no scientific or commercial evidence that the decline of Lynn Canal herring was due to overharvest, and as indicated earlier even if significant overharvest were to occur, herring stocks are very resilient and can be expected to recover over time even if reduced to very low levels.

No commercial harvest has occurred since the 1981-82 season, and regulations are in force that will not allow a harvest until herring within Lynn canal rebuilds to a level that allows a sustained harvest. Most of the primary herring spawning areas in Lynn Canal, including Berners Bay and areas south of Berners Bay along the road system, are located in the Juneau nonsubsistence area as defined in 5 AAC 99.015(a)(2), and therefore Lynn Canal herring are not subject to significant subsistence harvest. No significant sport or personal use fishery targets Lynn Canal herring. Specific harvest amounts are not available, however, area management biologists estimate the harvest to be less than 5,000 herring

annually (Rob Bentz, personal communication[5]). Finally, no significant take of Lynn Canal herring occurs for scientific or educational purposes (Sara Larsen, personal communication[6]).

As discussed more fully above in Section II of this analysis, herring numbers in Lynn Canal are not declining. Since 1982, the documented spawn has ranged from 0.5 to 9.0 nmi, averaging 3.7 nmi (Table 1, Figure 4). Recent surveys indicate that the documented spawn for herring in Lynn Canal during the recent 4 year period has exceeded 8.0 nmi twice (Table 1). This suggests the stock is stable and may be rebuilding. Further, the methodology and areas used for pre-statehood spawn estimates are unknown, and under current methodology actual spawn deposition may exceed documented spawn in many years where spawning occurs outside of more common areas or time frames. The department monitors only areas that are or have been commercially exploited where significant spawn events are known to occur. Limited resources are not expended monitoring small populations or spawn events.

Pressure from fisheries has not been and is not now a factor in the slow recovery of herring in Lynn Canal, and as more fully addressed above in section II and below in subsection D, state fisheries are managed under a constitutional sustained yield mandate and adequate regulatory measures are in place to prevent overharvest.

C. Disease or Predation is not a significant factor.

Herring in Lynn Canal are not threatened by disease or predation. There is no scientific or commercial evidence that the decline of Lynn Canal herring was due to disease or predation. As noted earlier, while increasing salmon returns, growth in Southeast Alaska stellar sea lion populations, and increasing humpback and killer whale populations in Southeast Alaska may have slowed the recovery of the Lynn Canal subpopulation, there is no information to indicate that predation has or will cause a further population decline. Since, as shown above, Lynn Canal herring are stable or increasing, despite recent increases in predator populations, there is no reason to speculate that predation is likely to threaten or endanger herring in Lynn Canal within the foreseeable future.

D. Existing Regulatory Mechanisms to Protect Herring and Habitats Used by Herring in Lynn Canal are adequate.

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[5] Rob Bentz, Deputy Director, Division of Sport Fish, Alaska Department of Fish and Game (907) 465-6187.
[6] Sara Larsen, Permit Coordinator, Division of Commercial Fisheries, Alaska Department of Fish and Game (907) 465-4724.

There is no scientific or commercial evidence that the decline or slow recovery of Lynn Canal herring was due to inadequacy of existing regulatory mechanisms. The Department provides the following information as requested by the proposed rule, consistent with the Service's March 28, 2003, Policy for Evaluating Conservation Efforts (PECE) (68 FR 15100). The proposed rule described the policy by which the Service must consider efforts by the State, political subdivisions of the State, Native American tribes and organizations, local governments, and private organizations to protect species when considering an ESA listing:

> *The PECE provides guidance on evaluating current protective efforts identified in conservation agreements, conservation plans, management plans, or similar documents (developed by Federal agencies, state and local governments, tribal governments, businesses, organizations, and individuals) that have not yet been implemented or have been implemented but have not yet demonstrated effectiveness. The PECE establishes two basic criteria for evaluating current conservation efforts: (1) the certainty that the conservation efforts will be implemented, and (2) the certainty that the efforts will be effective. The PECE provides specific factors under these two basic criteria that direct the analysis of adequacy and efficacy of existing conservation efforts.*

We address the ongoing and planned protective efforts by numerous entities according to the PECE criteria and their effectiveness.

Fisheries Management

As discussed in section II, Alaska's fisheries are managed by ADF&G and the Alaska Board of Fisheries under a constitutional requirement to manage according to sustained yield principles. The commercial herring fishery in Lynn Canal has been closed since the 1981-82 season, and will not reopen under current regulations and policies until the spawning biomass reaches at least 5,000 tons. When a commercial fishery is authorized, under 5 AAC 27.190, the exploitation rate allowed will only be 10 to 20 percent of the spawning biomass.

Most of the primary herring spawning areas in Lynn Canal, including Berners Bay and areas south of Berners Bay along the road system, are located in the Juneau nonsubsistence area as defined in 5 AAC 99.015(a)(2), and thus Lynn Canal herring are not subject to significant subsistence harvest.

As noted earlier, no significant sport or personal use fishery targets Lynn Canal herring. Any personal use fishing that does occur is subject to regulatory restrictions in 5 AAC 77.672, which require a permit for the most desirable product, spawn on kelp, and which limit take of this product to at most 32 pounds per individual or 158 pounds per household and which prohibit herring harvest in Auke Bay. Sport fishing for herring is limited under 5 AAC 75.030 to use of a single line with 15 or fewer unbaited hooks, so the potential catch would continue to be extremely low if the herring were to be increasingly targeted by sport fishers.

Protected Lands

Lands managed by the federal and state governments in and around Lynn Canal help to preserve good herring habitat. These protected lands comprise State game refuges and critical habitats, Tongass National Forest lands, Glacier Bay National Park and Preserve, and state park lands (Figure 6). All of these protected areas have special management legislation limiting land and water use activities, and most have detailed management plans that are effective in protecting habitat.

Agency	Managed Lands (M Sq. Miles)
U.S. Forest Service	422.2
National Park Service	184.2
State of Alaska	38.9
Bureau of Land Management	23.3

Other Existing Regulatory Mechanisms

In addition to land management plans, the State comprehensively regulates activities that occur within the Lynn Canal watershed that potentially affect land use, water quality and quantity. Below are detailed examples of some of these management guidelines, regulations, and permit stipulations which are implemented by the Alaska Department of Fish and Game, Alaska Department of Environmental Conservation, and Alaska Department of Natural Resources as part of the State's role in habitat protection measures.

ALASKA DEPARTMENT OF FISH AND GAME'S ROLE IN HABITAT PROTECTION

In addition to its general responsibilities for the sustained yield management of all fish and wildlife on all lands and waters in the State, the Alaska Department of Fish and Game (ADF&G) manages State lands designated as Refuges and Critical Habitat Areas within and near Lynn Canal.

Alaska Special Areas: Refuges, Sanctuaries and Critical Habitat Areas within or near Lynn Canal managed by ADF&G.

