DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 223

[Docket No. 080229343–0039–03]

RIN 0648–XF87

Endangered and Threatened Wildlife and Plants: Threatened Status for Southern Distinct Population Segment of Eulachon

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Final rule.

SUMMARY: We, the NMFS, issue a final determination to list the southern Distinct Population Segment (DPS) of Pacific eulachon (*Thaleichthys pacificus*; hereafter "eulachon") as a threatened species under the Endangered Species Act (ESA). We intend to consider protective regulations and critical habitat for this DPS in separate rulemaking.

DATES: This final rule is effective on May 17, 2010.

ADDRESSES: NMFS, Protected Resources Division, 1201 NE Lloyd Blvd., Suite 1100, Portland, OR 97232.

FOR FURTHER INFORMATION CONTACT: Marc Romano at the address above or at (503) 231 2200, or Dwayne Meadows, Office of Protected Resources, Silver Spring, MD (301) 713–1401. The final rule, references and other materials relating to this determination can be found on our website at *www.nwr.noaa.gov*.

SUPPLEMENTARY INFORMATION:

Background

On July 16, 1999, we received a petition from Mr. Sam Wright of Olympia, Washington, to list and designate critical habitat for Columbia River populations of eulachon. On November 29, 1999, we determined that while the petition indicated that eulachon catches had recently declined in the Columbia River basin, it did not present substantial scientific information indicating that the petitioned action may be warranted (64 FR 66601). That finding was based on observations that the species is likely more abundant than commercial landings indicate and, based on life history attributes (e.g., the species' high fecundity and short life span) and assumptions from catch data and anecdotal reports, has a demonstrated ability to rebound from periods of low abundance. Additionally, the petition did not provide sufficient information regarding the distinctness of eulachon populations in the Columbia River relative to the other populations in the species' range.

On November 8, 2007, we received a petition from the Cowlitz Indian Tribe requesting that we list the eulachon that spawn south of the U.S. Canada border as threatened or endangered under the ESA. We determined that this petition presented substantial information indicating that the petitioned action may be warranted and requested information to assist with a status review to determine if eulachon warranted listing under the ESA (73 FR 13185, March 12, 2008).

The steps we follow when evaluating whether a species should be listed under the ESA are to: (1) delineate the species under consideration; (2) review the status of the species; (3) consider the ESA section 4(a)(1) factors to identify threats facing the species; (4) assess whether certain protective efforts mitigate these threats; and (5) evaluate and assess the likelihood of the species' future persistence. We provide more detailed information and findings regarding each of these steps later in this notice.

To ensure that this assessment was based on the best available scientific and commercial information, we formed a Biological Review Team (BRT) comprised of Federal scientists from our Northwest, Southwest, and Alaska Fisheries Science Centers, the U.S. Fish and Wildlife Service (FWS), and the U.S. Forest Service. We asked the BRT to first determine whether eulachon warrant delineation into DPSs, using the criteria in the joint NMFS-FWS DPS policy (61 FR 4722, February 7, 1996). We also asked the BRT to assess the level of extinction risk facing the species, describing their confidence that the species is at high risk, moderate risk, or neither. We described a species with high risk as one that is at or near a level of abundance, productivity, and/or spatial structure that places its persistence in question. We described a species at moderate risk as one that exhibits a trajectory indicating that it is more likely than not to be at a high level of extinction risk in the foreseeable future, with the appropriate time horizon depending on the nature of the threats facing the species and the species' life history characteristics. The final report of the BRT deliberations (NMFS, 2010) (hereafter ''status report'') thoroughly describes eulachon biology and natural history, and assesses demographic risks, threats, limiting factors, and overall extinction risk.

On March 13, 2009, we proposed to list the southern DPS of eulachon as a threatened species under the ESA (74 FR 10857), and solicited comments and suggestions from all interested parties including the public, other governmental agencies, the government of Canada, the scientific community, industry, and environmental groups. Specifically, we requested information regarding: (1) eulachon spawning habitat within the range of the southern DPS that was present in the past, but may have been lost over time; (2) biological or other relevant data concerning any threats to the southern DPS of eulachon; (3) the range, distribution, and abundance of the southern DPS of eulachon; (4) current or planned activities within the range of the southern DPS of eulachon and their possible impact on this DPS; (5) recent observations or sampling of eulachon in Northern California rivers, including but not limited to the Klamath River, Mad River, and Redwood Creek; and (6) efforts being made to protect the southern DPS of eulachon. Subsequent to the proposed rule, the BRT produced an updated status report (NMFS, 2010; available on our website at www.nwr.noaa.gov) summarizing new and additional information that has become available since release of the draft status report, responding to substantive peer review and public comments on the draft status report (NMFS, 2008), and presenting the final BRT conclusions on the status of the southern DPS of eulachon.

Summary of Comments Received in Response to the Proposed Rule

We solicited public comment on the proposed listing of southern DPS eulachon for a total of 60 days. We did not receive a request for, nor did we hold, a public hearing on the proposal. Public comments were received from nine commenters, and copies of all public comments received are available online at: *http://www.regulations.gov/search/Regs/home.html#docketDetail?R=NOAA-NMFS–2009–0074*. Summaries of the substantive comments received, and our responses, are provided below, organized by category.

In December 2004, the Office of Management and Budget (OMB) issued a Final Information Quality Bulletin for Peer Review establishing minimum peer review standards, a transparent process for public disclosure, and opportunities for public input. Similarly, a joint NMFS/FWS policy requires us to solicit independent expert review from at least

three qualified specialists, concurrent with the public comment period (59 FR 34270, July 1, 1994). In accordance with these policies, we solicited technical review of the draft status report (NMFS, 2008) from five independent experts selected from the academic and scientific community. Each of these reviewers is an expert in either eulachon/forage fish biology or marine fish risk assessment methodology. Comments were received from all five of the independent experts. The reviewers were generally supportive of the scientific principles underlying the DPS determination and proposed listing determination. However, one reviewer did not agree with the delineation of the southern DPS of eulachon and argued that genetic and demographic evidence supports a much finer DPS structure for eulachon in this region. This same reviewer also pointed out a lack of information on eulachon marine distributions off of the U.S. West Coast.

There was substantial overlap between the comments from the independent expert reviewers and the substantive public comments. The comments were sufficiently similar that we have responded to the peer reviewer's comments through our general responses below. The comments received concerning critical habitat are not germane to this listing decision and will not be addressed in this final rule. Those comments will be addressed during any subsequent rulemaking on critical habitat for the southern DPS of eulachon.

Delineation of Distinct Population Segment

Comment 1: One reviewer felt that it was not clear why there were only six DPS scenarios voted on by the BRT in preparing the eulachon status review when more might have been proposed. The same reviewer wondered why NMFS did not consider the option that the Columbia River was a DPS. Furthermore, the reviewer suggested that "the scenario that each river system represents a DPS would have an approximate conceptual model of a river-based or stream-based salmon (*Oncorhynchus*) stock structure as a precedent."

Response: As described in the "Evaluation of Discreteness and Significance for Eulachon" section of the status report, "other possible geographic configurations [of a DPS] that incorporated the petitioned unit were contemplated, but were not seriously considered by the BRT" (NMFS, 2008, p. 26). The BRT did discuss during its deliberations whether the Columbia River was a DPS, and after examining the available data and applying the discreteness and significance criteria for delineation of a DPS, no member of the BRT advocated for including this scenario in the final list that was voted on. The inclusion of a scenario containing multiple DPSs of eulachon in Washington, Oregon, and California allowed BRT members to express support for this scenario, which was representative of a scenario where every river is a DPS (including the Columbia River). However, such a scenario received almost no support.

We agree that, conceptually, it is reasonable to view stock structure of eulachon in a manner similar to that of Pacific salmonids, and our approach to DPS delineation of eulachon is consistent with our approach to DPS delineation for Pacific salmon (referred to as Evolutionary Significant Units (ESUs); 56 FR 58612, November 20, 1991) and steelhead (61 FR 4722, February 7, 1996). We have found that most Pacific salmonid DPSs consist of numerous populations occupying numerous individual drainages spread over a large geographic area. These populations are demographically independent over short time scales, but experience sufficient reproductive exchange over evolutionary timescales that they share a common evolutionary trajectory. In only a few instances (e.g., sockeye salmon) have we identified a Pacific salmonid DPS comprised of a single river basin. Pacific salmonid DPS structure is thus conceptually consistent with the structure of the proposed southern DPS of eulachon, which may be comprised of multiple sub-populations or "stocks."

Comment 2: One reviewer stated that "it is difficult to reconcile the conclusion of the BRT that there is one major DPS with the assertion that the BRT also acknowledges that finer population structure[s] may exist." This reviewer felt that spawn timing and genetic differences (Beacham *et al.*, 2005) represent compelling evidence "that finer structure does exist between the Fraser and Columbia rivers."

Response: The joint DPS policy (61 FR 4722, February 7, 1996) requires that a population segment must be discrete to be considered a DPS, and that the population segment may be considered discrete if it is markedly separated from other populations of the same taxon. There is no requirement that the marked separation be defined at the smallest possible scale, or at any other particular scale. The second criterion of the DPS policy that a population segment must be significant to its taxon often results in the identification of a DPS that is comprised of multiple biological populations, since in many cases a single population would not be considered significant to the taxon. Previously designated DPSs of several marine fishes include a number of identifiable subpopulations with numerous isolated spawning locations and a substantial level of life history, genetic, and ecological diversity (Gustafson *et al.*, 2000; Stout *et al.*, 2001; Gustafson *et al.*, 2006; Carls *et al.*, 2008). Similarly, application of NMFS' ESU policy to Pacific salmon in the contiguous United States has resulted in designation of 37 salmon ESUs and 15 steelhead DPSs, each of which is commonly comprised of numerous populations that are often genetically and demographically differentiated one from another. The FWS also frequently identifies DPSs of fish species that are comprised of multiple biological populations (e.g., bulltrout; 64 FR 58909, November 1, 1999).

Moreover, neither the available genetic nor the demographic data provide evidence that eulachon in the Fraser and Columbia rivers are "markedly separated," as required by the DPS policy. With regard to the genetic microsatellite DNA study of Beacham *et al.*, (2005), the BRT was concerned that this study compared samples between the Fraser and Columbia rivers taken in a single year, and thus the temporal stability of the genetic variation observed between these two rivers could not be adequately assessed. The BRT concerns with regard to temporal stability derive from the realization that reported year-to-year genetic variation within three British Columbia coastal river systems (Nass, Kemano, and Bella Coola rivers) in this study was as great as variation among the rivers (Beacham *et al.*, 2005). This temporal genetic variation indicates that additional research is needed to identify appropriate sampling and data collection strategies to fully characterize genetic relationships among eulachon populations.

Comment 3: Two commenters questioned the northern boundary of the DPS. One commenter stated that the northern boundary of the DPS in British Columbia is ". . . debatable and not well supported by data and information . . . [due to] . . . the lack of sufficient genetic data and limited understanding of how freshwater and marine environments affect eulachon population structure . . . ." The other commenter stated that the selection of the Nass River as the point of demarcation for the northern boundary of the southern DPS reveals a "results-oriented" outcome because the Nass River and points north generate very substantial returns of eulachon.

Response: The proposed rule outlined the numerous factors that support designation of a DPS for eulachon south of the Nass River/Dixon Entrance on the basis of "marked separation" in both ecological and physiological features from eulachon to the north. This decision is based on the best scientific and commercial data available that indicate eulachon occurring in this area are discrete from eulachon occurring north of this area because of differences in spawning temperatures; length- and weight-at-maturity; ecological features of both the oceanic and freshwater environments occupied by eulachon; and genetic characteristics.

The recent decline in eulachon escapements to rivers on the West Coast of North America are not confined to areas south of the Nass River. Although not part of the subject DPS, Returning eulachon in Southeast Alaska "have had marked declines in recent years" and "since 2004 there have been minimal returns [of eulachon] in the Burroughs Bay and Behm Canal area" of Southeast Alaska (ADFG, 2009). Commercial and subsistence eulachon fishing was closed in 2009 in Bradfield Canal and in the waters of Burroughs Bay, and the Unuk, Klahini, and Chickamin rivers (ADFG, 2009). Therefore the northern boundary of the DPS does not coincide with areas where declines in eulachon abundance have been observed.

Comment 4: One commenter suggested that the southern boundary of the DPS should be considered unknown given the absence of genetic data for populations south of the Columbia River. In addition, one reviewer stated that the possibility exists that the Klamath River population (and associated populations to the south) is distinct.

Response: Although we have no genetic data for populations of eulachon south of the Columbia River, the weight of evidence suggests that eulachon spawned in large numbers in the Mad River in California as recently as the 1960s and 1970s. While there are records of eulachon in California south of the Mad River, all of these records consist of either a single specimen, or a small group of fish (Jennings, 1996; Vincik and Titus, 2007). It is unlikely that any river south of the Mad River supports a self-sustaining population of eulachon, and most authors consider the Mad River the southern limit of spawning for the species (Miller and Lea, 1972; Moyle *et al.*, 1995; Sweetnam *et al.*, 2001; Moyle, 2002; Allen *et al.*, 2006). Since we have no evidence that large numbers of eulachon spawned south of the Mad River in the recent past, we view the Mad River as the most likely southern boundary of the currently constituted DPS.