Name of Special Area	Date Established	Enabling Statute		Date of Management Plan
Mendenhall State Game Refuge	1976	AS 16.20.034 (g)		1990
Chilkat River Critical Habitat Area	1972	AS 16.20.585 AS 41.21.610		2002 (w/ADNR)
Dude Creek Critical Habitat Area	1988	AS 16.20.610 (c)		None
Stan Price Wildlife Sanctuary	1990	AS 16.20.150		None

The ADF&G special area management plans are available at: http://www.wildlife.alaska.gov/index.cfm?adfg=refuge.main

The ADF&G participates with other State agencies in Oil Spill Contingency Plans. The Alaska Department of Environmental Conservation (ADEC) requires all vessels transporting oil and hazardous substances within the State of Alaska to have a contingency plan in the event of a spill. Each operator is required to follow the ADEC format as described in 18 AAC 75, Article 4 which is located at the following link: http://www.dec.state.ak.us/spar/statutes_regs.htm#regs75

In addition to industry contingency plans, ADEC and other agencies, including ADF&G, formalized regional plans to ensure consistency. Southeast Alaska has its own regional plan entitled 'The Southeast Alaska Subarea Contingency Plan for oil and hazardous substance spills and releases'. This regional plan is located at : www.dec.state.ak.us/spar/perp/plans/scp_se.htm. The industry contingency plans are a way that ADEC can ensure that the company is prepared and thinking in advance before they travel in Alaska waters. ADF&G reviews relevant industry plans with a focus on the protection of fish and wildlife.

Following is the "Unified Plan and Subarea Contingency Plan Description" of the regional plans.

The Southeast Alaska Subarea Contingency Plan is a supplement to the *Alaska Federal/State Preparedness Plan for Response to Oil & Hazardous Substance Discharges/Releases* (commonly referred to as the Unified Plan). The Unified and the Subarea Contingency Plans represent a

coordinated and cooperative effort by government agencies and were written jointly by the U.S. Coast Guard, the U.S. Environmental Protection Agency, and the Alaska Department of Environmental Conservation. The Oil Pollution Act of 1990 (OPA 90) requires the USCG and the USEPA to prepare oil spill response plans for the State of Alaska, which is designated as an entire planning region under federal guidelines. Alaska statute requires the ADEC to prepare a state-wide master plan addressing oil and hazardous substance discharges. The Unified Plan meets these federal (National Contingency Plan and OPA 90) requirements for regional and area planning, as well as State planning requirements.

OPA 90 requires the development of Area Contingency Plans for the inland and coastal zones of each federal region. For the Alaska region, there are three Coast Guard Captain of the Port zones and one inland zone. The three Captain of the Port zones are: 1) Southeast, which covers all of Southeast Alaska; 2) Prince William Sound, which covers the Prince William Sound area; and 3) Western Alaska, which includes the rest of coastal Alaska from Cook Inlet out the Aleutians and north to the Beaufort Sea and the Canadian border. The inland zone is subdivided into two sectors: 1) the North Slope oil production area and the Trans-Alaska Pipeline System (TAPS) and 2) all other areas inland from the coastal zones.

Alaska statute divides the state into ten regions for oil and hazardous substance spill planning and preparedness. The USCG and the USEPA joined with the ADEC to use these ten regions for area planning instead of the federal planning divisions since this would facilitate unified planning for the State of Alaska and prove more practical as well (for example, the huge COTP Western Alaska planning area is replaced by seven more manageable divisions). Because the State of Alaska is called a planning "region" under federal planning guidelines and to avoid confusion with the other federal term, "area contingency plans," these ten subordinate planning regions of the State are called "subareas" in the context of the Unified Plan.

The Unified Plan contains information applicable to pollution response within the entire State of Alaska and meets the pollution response contingency planning requirements applicable to the federal and State governments. The plan provides broad policy guidance and describes the strategy for a coordinated federal, State and local response to a discharge, or substantial threat of discharge, of oil and/or a release of a hazardous substance within the boundaries of Alaska and its surrounding waters.

Under both federal and State law, the responsible party for an oil or hazardous substance incident is required to report the incident and mount a response effort to contain and cleanup the release. The federal and State governments mandate response plans for oil tank vessels and facilities that have stringent spill response requirements. If the responsible party fails to respond adequately or if no responsible party can be identified, then the federal and State governments will rely on the Unified Plan and the appropriate Subarea Contingency Plan for response protocols and guidance.

Whereas the Unified Plan contains general information for response efforts taking place anywhere in the State of Alaska, the Subarea Contingency Plan (SCP) concentrates on issues and provisions specific to its particular subarea. The Southeast Alaska SCP focuses on the southeast Alaska region of the State. The boundaries of this subarea are described in the Background Section of this plan. The Southeast Alaska SCP provides information specific to the area, including emergency response phone numbers, available response equipment and other resources, specific response guidelines, and information on hazardous substance presence and sensitive areas protection.

Alaska State statute mandates a public review of all new plans, an annual departmental review of these plans, and another public review whenever the plans are significantly revised. The ADEC offers a public review of these plans for a period of 30 to 60 days during which verbal and written comments are accepted. During this comment period, several public meetings are held at locations appropriate for the plan being reviewed. The federal government does not require public review for any of its plans, though the USCG and the USEPA, as part of the Alaska unified planning process, do cooperate with the State of Alaska and participate in the public review process.

Neither the federal nor the State government maintains a formal approval process for these plans. The Unified Plan and the SCPs are presented to the Alaska State Emergency Response Commission and the Alaska Regional Response Team (ARRT) for review and comment. The ARRT's concurrence is also part of the process for plan promulgation. Final promulgation of the plan is accomplished once the three plan holders – the USCG, the USEPA and the State of Alaska – sign the letter of promulgation.

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION (ADEC) ROLE IN HABITAT PROTECTION

The following is a summary of ADEC regulatory authorities and a compilation of mitigation measures that pertain to Lynn Canal Herring.

Water Quality Standards. The Division of Water's mission is to improve and protect water quality. In keeping with this mission, the division:

- Establishes standards for water cleanliness
- Regulates discharges to water and wetlands
- Provides financial assistance for water and wastewater facility construction, and waterbody assessments and remediation
- Trains, certifies and assists water and wastewater system operators
- Monitors and reports on water quality

Water quality standards for the State of Alaska are found in the Alaska Administrative Code at 18 AAC 70. These regulations describe water quality criteria, beneficial uses and also site specific criteria for certain areas such as Sherman Creek. The designated uses for the marine waters of Lynn Canal (means they are protected for)

- Marine water supply (aquaculture, seafood processing, industrial)
- Water recreation (contact and secondary)
- Growth and propagations of fish, shellfish, other aquatic life and wildlife
- Harvesting for consumption of raw mollusks or other raw aquatic life.