As stated above in our response to Comment 2, the joint DPS policy (61 FR 4722, February 7, 1996) requires that a population segment must be discrete to be considered a DPS, and that the population segment may be considered discrete if it is markedly separated from other populations of the same taxon. The preponderance of available physical, physiological, ecological and behavioral data indicate that eulachon of the Klamath River are not markedly separated from other eulachon within the range of the southern DPS.

Appropriateness of the Scope of the Proposed Rule and Assessment

Comment 5: One reviewer commented that "the thoroughness of the [draft status report] literature review is impressive and all facets of life history, historical use, habitat, commercial fisheries and traditional uses are described." However, this reviewer questioned whether the BRT examined all available databases relevant to marine distribution of eulachon in waters offshore of Washington, Oregon, and California.

Response: Although known marine distribution and abundance of eulachon was thoroughly discussed during the BRT's deliberations, we agree that the draft status report (NMFS, 2008) failed to present or summarize all available information on marine distribution of eulachon off the U.S. West Coast. The BRT considered this additional information and included it in its final report (NMFS, 2010).

Status of the Southern DPS of Eulachon

Comment 6: One reviewer questioned the conclusion that the DPS is at moderate, rather than high, risk of extinction, and one commenter stated that the best available data should have led to an endangered status under the ESA.

Response: The proposed rule described our concerns about the abundance and spatial structure of this DPS, but also described the factors that mitigate that risk and support a conclusion that the DPS is not presently in danger of extinction: (1) two core spawning areas have sufficient numbers of eulachon to support spawning, at least at low levels; (2) as observed in the recent past (2001–2003), a reversion to favorable ocean conditions could result in a rebound in abundance; and (3) the species likely strays at a moderate-to-high rate, so that depressed populations could rebuild in the presence of favorable environmental conditions.

Comment 7: While agreeing with the "conclusion that the southern DPS of eulachon, as defined in the [status] report, is at moderate risk of extinction throughout its range," one reviewer stated the evidence also "suggests that eulachon are on the verge of extinction" in California.

Response: We have serious concerns about the long-term viability of eulachon in California. None of the three historical California spawning areas (Mad River, Redwood Creek, and Klamath River) have produced a documented, significant run of eulachon in many years. The ESA defines endangered and threatened species in terms of the level of extinction risk ''throughout all or a significant portion of its range'' (sections 3(6) and 3(20)). If it is determined that the defined species is not in danger of extinction throughout all of its range, but there are major geographic areas where the species is no longer viable, the statute directs that we must address whether such areas represent a significant portion of the species' range. Waples *et al.*, (2007) proposed a biological framework for evaluating whether a given portion of a species' range is significant. The authors propose that an area constitutes a significant portion of the species' range if extirpation in that area "would substantially influence extinction risk of the entire species" (Waples *et al.*, 2007). (The test proposed by Waples *et al.*, (2007) only applies to the determination of whether an area is significant, and thus is distinct from the test that was rejected by the Court of Appeals for the Ninth Circuit in *Defenders of Wildlife* v. *Norton*, 258 F.3d 1136 (9th Cir. 2001) (Waples *et al.*, 2007).)

We applied the test recommended in Waples *et al.*, (2007) to our review of the southern eulachon DPS. The overwhelming majority of production for the southern DPS of eulachon occurs in three subpopulations within the DPS; the Columbia River, the Fraser River and the British Columbia coastal rivers (NMFS, 2008). In addition, the majority of known spawning areas, and the most consistent spawning runs, within the southern DPS occur outside of California. While the California subpopulation of eulachon is important to the species biologically, if extirpation of the subpopulation occurred it would not substantially influence the extinction risk of the entire DPS.

Eulachon Spawning Habitat within the Range of the Southern DPS

Comment 8: Two commenters expressed concern that the draft status report (NMFS, 2008) and proposed rule do not address eulachon populations in

Puget Sound rivers, in the Nooksack River, and on the coast of Oregon and Washington.

Response: The above mentioned areas are not known to support established populations of eulachon, although occasional occurrence of eulachon presence has been recorded (see WDFW and ODFW, 2008). NMFS found no record of eulachon spawning stocks occurring in rivers draining into Puget Sound, and information on eulachon spatial distribution submitted to us by the Washington Department of Fish and Wildlife (WDFW) provides no evidence of eulachon spawning in Puget Sound, now or in the past.

Claims that eulachon occur in the Nooksack River are likely the result of misidentification with longfin smelt (*Spirinchus thaleichthys*). The run of "hooligans" into the Nooksack commonly occurs in November, which is outside of the normal spawn-timing period for eulachon, and these fish have recently been positively identified as longfin smelt (Greg Bargmann, WDFW, pers. comm.). Unfortunately, mention of the Nooksack River as a eulachon river continues to occur in much of the recent literature (see WDFW and ODFW, 2001; Wydoski and Whitney, 2003; Willson *et al.*, 2006; Moody, 2008).

Eulachon are periodically noted in small numbers in several rivers and creeks on the Washington and Oregon coasts. With regard to coastal rivers of Washington State, occasional or rare occurrences of eulachon were noted in the status report (NMFS, 2008). In addition, the Oregon Department of Fish and Wildlife (ODFW) commented that "[t]he Sandy River [within the Columbia River Basin] in Oregon is the only Oregon tributary known to support a run of eulachon" (ODFW 2009). Documentation of these irregular occurrences of eulachon is usually anecdotal and it is uncertain how these fish are related demographically to eulachon in rivers such as the Fraser and Columbia, where consistent annual runs occur. In addition, eulachon identification can be difficult, and they are easily confused with other smelt species, which has led to misidentification in the past. Occasionally large runs are noticed, usually by the abundance of predatory birds and marine mammals that accompany these runs, in coastal rivers such as the Queets and Quinault. Usually these large run events are separated in time by periods greater than the generation time of eulachon. We do not know enough about the biology of eulachon to know if these eulachon run events represent self-sustaining populations or are simply stray individuals from larger eulachon systems. It is possible that these populations may exist at levels of abundance that would not be detected by the casual observer, only to become noticed in years of high abundance.

Biological or Other Relevant Data Concerning any Threats to the Southern DPS of Eulachon

Comment 9: One commenter remarked that bycatch reduction devices (BRDs) have been required in Washington's ocean shrimp fishery since 1999 and that they have substantially reduced the number of eulachon taken in shrimp trawls. Another commenter stated that bycatch is not a moderate threat to eulachon and that shrimp fishery bycatch is at most a minor threat to eulachon. The commenter pointed out that the timing of the declines in the Columbia River and Fraser River eulachon populations (as evidenced by declines in commercial landings of eulachon) does not correlate in a reasonable way with effort in the Oregon shrimp trawl fishery (as would be expected if fishery bycatch were a significant factor).

Response: We do not contend that bycatch in the ocean shrimp trawl fishery was the sole cause of the decline in Fraser River and Columbia River eulachon stocks, and thus would not have expected to see a cause and effect relationship between historical effort in the Oregon shrimp fishery and decline in eulachon landings in these subpopulations. Trends in historical commercial eulachon landings do not provide a quantitative measure of trends in spawning stock abundance, since harvest can reflect market and environmental conditions as well as population abundance. In addition, a large component of the Columbia River eulachon subpopulation resides as juveniles off the west coast of Vancouver Island (Beacham *et al.*, 2005, DFO 2009b). As a result, the Oregon shrimp trawl fishery is likely to encounter only a portion of the Columbia River eulachon subpopulation. Since commercial landings only provide a relative measure of run strength and the Oregon shrimp trawl fishery is only likely to encounter a portion of the Columbia River eulachon population, it is unlikely that there would be a linkage between historical effort in the Oregon shrimp fishery and historical decline in Columbia River commercial landings.

We recognize that mandated use of BRDs in offshore shrimp trawl fisheries has substantially reduced bycatch (Hannah and Jones, 2007). However, based on unpublished eulachon bycatch data in Oregon and California from the Northwest Fisheries Science Center (NWFSC) West Coast Groundfish Observer Program, we have concerns about the level of eulachon bycatch (and delayed mortality of eulachon escaping trawl gear) in ocean shrimp (*Pandalus jordani*, also known as smooth pink shrimp) fisheries off the U. S. West Coast and in shrimp trawl fisheries in British Columbia, which mainly target ocean shrimp and northern shrimp (*P. borealis eous*) (Hay *et al.*, 1999a, 1999b; Olsen *et al.*, 2000; Hannah and Jones, 2007; NWFSC, 2008; DFO, 2009a). While the bycatch in the ocean shrimp trawl fishery may not be a primary cause of the decline in Fraser River and Columbia River eulachon stocks, we cannot rule out the possibility that it could be a factor limiting their recovery. We also recognize that climate change impact on ocean conditions is likely the most serious threat to persistence of eulachon in all four sub-areas of the DPS: Klamath River, Columbia River, Fraser River, and British Columbia coastal rivers south of the Nass River.

Comment 10: One commenter stated that there is conflicting information on the survival of fishes that pass through BRDs. Another commenter stated that NMFS overlooked the most appropriate study on survival from BRD escapement (Soldal and Engas, 1997) and misinterpreted the results of Suuronen *et al.*, (1996a; 1996b) in applying them to BRDs in the ocean shrimp trawl fishery.

Response: We agree that there is conflicting information on the survival of fishes that pass through BRDs. We also agree that the studies of Suuronen *et al.* (1996a; 1996b), which examined survival of herring escaping trawl nets after passing through either rigid sorting grids or through the codend mesh, are not applicable to the probable effects of BRDs in the ocean shrimp fishery off the U.S. West Coast, and should not have been cited as such in the proposed rule (74 FR 10857, March 13, 2009).

It is difficult to evaluate the true effectiveness of BRDs in a fishery without knowing the survival rate of fish that are deflected by the BRD and escape the trawl net (Broadhurst 2000; Suuronen 2005; Broadhurst *et al.*, 2006). We know of no studies that have been designed to assess survival of small pelagic fish after they are deflected from the codend of a trawl net by a rigid grate BRD and exit a trawl net. Given that the Soldal and Engas (1997) study was designed to assess survival of young gadoid fishes excluded from a shrimp trawl by a rigid deflecting grid, and the authors state that the survival data on capelin (*Mallotus villosus*) and herring

(*Clupea harengus*) in this study "should therefore not be relied on," this study does not appear to be the most appropriate study on survival from BRD escapement with regard to eulachon, since eulachon would most likely respond in a similar manner as capelin did in this study.

Although data on survivability of BRDs by small pelagic fishes such as eulachon are scarce, many studies on other fishes indicate that "among some species groups, such as small-sized pelagic fish, mortality may be high" and "the smallest escapees often appear the most vulnerable" (Suuronen, 2005). Results of several studies have shown a direct relationship between length and survival of fish escaping trawl nets, either with or without deflecting grids (Sangster *et al.*, 1996; Suuronen *et al.*, 1996a; Ingolfsson *et al.*, 2007), indicating that smaller fish with their poorer swimming ability and endurance may be more likely to suffer greater injury and stress during their escape from trawl gear than larger fish (Broadhurst *et al.*, 2006; Ingolfsson *et al.*, 2007).

Comment 11: One commenter questioned why bycatch of eulachon in shrimp fisheries is regarded as a high threat to Columbia River and British Columbia coastal populations, yet only a moderate threat to the Fraser River population. The same commenter stated that NMFS did not provide any data on bycatch of eulachon stocks off the U.S. West Coast, or any data from any U.S. coastal shrimp fisheries.

Response: Neither the draft status report (NMFS, 2008) nor proposed rule indicate a difference in the degree of threat described by the commenter. During its deliberations, the BRT examined unpublished data collected by NMFS' West Coast Groundfish Observer Program on eulachon and other smelt bycatch in Oregon and California offshore ocean shrimp fisheries. Some of these data are now published (NWFSC, 2008). The draft status report (NMFS, 2008, p. 59) stated that "eulachon by-catch in offshore shrimp fisheries were also ranked in the top four threats in all sub-areas of the DPS," and presented the results of its qualitative ranking of threats in Tables 10 13 in that document (NMFS, 2008, p. 107 110). From the threat scores in that table it is apparent that the BRT considered eulachon bycatch as essentially an equal threat in each of these subpopulations of the DPS. In addition, the proposed rule (74 FR 10872, March 13, 2009) stated that "[t]he BRT identified bycatch of eulachon in commercial fisheries as a moderate threat to all four populations."

Comment 12: One commenter stated that the recent range expansion of Humboldt squid (*Dosidicus gigas*, also known as jumbo squid) into the northeast Pacific Ocean is likely influencing eulachon abundance.