In 18 AAC 70 there are tables that establish and describe the water quality criteria for each of the designated beneficial uses outline above. In addition, Section 401 of the Clean Water Act requires the Environmental Protection Agency (EPA) and the U.S. Army Corp of Engineers (ACE) to seek state certification that state water quality standards are being met before issuing a final permit.

Cruise Ships. Cruise Ships in Alaska operate under a number of federal and state regulations.

- Ballast water reporting to the United States Coast Guard (USCG)
- Graywater / Blackwater regulated under 33 C.F.R. 159, Subpart E by USCG
- Graywater/Blackwater also regulated under AS 46.03.460 – 490 and 18 AAC 69

The ADEC Commercial Passenger Vessel Environmental Compliance program regulates visible air emissions and wastewater discharged from

cruise ships. Small cruise ships and Alaska Marine Highway vessels (ferries) are required to use best management practice plans and are restricted from discharging treated wastewater in areas identified as herring spawning areas by the Alaska Department of Fish and Game (ADF&G).

Ballast Water Discharge Regulations. All vessels, foreign and domestic transiting Lynn Canal are subject to mandatory federal ballast water exchange regulations at 33 C.F.R. 151, Part D. These regulations require that the entire amount of ballast water loaded at the port of origin is exchanged with sea water during the voyage and include recordkeeping requirements. As a practical matter, ballast exchange discharge does not happen in Lynn Canal.

Oil Spill Prevention and Response. The ADEC Spill Prevention and Response (SPAR) Division's mission is to prevent, respond and ensure the cleanup of unauthorized discharge of oil and hazardous substances. SPAR is responsible for protecting Alaska's land, waters and air from oil and hazardous substances spills. The Industry Preparedness Program (IPP) requires regulated facilities and vessel to develop state-approved contingency plans, to establish a facility-wide spill prevention program and to ensure that personnel, equipment and financial resources are available to respond to spills. In the event of a spill the Prevention and Emergency Response Program (PERP) serves as the State's emergency responders to oil and hazardous substance spills and ensures that cleanup measures are implemented as soon as possible.

ALASKA DEPARTMENT OF NATURAL RESOURCES ROLE IN HABITAT PROTECTION

The following is a summary of DNR regulatory authorities and a compilation of mitigation measures that pertain to Lynn Canal Herring. This information is organized by DNR division.

OFFICE OF PROJECT MANAGEMENT & PERMITTING

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The Office of Project Management and Permitting (OPMP) functions under AS 38.05.020(b)(9) which requires the Commissioner of DNR to coordinate permitting activities for all large resource development projects, and AS 27.05.010(b) which requires DNR to be the lead agency for permitting all large mine projects. OPMP's goal is to ensure that all aspects of a large project are considered during a single review and approval process. The OPMP is currently coordinating the permitting of mining, oil & gas, and transportation projects, including BP's Liberty project, BLM's planning for NPRA-NE, the Bullen Point infrastructure corridor

permitting, and Shell Oil's OCS exploratory activities.

OPMP assigns a project manager to serve as the primary contact for a large project. The project manager coordinates the permitting activities of the state team assigned to work on the project. The Large Project Team is an interagency group, coordinated by OPMP, that works cooperatively with project applicants and operators, federal resource agencies, and the Alaskan public to ensure that projects are designed, operated and reclaimed in a manner consistent with the public interest. The project manager's primary responsibility is to ensure a coordinated process with minimum duplicity of efforts. This often involves tailoring the process to fit specific project needs.

The goal of the state's Large Project Team is to coordinate the timing and completion of the numerous permits. The team reviews all the complex technical documents generated during the process and provides coordinated comments. The team also coordinates stakeholder involvement and provides a single point of contact for the public. The team provides the public, agencies and the applicant the opportunity to view the project as a whole.

The requirement for the federal authorizations usually triggers the requirement for an Environmental Impact Statement (EIS) pursuant to the National Environmental Policy Act (NEPA). The State usually participates as a cooperating agency in the EIS process, and the team endeavors to dovetail the state's permitting process with the EIS process. For example, during the Pogo Mine process, the public Draft EIS included drafts of all the major state permits. This gave the public the opportunity to see how the state's management decisions could be implemented on the ground, and enabled them to comment on the project as a whole.

The Large Project Team also coordinates, to the extent possible, with local governments. For example, the team has been working closely with the City and Borough of Juneau throughout the permitting and EIS process for the Kensington Mine. The City's Conditional Use Permits are critical authorizations for the mine, and may place additional stipulations on the project.

THE KENSINGTON MINE PROJECT

OPMP coordinated the interagency review and permitting of the Kensington Mine Project, which was initially permitted in the Spring of 2005. This gold mine project, located about 40 miles north of Juneau, involved the transportation of mine workers via ferry across Berners Bay.

To accommodate the ferry, two dock facilities were proposed, one on the north side at Slate Cove, and one on the south side at Cascade Point. The permitting review of the Cascade Point dock centered around the potential impacts to Lynn Canal herring, and resulted in special stipulations for the project. These stipulations are contained in the state tidelands lease, the City and Borough's conditional use permit, and the state's Coastal Consistency Review, and are summarized below:

- Prohibition of in-water construction from March 15 through June 30
- Suspension of all vessel operations at the dock when herring are spawning within 500 meters of the dock, and will remain suspended until spawning is complete.
- In the event that eggs are deposited within 500 meters of the dock, fueling operations will be suspended until the eggs have hatched.
- During the herring runs, vessel speeds are limited to 13 knots, and operations are limited to daylight hours.
- The dock facility is to be used for mine use only.
- Trained observers are to accompany the vessels to ensure effectiveness of the stipulations.

The current status of the Kensington mine project is uncertain. In May of this year, in *Southeast Alaska Conservation Council v. United States Army Corps of Engineers,* the Ninth Circuit ordered the vacation of both the federal wetlands fill (Section 404) permit and the construction permit for a marine facility at Cascade point. (486 F.3d 638, 9th Cir. 2007). A new plan and 404 permit approval will be needed for the project to proceed; however, there is no reason to expect that restrictions imposed for the protection of herring will be any less protective than under the prior plan if new permits are issued.

DIVISION OF COASTAL AND OCEAN MANAGEMENT
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The Division of Coastal and Ocean Management (DCOM) is responsible for administering the Alaska Coastal Management Program (ACMP). The ACMP facilitates the implementation of various herring conservation measures at several distinct levels during resource planning processes as well as at the level of individual project planning and development. Below is a listing of the ACMP responsibilities of DCOM:

1. Pre-application assistance & meetings. The DCOM is tasked with arranging and scheduling meetings between a prospective developer and the agency personnel that would be reviewing, critiquing and, ultimately, writing permits to authorize a given development project. These meetings provide an invaluable

opportunity for industry to meet face-to-face with agency scientists and resource managers. Oftentimes herring issues are brought to an applicant's attention at these meetings. Thus, when a developer is made aware of potential conflicts and/or potential adverse impacts of their planned project ahead of time, the finalized plan of operation or facility footprint is substantially modified before permit applications are even filed. At these meetings, prospective applicants are made aware, if they are not already, of the need to design and site facilities so as to be consistent with statewide standards and district enforceable policies. Applicants are also made aware of the (oftentimes) many distinct special-interest groups that need to be "kept in the loop" for the planning/approval process. This list typically includes commercial and recreational fishing interest groups, conservation and environmental groups, etc.