Response: We agree that the recent and ongoing expansion of large numbers of jumbo squid into waters off Oregon, Washington, and British Columbia is likely to have a significant impact on eulachon, but the extent of the impacts is uncertain, and cannot be determined to be a cause for the eulachon population's decline. An analysis of the contents of jumbo squid stomachs collected in the Northern California Current, including 40 collected off Oregon and Washington, failed to record the presence of eulachon or other osmerid smelts in the jumbo squid diet (Field *et al.*, 2007). The absence of eulachon in the diet of jumbo squid analyzed by Field *et al.*, (2007) may be due to a combination of low eulachon abundance in the study area and a lack of significant overlap in the two species' depth range; eulachon are commonly found between 20 and 150 m (66 and 492 ft) deep (Hay and McCarter, 2000) while jumbo squid in the Field *et al.*, (2007) study were mostly collected below this depth. Rapid digestion of small pelagic fish such as eulachon may also limit the ability to detect them in jumbo squid stomachs.

The Range, Distribution, and Abundance of the Southern DPS of Eulachon

Comment 13: One commenter stated that NMFS mischaracterized the work of Sadovy (2001) in a manner that overstates the extinction risk for the southern DPS of eulachon. The commenter stated that NMFS argues that short lived, small-bodied, high-fecundity, high-mortality forage species are not resilient to large swings in population size and mortality rates.

Response: We are unable to determine how our analysis in the draft status report (NMFS, 2008) or the proposed rule (74 FR 10857, March 13, 2009) could be interpreted as suggesting that the Sadovy (2001) paper or any other part of these documents argues that short lived, small-bodied, high-fecundity, high-mortality forage species are not resilient to large swings in population size and mortality rates. To the contrary, the draft status report (NMFS, 2008) stated the opposite with regard to resiliency of the species.

Our original purpose in citing Sadovy (2001) was not in regard to population resiliency of forage fish species, but in regard to Sadovy's (2001) concept that a critical density of spawning individuals must be present for fertilization to be successful and thus buffer against an Allee effect (i.e., a decrease in fitness when population density is low).

Comment 14: Two commenters felt that NMFS did not adequately address all of the historical information available regarding run size fluctuations of eulachon, particularly references that point to a severe downturn in eulachon abundance between approximately 1835 and 1867 in the Cowlitz River and the Columbia River Basin.

Response: Although we did not cite every available primary historical reference source (e.g., accounts of early explorers, surveyors, fur trappers, settlers, and naturalists) that described a decline in eulachon numbers on the Columbia and Cowlitz rivers during the 1830s to 1860s, we did cite in the draft status report (NMFS, 2008) the main secondary references in which this information is available. In addition, the BRT judged these reports to be credible scientific information appropriate for inclusion in its deliberations. Based on the available information, the BRT concluded that this information was likely to be accurate and indicative of a true decline in eulachon returns and subsequent recovery during that time period.

Comment 15: Two commenters noted that NMFS ignored important ethnographic information found in a narrative collected by Franz Boas (1894) in which a myth regarding eulachon was recounted by a member of the Chinook Tribe.

Response: "The Gila'unalx" in the ethnographic source, Boas (1894), is a tale of a Gila'unalx boy, whose guardian spirit is Iqamia'itx (helper of fishermen) that helps him catch smelt. This tale, translated from a tale told to Franz Boas by Charles Cultee (one of the last members of the Chinook tribe) in 1890 1891, cannot be interpreted as describing an absence of smelt from the Columbia River Basin, but does indicate that smelt fluctuated in abundance in different tributaries or areas of the Columbia River from year to year, and that Native American tribal members had to travel in some years to other areas of the basin to catch smelt. Similar fluctuations in smelt returns to individual Columbia River tributaries commonly occur today.

Comment 16: Two commenters stated that eulachon run size fluctuations should have been compared to that of other forage fish, such as herring, sardines, and anchovies, which have all experienced large swings in abundance.

Response: We recognize the long-term variability and cyclic nature of forage fish population abundance and

examined the relevance of the Pacific sardine model as it applies to eulachon. During times of low abundance both anchovies and sardines contract their range to core refuge areas where they remain common (Lluch-Belda *et al.*, 1992). We were unable to identify a similar geographical refuge or population reservoir within the range of the southern DPS of eulachon, and conclude that the sardine/anchovy model cannot be used as a proxy for how eulachon populations will respond to changing ocean conditions or climate change. We noted that other species of smelt in the Northern California Current are undergoing similar long-term declining trends in abundance, that this region is on the southern end of the range for smelts, and that ocean warming may have a detrimental impact on these essentially cold-water species. In contrast to anadromous eulachon, purely marine forage fish such as anchovies, sardines, and Pacific hake (*Merluccius productus*) can shift their distribution and geographical center of spawning in response to environmental changes (Lluch-Belda *et al.*, 1992; Ware and McFarlane, 1995; Benson *et al.*, 2002; Rodriguez-Sanchez *et al.*, 2002). By contrast, eulachon show fidelity to particular spawning rivers and adult and larval/juvenile eulachon must respond to local changes in spawning and nearshore-rearing conditions, respectively.

Comment 17: Since we know that eulachon populations have declined in the past, and then reversed substantially for a significant period of time, one commenter questioned NMFS' proposal to list if the present period of population decline is no different from the past.

Response: We acknowledge that past population decline and subsequent recovery of eulachon in the Cowlitz and Columbia rivers is documented through multiple anecdotal sources. However, the present period of population decline is very different from past events in that every subpopulation of the DPS is affected simultaneously, and the decline is not confined to the Columbia River subpopulation. Ethnographic and historical references indicate that subpopulations of the southern DPS of eulachon north of Washington State remained healthy during the period of population decline in the Columbia River in the 1830s to 1860s.

In addition, available information (e.g., disjunct spawning distribution, differences in spawn timing, genetics, life history diversity) suggests that population structure of eulachon roughly conforms to the classical concept of a metapopulation, in which local subpopulations are linked demographically by at least episodic migration, and extinction and recolonization of local subpopulations are common over ecological time frames. In this type of system, at any given point in time, some local subpopulations are expected to be increasing and some declining, and some suitable habitat patches are expected to be uninhabited. We considered whether eulachon subpopulation declines are more pervasive and more pronounced than we would expect to find in a healthy metapopulation. Currently, no subpopulation of the southern DPS of eulachon is abundant (as determined by spawning stock abundance, analysis of fishery catch, or traditional knowledge) or at levels that would be classified as normal or average over the historical time series. Eulachon are in long-term decline throughout the DPS (NMFS, 2010), and current subpopulation trajectories, with the exception of the Columbia River, are well below and out of the range of known historic patterns.