2. Requirements/Standards for what review materials need be submitted. Applicants need to provide DCOM and review participants with (A) a completed Coastal Project Questionnaire; (B) map(s) identifying the location of the project and adjacent facilities, diagrams, technical data, and other relevant material; (C) description of any man-made structures or natural features that are at or near the project site; and (D) an evaluation of how the proposed project is consistent with the state standards and with any applicable district enforceable policies, sufficient to support the consistency certification.

   These materials are of paramount importance in assisting agency personnel and the public in reviewing a given project for its potential impacts to coastal uses and resources. It is partially with these materials that a review participant can suggest alternative measures that will improve a proposed development project.

3. Public process/ public review. Most federal agency actions and activities that require a State or federal authorization (permits) go through both public and agency review processes often coordinated by DCOM. This fulfills many agencies responsibility for posting/distributing public notice. It also provides a key tool wherein USFWS, NMFS, ADF&G, state agency biologists, the coastal district, and the public can raise and address issues related to scientific, social and/or environmental concerns relative to herring habitats, population dynamics, or health. Federal agency activities and activities that require a State or federal authorization must go through the consistency review process and be found

consistent/compliant with ACMP enforceable policies (statewide standards and district enforceable policies) before the authorizations for the activity can be issued. Oftentimes DCOM will negotiate and include specific alternative measures designed to minimize potentially adverse impacts to herring into a project description before it can be found consistent/compliant and authorizations can be issued.

4. DCOM assists coastal districts develop, adopt, and implement Coastal Management Plans, including district enforceable policies. According to statewide standards of the ACMP as well as the local enforceable policies, the ACMP review process functions as a tool for evaluating an activity and modifying the project description by adding minimization or mitigating measures (in the form of Alternative Measures).

5. DCOM works to act as a facilitator to attempt to resolve conflicts among the resource agencies, an affected coastal resource district, and/or an applicant--before, during, or after a project is permitted.

6. Where the specific aspects of an activity that would otherwise be subject to authorization by the ADEC are not subject to that department's authorization because the activity is either a federal activity or is located on federal land or the OCS, the DEC can review, comment on, and/or add alternative measures to the activity's project description ***only*** through the ACMP. Thus, the ACMP provides a valuable and substantive venue for the state to review, comment on, allow, disallow or make modifications to certain federal agency activities or activities that require a State or federal authorization that are located on federal land or the OCS. This leverage is of paramount importance in areas that happen to be important as habitat for herring.

Specific Statewide standards and Coastal District Enforceable policies that address herring and herring habitat include, but are not limited to:

- **11 AAC 112.300. Habitats.** (b)(1) Offshore areas must be managed to avoid, minimize, or mitigate significant adverse impacts to competing uses such as commercial, recreational, or subsistence fishing, to the extent that those uses are determined to be in competition with the proposed use;
- **11 AAC 112.300. Habitats.** (b)(2)(B) Estuaries must be managed to avoid, minimize, or mitigate significant adverse impacts to competing uses such as commercial,

recreational, or subsistence fishing, to the extent that those uses are determined to be in competition with the proposed use;

- **11 AAC 112.300. Habitats.** (b)(4) Tideflats must be managed to avoid, minimize, or mitigate significant adverse impacts to water flow, natural drainage patterns, and competing uses such as commercial, recreational, or subsistence uses;

  11 AAC 112.300. Habitats. (b)(9)(A) Important habitat designated by a coastal district must be managed for the special productivity of the habitat in accordance with the district enforceable policy; and

  11 AAC 112.300. Habitats. (b)(9)(B) Important habitat identified by a state agency must be managed to avoid, minimize, or mitigate significant adverse impacts to the special productivity of the habitat.

During the ACMP Coastal Consistency Review process for the Kensington Project, under prior regulations, numerous stipulations were developed to mitigate impacts to herring and their habitat (see above). These stipulations were incorporated into the various state authorizations, and will be in force for the duration of the Kensington Project if it proceeds. Similar stipulations are likely to be incorporated under current regulations into any future authorizations or modifications to existing authorizations that may affect the herring habitat in Berners Bay.

City and Borough of Juneau Coastal Management Plan Enforceable Policies

- The City and Borough of Juneau does not currently have a coastal district plan or enforceable policies in effect. However, DCOM is currently reviewing the proposed City and Borough of Juneau's Coastal Management Plan for approval and incorporation into the ACMP. The proposed CBJ CMP, likely to be effective March 2008, includes enforceable policies that could, depending on the activity, address herring and/or herring habitat.

City and Borough of Haines Coastal Management Plan Enforceable Policies

- The City and Borough of Haines Coastal Management Plan (CBH CMP) went into effect August 8, 2007. The CBH CMP includes enforceable policies that may, depending on the activity, address herring and/or herring habitat.

DIVISION OF MINING, LAND AND WATER
Comments prepared by Wyn Menefee, 269-8501
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The Division of Mining, Land and Water (DMLW) has the responsibility and authority to manage all commercial and recreational use of state land and resources in Southeast Alaska. This area stretches over 600 miles from Cape Suckling south to Portland Canal, and includes 1,000 named islands and 15,000 miles of shoreline. A limited amount of uplands and approximately 11 million acres of shorelands, tidelands, and submerged lands out to the three mile limit are managed by DMLW. In addition DMLW manages water allocations on all lands, including on federal and private land.

The DMLW authority primarily comes from AS 38.05, 41.23, 46.15 and 46.17. The division is responsible for preparing area plans and management plans for state lands. This is done through a public process to create policy and guidance for State land management. This includes consideration of sensitive habitats and development needs. There are six area plans covering the state lands in Southeast Alaska.

The newer plans say that "*essentially all tidelands and submerged lands are used for some form of community or commercial harvest at some time during the year*." There are references to NOAA maps of "human use of biological resources" and to ADFG Subsistence Division if questions arise. The Central/Southern SE Area Plan states "*Activities in Traditional Use Commercial Herring Areas. Activities should be conditioned to minimize disruption of the harvest within traditional herring fishery areas, including the sac roe and wild kelp harvest fishery areas*." The Juneau plan says that "*mitigating measures should be designed to protect the specific type of fish and wildlife harvest that occurs in the designated areas*."

DMLW authorizes land uses through permits, leases, rights of way, sales, and other authorizations. All DMLW authorizations are granted in accordance with the area plans. In addition, authorizations must first be found consistent with the Alaska Coastal Management Program's plans and enforceable policies. The division will consider these plans and place any restrictions or mitigating measures in the authorizations through stipulations to protect social or environmental concerns, inclusive of critical habitats.

Most authorizations undergo public and agency review, during which ADFG, USFWS or other participating agencies can bring attention to any environmental concerns about the project. DMLW will then address those

concerns, commonly through attaching appropriate stipulations to the authorization.

The Division of Mining, Land and Water issues many authorizations for activities on State-owned lands in Southeast Alaska. Many of these approvals involve tideland improvements such as docks, floats, harbors and ferry terminals. Since these activities are within the coastal zone, the permits are subject to a consistency finding under the ACMP.

DMLW's statutes and regulations are fairly general and non-specific regarding fish and wildlife conflicts but generally require compliance with other statutes and regulations and minimization of environmental impacts. For example, the authority for attaching stipulations to DMLW permits is 11 AAC 96.040(b): "Each permit is subject to any provisions the department determines necessary to assure compliance with this chapter, to minimize conflicts with other uses, **to minimize environmental impacts,** or otherwise to be in the interests of the state." Leasing statutes and regulations also don't have any specific language.

Summary of Regulatory Mechanisms

Existing regulatory mechanisms for the protection of the Lynn Canal herring habitats are extensive. There is no scientific or commercial information indicating that a failure of any of these mechanisms contributed to the decline or slow recovery of herring in Lynn Canal or that any currently authorized or proposed development project would have significant adverse effects on herring in Lynn Canal.

E. Other Natural and Manmade factors do not require a threatened or endangered listing.

There is no scientific or commercial evidence that the decline or slow recovery of Lynn Canal Herring was or is due to other natural or manmade factors. Pacific herring are adaptable to a wide range of habitat and ocean conditions as evidenced by their geographic range which extends from California into the Bering Sea, and which includes a wide variety of habitats even within Southeast Alaska (Mecklenburg et al 2002). As a result herring may be more resilient to climate change than many other species. Herring as demonstrated by healthy herring populations in the Sitka area, are tolerant of both development and significant boat traffic. There is no scientific or commercial data indicating that climate change, oil pollution, or noise pollution are likely within the foreseeable future to occur at levels high enough to threaten the viability of herring in Lynn Canal.

SUMMARY OF ANALYSIS OF THE STATUTORY LISTING FACTORS

As indicated in prior sections, an analysis of the statutory endangered species act listing factors should be made with reference to the herring metapopulation that extends throughout Southeast Alaska and beyond. However, even if the Service were to consider Lynn Canal herring to be a DPS, as shown above, application of the listing factors would not support a listing. Herring in Lynn Canal are not at significant risk as a result of any of the five listing factors found at 16 USC 1533 (a)(1).

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Figure 1. Classical metapopulation model (patterned after Ware and Tovey 2004 and Waples et al. 2007). Each frame represents a snapshot in time where some subpopulations (stocks or groups of stocks) are strong (black); some are intermediate, either increasing from a low or declining from a high (gray); or some are extinct (white).

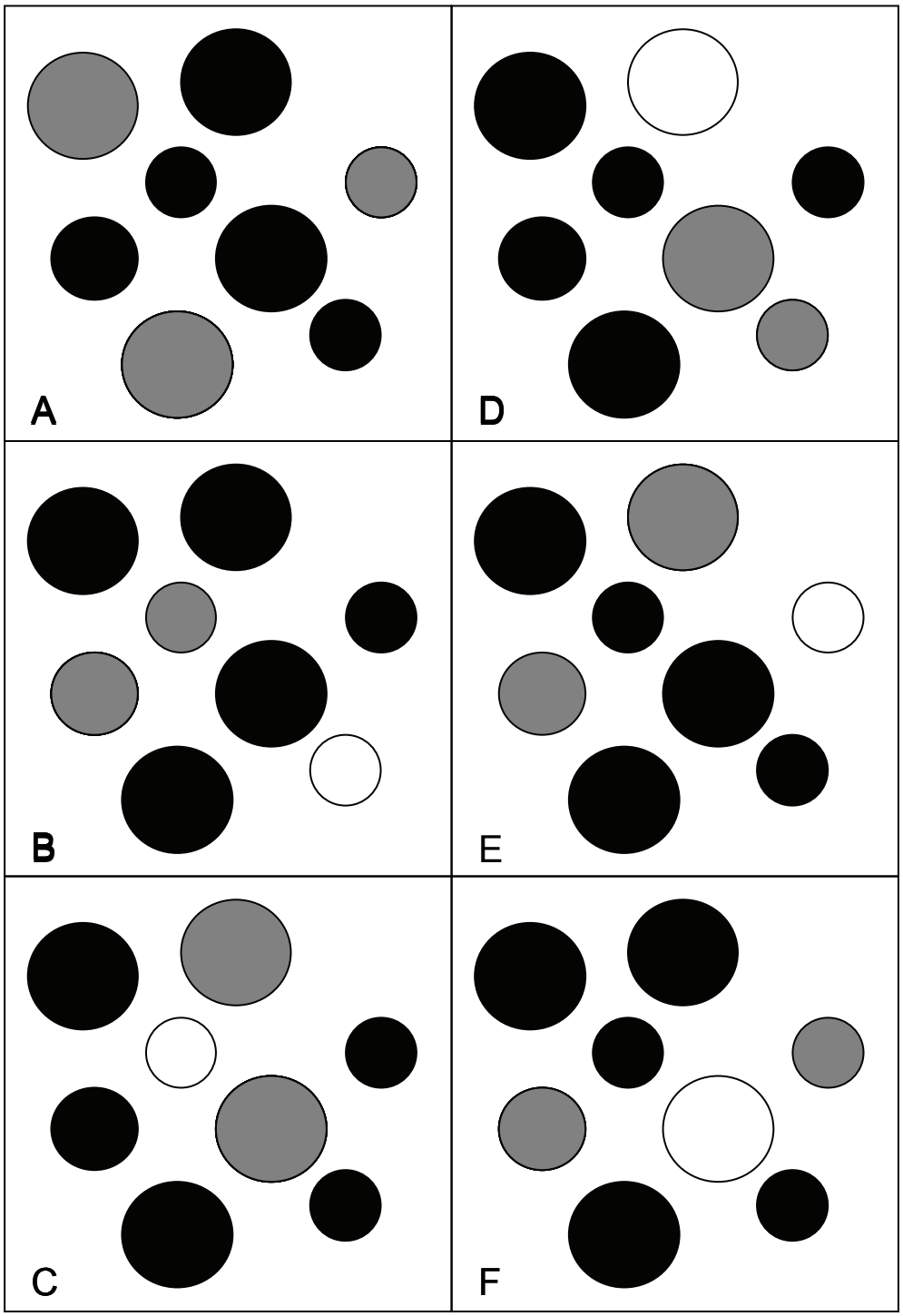


Figure 2. Disappearance events (DE) in four stocks of Pacific herring in British Columbia (from Ware and Tovey 2004). Stock strength is represented by length of spawn (y axis), years are on x axis. This pattern is typical in classical metapopulations where periods of decline in some stocks may be followed by periods of "disappearance" (11 to 28 years in these examples) followed by periods of recolonization.