Comment 18: One commenter stated that NMFS' characterization of the spawning populations in the Columbia and Fraser rivers appearing to be at "historically low levels" is subject to dispute.

Response: We acknowledge that, based on the historical record, this characterization should be modified, and that eulachon spawning populations have declined to what appear to be historically low levels in the Fraser River and nearly so in the Columbia River.

Comment 19: One commenter stated that eulachon " disappeared completely for years at a time, for approximately three decades, in the 1800s" and that eulachon suffered what was termed a "three-decade absence," a "three-decade disappearance," or a "30–year disappearance" from the Columbia River with a subsequent return to abundance.

Response: Although numerous references indicate that eulachon suffered a severe decline in abundance in the Columbia River during the 1830s 1860s, the record does not support the contention that eulachon "disappeared" completely from the Columbia River during this entire time. A memoir written by Peter W. Crawford (Crawford, 1878) indicates that, prior to 1865 when Crawford records the appearance of a large run of eulachon on the Cowlitz River, "The early settlers on the Lower Cowlitz remember having a few such little fellows in small numbers."

Comment 20: One commenter stated that our decision to deny the 1999 petition to list eulachon in the Columbia River under the ESA (64 FR 66601, November 29, 1999) was correct, and that we have not adequately justified our decision to now list the species as threatened.

Response: We found that after reviewing the 1999 petition to list eulachon (Wright, 1999), as well as information readily available to NMFS scientists, the petition did not present substantial scientific information indicating that eulachon in the Columbia River were a DPS (64 FR 66601, November 29, 1999). We still agree that eulachon in the Columbia River are not a DPS and have proposed that the Columbia River subpopulation of eulachon is part of the much larger southern DPS of eulachon that extends from the Skeena River in British Columbia to the Mad River in California. We believe, for the reasons outlined in this determination, that the southern DPS is at risk of becoming endangered in the foreseeable future and thus should be listed as a threatened species under the ESA.

Comment 21: One commenter stated that NMFS should provide numbers and the basis for minimum viable population (MVP) sizes of eulachon. While NMFS listed the Klamath River, Fraser River, Bella Coola River, and Rivers Inlet, as areas where eulachon are below what would be considered minimum viable population sizes, the commenter questioned why the Columbia River is left off this list.

Response: We stated in the proposed rule (74 FR 10869, March 13, 2009) that MVP sizes for a forage fish species like eulachon "may be on the order of 50,000 to 500,000" (see Dulvy *et al.*, 2004). We conclude that high eulachon population sizes are necessary for viability because: (1) there is a critical threshold density of adult eulachon that must be present for successful reproduction; (2) there must be enough offspring to counteract high in-river egg and larval mortality and larval mortality in the ocean; and (3) there must be enough offspring to buffer against variation in local environmental conditions.

In recent years, estimated eulachon spawner abundance in the Klamath River, Bella Coola River, and Rivers Inlet have all been fewer than 50,000 individual fish and the Fraser River has averaged fewer than 500,000 fish. Thus there is concern that these rivers are below what could be considered the minimum number necessary for viability. Columbia River eulachon were not included in this list as their estimated abundance is likely above this minimum necessary for viability (i.e., > 500,000 individual eulachon).

Comment 22: One commenter stated that the Columbia River MVP threshold should be set at the upper limit of the best available estimate of approximately 700,000 fish.

Response: We agree with the commenter that large systems like the Columbia River will likely require an MVP that is set at the upper limit of the best available estimate. The MVP sizes suggested by Dulvy *et al.*, (2004) are largely theoretical and insufficient information currently exists to set an absolute MVP level for the Columbia River with any confidence. We acknowledge that part of any future Recovery Plan developed for the southern DPS of eulachon should include objective, measurable criteria will have to be established to determine when the DPS should be removed from the ESA.

Comment 23: One commenter was concerned that in most samples of spawning eulachon, males greatly outnumber females, yet NMFS provided no evidence or even speculation to indicate if this is an evolved characteristic or if it is caused by fishery selectivity (directed or bycatch) and/or changing environmental conditions.

Response: Whether male eulachon actually outnumber females in most rivers is a subject of controversy, and some researchers view skewed sex ratios to be an artifact of sampling (Hay and McCarter 2000). Sex ratios can vary with fishing gear type, distance upriver, distance from the river shoreline, time of day, and migration time (McHugh, 1939; Langer *et al.*, 1977; Moffit *et al.*, 2002; Lewis *et al.*, 2002; Spangler 2002; Spangler *et al.*, 2003). Eulachon sex ratios derived from commercial fishery samples may also be biased in favor of the more marketable, firmer-bodied males (Smith and Saalfeld, 1955). Nevertheless, the rangewide observations of higher male to female ratios suggest that there may be a selective advantage to having more males present than females during spawning.

Determination of Species under the ESA

The ESA defines species to include subspecies or a DPS of any vertebrate species which interbreeds when mature (16 U.S.C. 1532(16)). The FWS and NMFS have adopted a joint policy describing what constitutes a DPS of a taxonomic species (61 FR 4722, February 7, 1996). The joint DPS policy identifies two criteria for making DPS determinations: (1) the population must be discrete in relation to the remainder of the taxon (species or subspecies) to which it belongs; and (2) the population must be significant to the remainder of the taxon to which it belongs.

Additionally, under the joint policy a population segment of a vertebrate species may be considered discrete if it satisfies either one of the following conditions: (1) "[i]t is markedly separated from other populations of the same taxon as a consequence of physical, physiological, ecological, or behavioral factors. Quantitative measures of genetic or morphological discontinuity may provide evidence of this separation"; or (2) "[i]t is delimited by international governmental boundaries within which differences in control of exploitation, management of habitat, conservation status, or regulatory mechanisms exist that are significant in light of section 4(a)(1)(D)" of the ESA (61 FR 4725).

If a population segment is found to be discrete under one or both of the above conditions, its biological and ecological significance to the taxon to which it belongs is evaluated. This consideration may include, but is not limited to: (1) "[p]ersistence of the discrete population segment in an ecological setting unusual or unique for the taxon; (2) [e]vidence that the loss of the discrete population segment would result in a significant gap in the range of a taxon; (3) [e]vidence that the discrete population segment represents the only surviving natural occurrence of a taxon that may be more abundant elsewhere as an introduced population outside its historic range; and (4) [e]vidence that the discrete population segment differs markedly from other populations of the species in its genetic characteristics." (61 FR 4725).