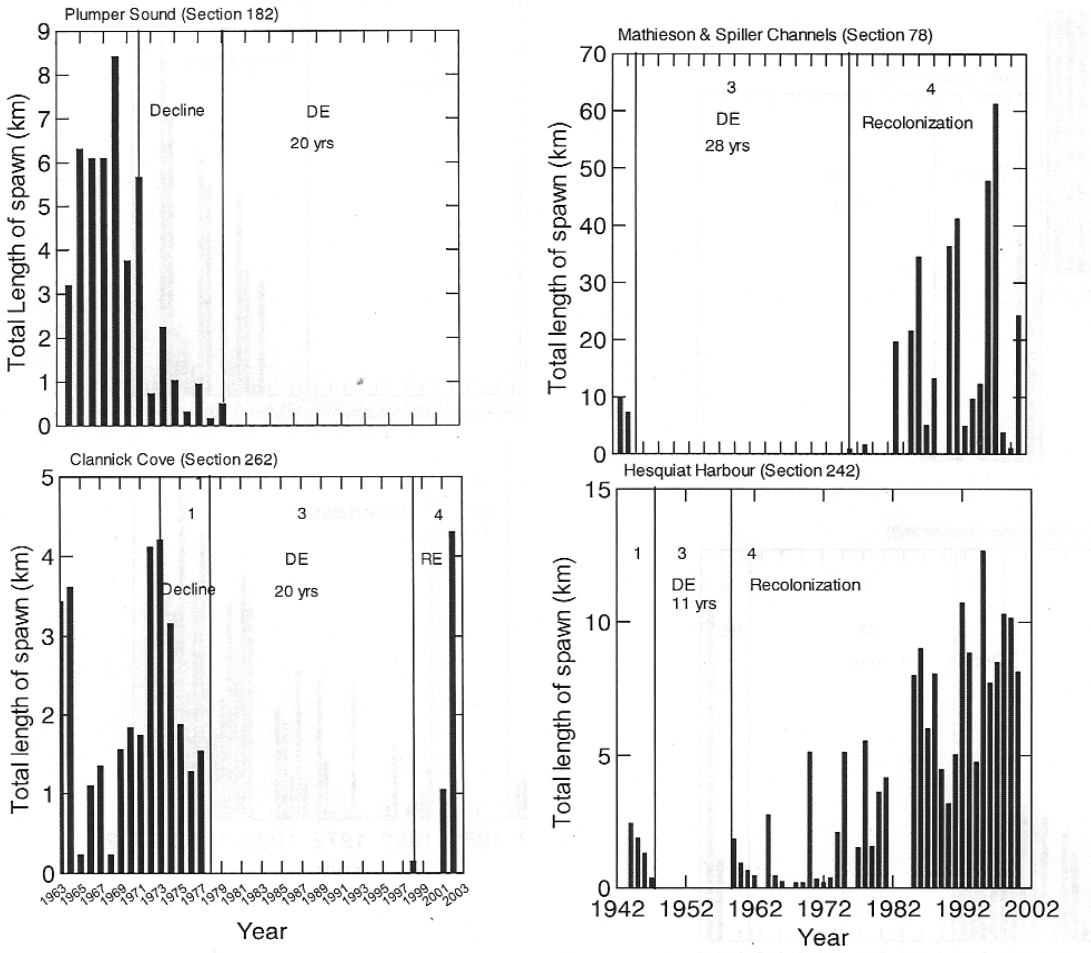
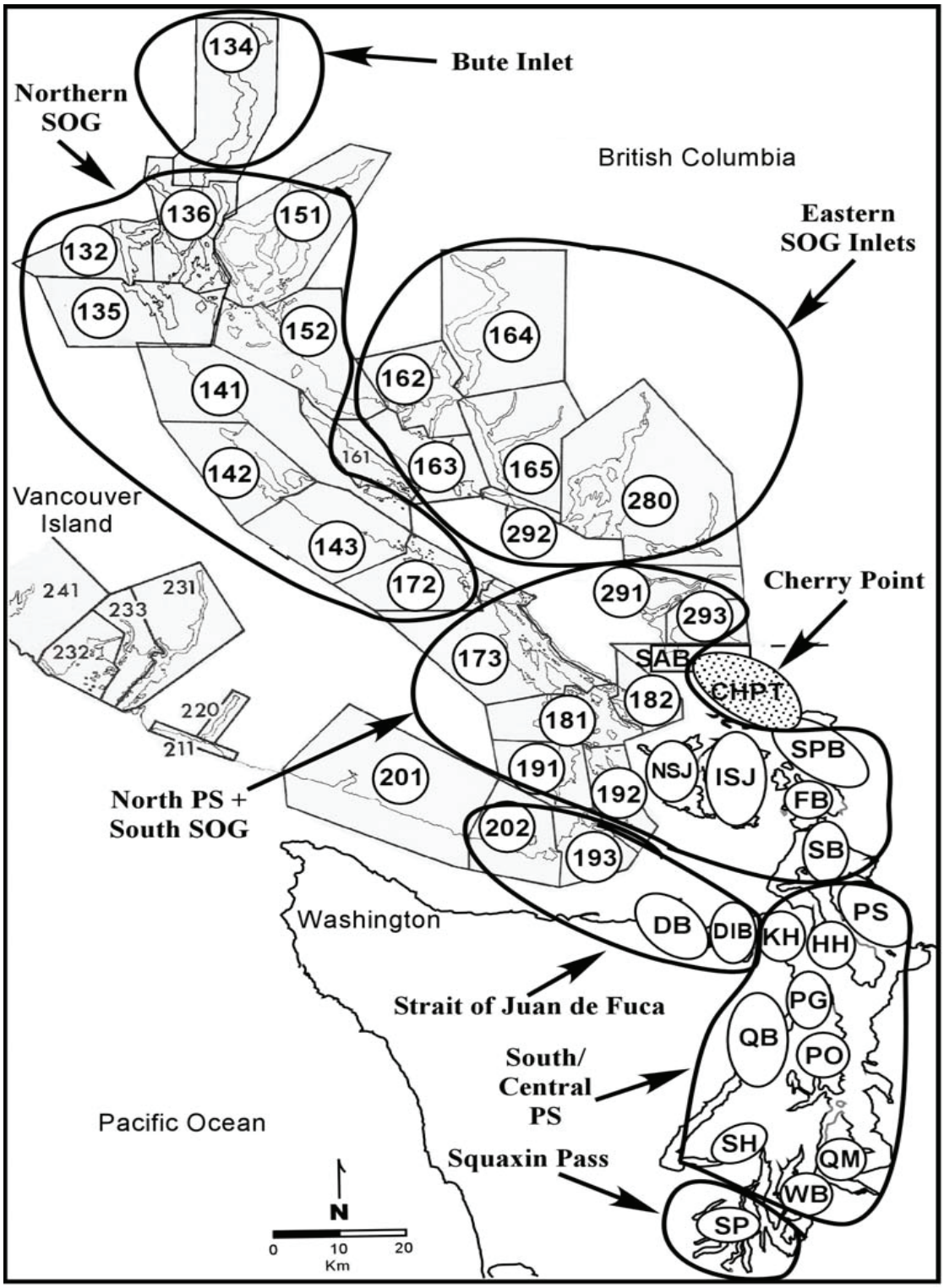


Figure 3. Georgia Basin DPS for Pacific herring. *This is Figure 55 in Gustafson (2006)*. Geographic distribution of the many individual stocks (open circles), each assembled into eight somewhat discrete subpopulations, over the entire Georgia Basin. The Cherry Point stock is a single stock (stippled circle) that was given subpopulation but not DPS status.


Bute Inlet
Northern SOG
British Columbia
Eastern SOG Inlets
Vancouver Island
Cherry Point
North PS + South SOG
Washington
Strait of Juan de Fuca
South/ Central PS
Pacific Ocean
Squaxin Pass
134
136
151
132
135
152
164
162
141
161
163
165
142
280
292
143
172
291
293
241
231
233
232
173
SAB
CHPT
182
220
211
181
SPB
201
191
NSJ
ISJ
192
FB
202
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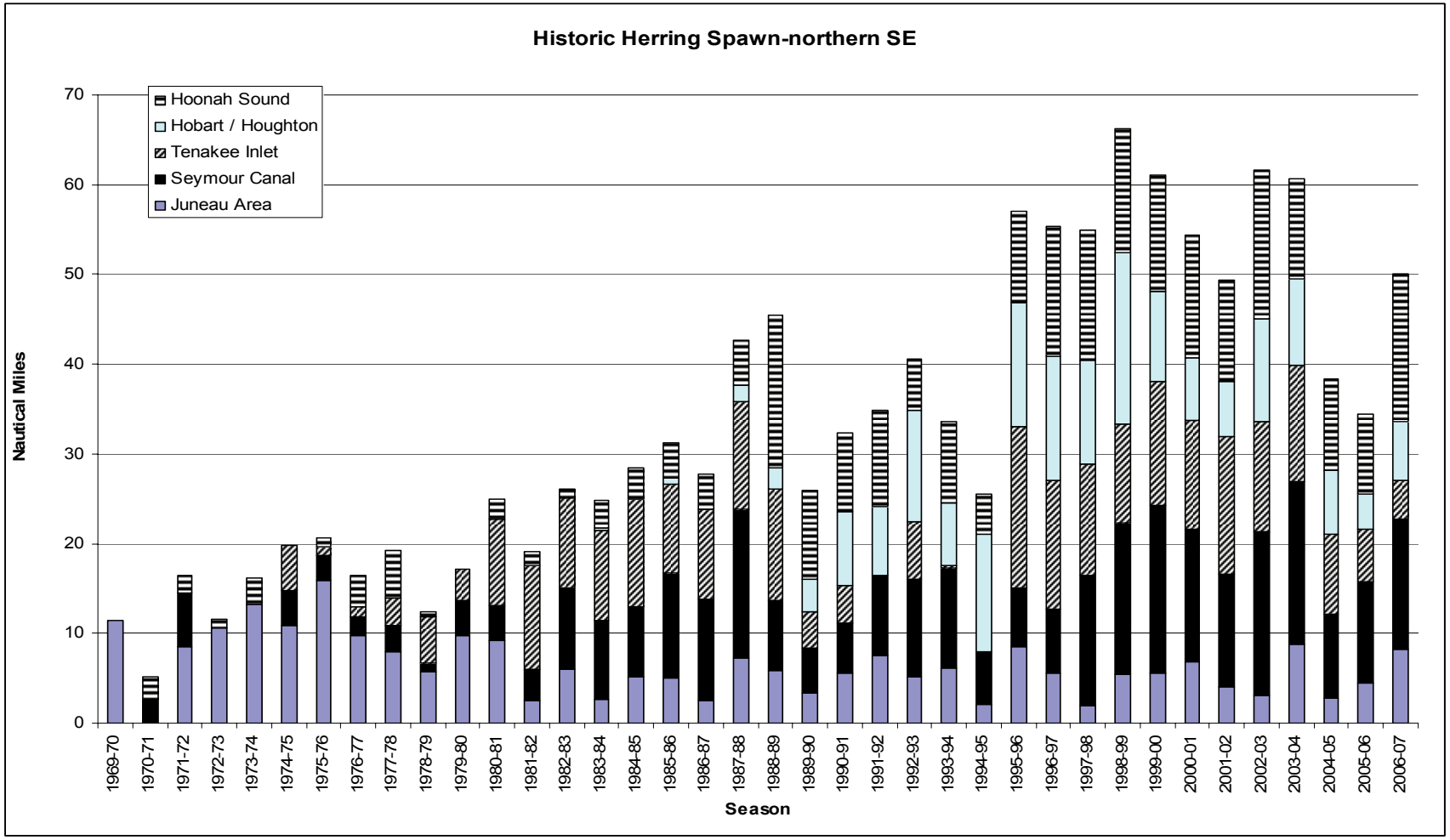

Figure 4. Nautical miles of documented herring spawn in southeast Alaska 1969-2007 (graphical presentation of data from table 1).