The ESA defines an endangered species as one that "is in danger of extinction throughout all or a significant portion of its range," and a threatened species as one that "is likely to become an endangered species in the foreseeable future throughout all or a significant portion of its range" (Section 3 (6) and (20) of the ESA). Section 4(a)(1) of the ESA and NMFS' implementing regulations (50 CFR part 424) state that we must determine whether a species is endangered or threatened because of any one or a combination of the following factors: (1) the present or threatened destruction, modification, or curtailment of its habitat or range; (2) overutilization for commercial, recreational, scientific, or educational purposes; (3) disease or predation; (4) inadequacy of existing regulatory mechanisms; or (5) other natural or man-made factors affecting its continued existence. We are to make this determination based solely on the best available scientific and commercial information after conducting a review of the status of the species and taking into account any efforts being made by states or foreign governments to protect the species.

Summary of Factors Affecting the Southern Distinct Population Segment of Eulachon

The primary factors responsible for the decline of the southern DPS of eulachon are the destruction, modification, or curtailment of habitat and inadequacy of existing regulatory mechanisms. The following discussion briefly summarizes our findings regarding threats to the southern DPS of eulachon. More details and supporting evidence can be found in the proposed listing rule (74 FR 10857, March 13, 2009) and the status report (NMFS, 2010). For analytical purposes, we identified and ranked threats for the four primary populations of this DPS: mainland British Columbia rivers south of the Nass River, Fraser River, Columbia River, and Klamath River.

The Present or Threatened Destruction, Modification, or Curtailment of its Habitat or Range

We have identified changes in ocean conditions due to climate change as the most significant threat to eulachon and their habitats. We also believe that climate-induced change to freshwater habitats is a moderate threat to eulachon throughout the range of the southern DPS. There is evidence that climate change is leading to relatively rapid changes in both marine and freshwater environmental conditions that could impact eulachon. Marine, estuarine, and freshwater habitat in the Pacific Northwest has been influenced by climate change over the past 50–100 years and global patterns suggest the long-term trend is for a warmer, less productive ocean regime in the California Current and the Transitional Pacific. Climate-driven changes in stream flow timing and intensity in this area have also occurred and are likely to continue (Morrison *et al.*, 2002; Pickard and Marmorek, 2007; DFO, 2008). The recent decline in abundance or relative abundance of eulachon in many systems, coupled with the probable disruption of metapopulation structure, may make it more difficult for eulachon to adapt to changing environmental conditions.

Analyses of temperature trends for the U.S. part of the Pacific Northwest (Mote *et al.*, 1999); the maritime portions of Oregon, Washington, and British Columbia (Mote, 2003a); and the Puget Sound-Georgia Basin region (Mote, 2003b) have shown that air temperature

increases in these respective regions during the twentieth century were substantially greater than the global average (Mote, 2003b). This change in surface temperature has already modified, and is likely to continue to modify, freshwater and estuarine habitats of eulachon. These higher temperatures have led to declines in snowpack, more precipitation falling as rain rather than snow, and increased melting of glaciers, all of which affects stream flow timing and peak river flows. Since the majority of eulachon rivers are fed by extensive snowmelt or glacial runoff, elevated temperatures, changes in snow pack, and changes in the timing and intensity of stream flows will likely have impacts on eulachon. In most rivers, eulachon typically spawn well before the spring freshet, near the seasonal flow minimum, and this strategy typically results in egg hatch coinciding with peak spring river discharge. The expected alteration in stream flow timing may cause eulachon to spawn earlier or be flushed out of spawning rivers at an earlier date. Early emigration, together with the anticipated delay in the onset of coastal upwelling (see below), may result in a mismatch between entry of juvenile eulachon into the ocean and coastal upwelling, which could have a negative impact on marine survival of eulachon during this critical transition period.

Eulachon are basically a cold-water species and are adapted to feed on a northern assemblage of copepods in the ocean during the critical transition period from larvae to juvenile (and much of their recent recruitment failure may be traced to mortality during this critical period). However, there have been recent shifts in the suite of copepod species available to eulachon (Mackas *et al*, 2001; Hooff and Peterson, 2006; Mackas *et al.*, 2007), and we are concerned that climate change may be contributing to a mismatch between eulachon life history and prey species. Increases in ocean temperatures off the coast of the Pacific Northwest could alter the abundance and composition of copepod communities, thus reducing the amount of food available for eulachon, particularly larval eulachon. Zamon and Welch (2005) reported these types of rapid shifts in zooplankton communities in the Northeast Pacific during recent El Nino-La Nina events. Warming ocean conditions may also lead to a general reduction in eulachon forage. For instance, Roemmich and McGowan (1995) noted an 80 percent reduction of macrozooplankton biomass off Southern California between 1951 and 1993. Eulachon survival during the critical transition period between larval and juvenile stages is likely linked to initial intensity and timing of upwelling in the Northern California Current Province. However, predictions under warming conditions indicate that peak upwelling could shift as much as one month later than normal, which would result in eulachon larvae entering the ocean at a time when preferred prey organisms are not as abundant due to a delay in upwelling. These conditions would likely have significant negative impacts on marine survival rates of eulachon.

Warming ocean conditions have allowed both Pacific hake (Phillips *et al.*, 2007) and Pacific sardine (*Sardinops sagax*) (Emmett *et al.*, 2005) to expand their distributions to the north. In contrast to anadromous eulachon, purely marine forage fish such as Pacific sardine and Pacific hake can shift their distribution and geographical center of spawning in response to environmental changes (Lluch-Belda *et al.*, 1992; Ware and McFarlane, 1995; Benson *et al.*, 2002; Rodriguez-Sanchez *et al.*, 2002). The result of these distribution shifts is increased predation on eulachon by Pacific hake and competition for food resources by both species.

The BRT identified dams and water diversions as moderate threats to eulachon in the Columbia and Klamath rivers where hydropower generation and flood control are major activities, and a low to moderate risk for eulachon in the Fraser and mainland British Columbia rivers where dams are fewer. Dams can slow or block eulachon migration. Water storage and flood control dams and water divisions often alter the natural hydrograph of river systems during the winter and spring months. Dams can also impede or alter bedload movement, changing the composition of river substrates important to spawning eulachon. Degraded water quality is common in some areas occupied by southern DPS eulachon. In the Columbia and Klamath systems, large-scale impoundment of water has increased winter water temperatures, potentially altering the water temperature during eulachon spawning periods (NMFS, 2010). Numerous chemical contaminants are also present in spawning rivers, but the exact effect these compounds may have on spawning and egg development is unknown (NMFS, 2010).