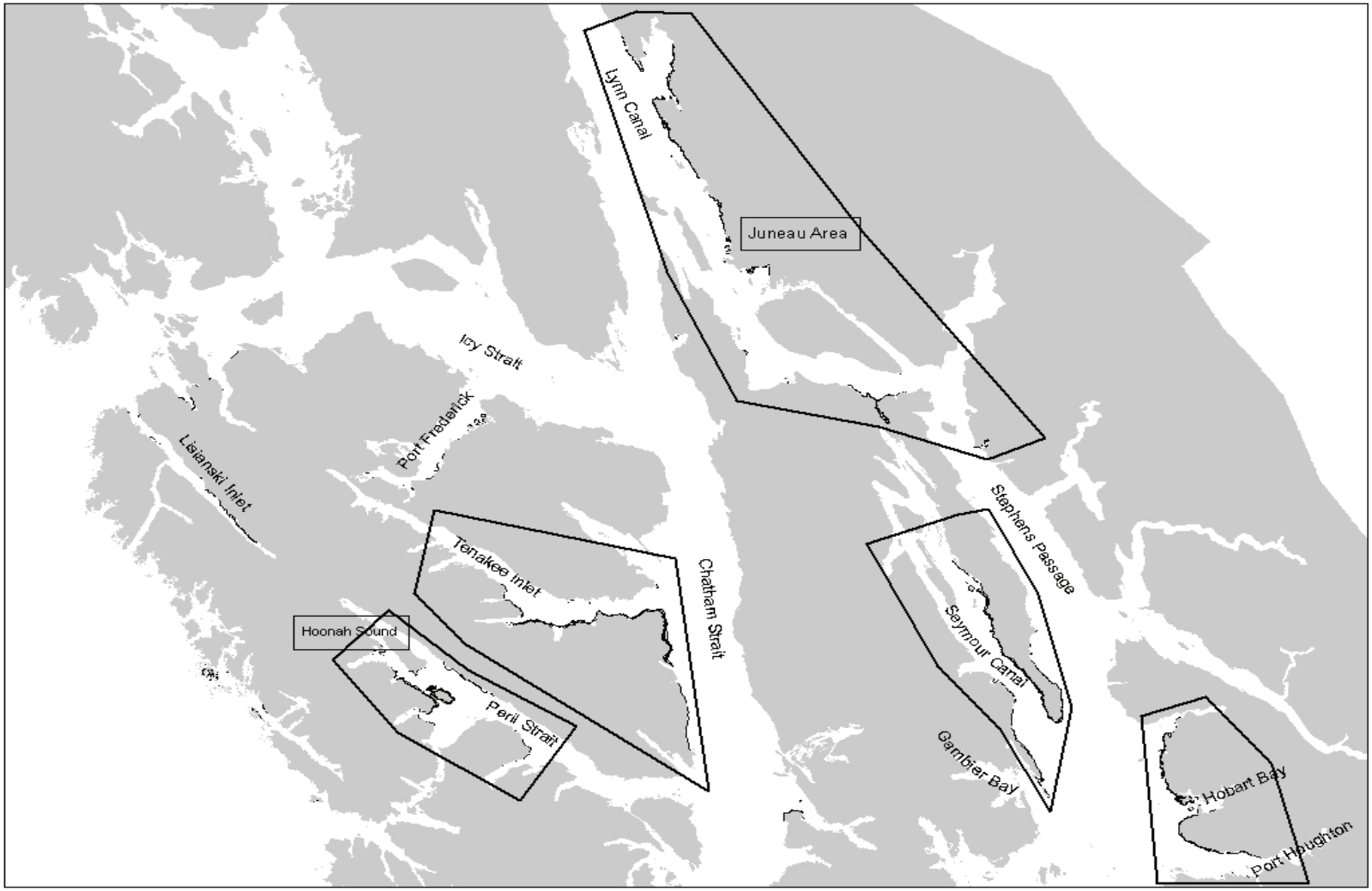

Figure 5. Cumulative documented historical herring spawn. See table 1 for included years. The outlined areas are the 'general' aerial survey areas.

Table 1. Documented herring spawn (in nautical miles, by area, in northern Southeast Alaska.

	Juneau Area	Seymour Canal	Tenakee Inlet	Hobart / Houghton	Funter	Idaho Inlet	West Chichagof	Port Althorp	Lisianski Inlet	Port Frederick	Hoonah Sound	Gambier Bay	Hood Bay	Total
1952-53	8.2										12.2			20.4
1953-54	9.4													9.4
1954-55	12.2													12.2
1955-56	10.0													10.0
1956-57	28.1													28.1
1957-58	24.1													24.1
1958-59	10.8													10.8
1959-60	12.9													12.9
1961-69: data missing or not available														
1969-70	11.5													11.5
1970-71		2.6									2.5			5.1
1971-72	8.5	6.0									2.0			16.5
1972-73	10.6										1.0			11.6
1973-74	13.2										3.0			16.2
1974-75	10.9	3.9	5.0											19.8
1975-76	15.9	2.8	1.0								1.0			20.7
1976-77	9.7	2.2	1.0								3.5		2.3	18.7
1977-78	8.0	2.9	3.0	0.1		0.1		2.1		0.9	5.3		1.7	24.1
1978-79	5.7	1.0	5.2	0.0				0.9			0.5		0.2	13.6
1979-80	9.8	3.9	3.5	0.0		1.2				1.1			0.9	20.5
1980-81	9.2	3.9	9.6	0.0				0.8		1.2	2.3		0.7	27.7
1981-82	2.5	3.5	11.6	0.0							1.5			19.1
1982-83	6.0	9.1	10.0	0.0							1.0		0.5	26.6
1983-84	2.6	8.9	10.0	0.3						0.2	3.0			25.0
1984-85	5.1	7.8	12.0	0.0							3.5			28.4
1985-86	5.0	11.7	10.0	0.7			0.3				3.8			31.5
1986-87	2.5	11.3	10.0	0.1			5.3				3.8			33.0
1987-88	7.3	16.5	12.0	1.9						0.6	5.0			43.3

- continued -

	Juneau Area	Seymour Canal	Tenakee Inlet	Hobart / Houghton	Funter	Idaho Inlet	West Chichagof	Port Althorp	Lisianski Inlet	Port Frederick	Hoonah Sound	Gambier Bay	Hood Bay	Total
1988-89	5.8	7.8	12.5	2.3							17.0			45.4
1989-90	3.3	5.0	4.1	3.6							10.0			26.0
1990-91	5.6	5.5	4.3	8.2							8.7			32.3
1991-92	7.5	9.0		7.6						1.4	10.8			36.3
1992-93	5.1	11.0	6.4	12.3							5.8			40.6
1993-94	6.2	11.1	0.3	7.0							9.0			33.6
1994-95	2.1	5.8	0.1	13.0							4.5			25.5
1995-96	8.5	6.5	18.1	13.8		0.4				2.8	10.1			60.3
1996-97	5.6	7.1	14.4	13.8						0.2	14.5			55.6
1997-98	2.0	14.4	12.4	11.7							14.5			55.0
1998-99	5.5	16.8	11.0	19.1					1.6	1.0	13.8			68.8
1999-00	5.6	18.7	13.8	10.0	0.6				0.8		13.0			62.5
2000-01	6.9	14.7	12.2	6.9					3.7	0.3	13.7			58.4
2001-02	4.0	12.6	15.4	6.0					3.8		11.4			53.2
2002-03	3.0	18.4	12.2	11.4					3.3		16.7	0.1		65.1
2003-04	8.8	18.1	13.0	9.6			2.4				11.1			63.0
2004-05	2.8	9.3	8.9	7.1							10.3			38.4
2005-06	4.5	11.2	5.9	3.9							8.9			34.4
2006-07	8.2	14.5	4.4	6.5							16.5			50.1