The BRT identified dredging as a low to moderate threat to eulachon in the Fraser and Columbia rivers and a low threat for eulachon in mainland British Columbia rivers due to less dredging activity here. Dredging during eulachon spawning would be particularly detrimental, as eggs associated with benthic substrates are likely to be destroyed.

Overutilization for Commercial, Recreational, Scientific or Educational Purposes

Commercial harvest of eulachon in the Columbia and Fraser rivers represents a low to moderate threat. Current harvest levels are orders of magnitude lower than historic harvest levels, and a relatively small number of vessels operate in this fishery. However, it is possible that even a small harvest of the remaining stock may slow recovery. No significant commercial fishing for eulachon occurs in the Klamath River or in British Columbia rivers north of the Fraser River. The BRT ranked harvest by recreational and Tribal/First Nations fishers as a very low to low threat to eulachon in all four DPS populations. As described below, it is likely that these harvests have a negligible effect on eulachon abundance.

Commercial Fisheries

In Oregon, commercial fishing for eulachon is allowed in the Pacific Ocean, Columbia River, Sandy River, and Umpqua River. In the Pacific Ocean, eulachon can be harvested year-round using any method otherwise authorized to harvest food fish in the open ocean. In the Sandy River, commercial fishing with dip nets is allowed in a small portion of the lower river, year-round, 7 days a week, 24 hours a day. The last large commercial harvest of eulachon in the Sandy River occurred in 1985 (304,500 lbs. (138 metric tons)), with a moderate harvest occurring in 2003 (23,000 lbs. (10 metric tons)) (John North, ODFW, pers. comm.). In the Umpqua River, commercial fishing for eulachon is allowed year-round and 24 hours a day with dip nets and gill nets not more than 600 ft (183 m) in length and of a mesh size no larger than 2 inches (51 mm). Those areas of the Umpqua River not closed to commercial fishing for American shad (*Alosa sapidissima*) (upstream from approximately river mile 21 (34 km)) are open to commercial fishing for eulachon. However, commercial fishing for eulachon has not occurred for many years in the Umpqua River (John North, ODFW, pers. comm.). In the mainstem Columbia River, permissible commercial gear includes: gill nets with a mesh size no larger than 2 inches (51 mm); dip nets having a bag frame no larger than 36 inches (91 cm) in diameter; and small trawl nets (Oregon Administrative Rule 635 004 0075). Commercial fishing in the

Columbia River is now managed according to the joint WDFW and ODFW Eulachon Management Plan (WDFW and ODFW, 2001). Under this plan, three eulachon harvest levels can be authorized based on the strength of the prior years' run, resultant juvenile production estimates, and ocean productivity indices.

Currently the average weekly effort in the Columbia River mainstem fishery is typically low (2.6 boats/week), with up to 18 vessels participating (ODFW, 2009). In Washington, by permanent rule, commercial fishing for eulachon in the Columbia and Cowlitz rivers is restricted. On the Columbia River, otter trawl gear may be used from 6 p.m. Monday to 6 p.m. (1) on Wednesday of each week from March 1 through March 31, or (2) for boats not exceeding 32 feet in length, 7 days per week from December 1 through March 31 of the following year. Gillnets may be used 7 days per week from December 1 through March 31 of the following year. Hand dip net gear may be used 7 days per week from December 1 of each year through March 31 of the following year. In recent years the January-March fishing periods were closed prior to January 1 by emergency rule, and specific fishing periods were adopted in accordance with the restrictions identified in the Washington and Oregon Eulachon Management Plan (WDFW and ODFW, 2001). Due to low eulachon abundance, the Department of Fisheries and Oceans Canada (DFO) did not authorize any commercial fishing for eulachon in 2008. Historically, commercial fishing for eulachon occurred at low levels in the Fraser River (as compared to the Columbia River). Since 1997, DFO has only twice allowed a commercial harvest of eulachon in the Fraser River (DFO, 2008).

Recreational Fishing

The states of Oregon and Washington have modified sport fishing regulations due to declining eulachon abundance (WDFW and ODFW, 2001). During the eulachon run, the ODFW allows recreational fishers to capture 25 lb (11 kg) per day of eulachon, using a dip net. Each fisher must have his or her own container and only the first 25 lbs (11 kg) of fish captured may be retained. No angling license is required to harvest eulachon in Oregon. The WDFW currently allows harvest of eulachon by dip netting on the Cowlitz River, from 6 a.m. to 10 p.m. on Saturdays from January 1 through March 31. The daily limit on the Cowlitz River is 10 lb (4.5 kg) per person per day. In Washington, the mainstem Columbia River is open for eulachon harvest 24 hours per day and 7 days per week during the eulachon run, and the daily limit is 25 lb (11 kg) per person per day. ODFW and WDFW plan to continue authorizing eulachon sport fishing at appropriate harvest levels based on yearly predictions of eulachon run size. Under the strictest proposed regulations, harvest would be limited to less than 10 percent of the predicted run size. If run size increases beyond predicted levels, then ODFW and WDFW would consider allowing additional harvest (but these more liberal harvest rates have not been specified).

In California, the California Department of Fish and Game (CDFG) currently allows licensed recreational fishers to dipnet up to 25 lb (11 kg) of eulachon per day per person year-round (CDFG, 2008). However, in practice, little to no fishing in California occurs because so few eulachon return each year. In 2008, DFO Canada did not authorize any recreational fishing for eulachon due to low abundance. In general, interest in recreational fishing for eulachon has decreased significantly due to the difficulty of harvesting these fish at their current low abundance.

Tribal Subsistence Fishing

In the past, eulachon were an important food source for Canadian First Nations and many Native American tribes from northern California to Alaska. In more recent history, tribal members in the U.S. harvest eulachon under recreational fishing regulations adopted by the states. The DFO typically authorizes a small subsistence fishery for First Nation members, primarily in the Fraser River. Historically, members of the Yurok Tribe harvested eulachon in the Klamath River in California for subsistence purposes. The Yurok Tribe does not have a fishery management plan for eulachon at this time, and eulachon abundance levels on the Klamath are too low to support a fishery.

Disease or Predation

The BRT identified disease as a low risk factor for all four subpopulations of the southern DPS of eulachon. Although Willson *et al.*, (2006) identify common parasites of eulachon, the BRT did not review any information indicating that disease was a significant problem for this DPS. Predation, primarily from marine mammals, fishes, and birds, was identified as a moderate threat to eulachon in the Fraser River and mainland British Columbia rivers, and a low severity threat to eulachon in the Columbia and Klamath rivers where there is a lower abundance of some predators. Large numbers of predators commonly congregate at eulachon spawning runs (Willson *et al.*, 2006). Eulachon rely on swimming in large numbers and synchronized spawn timing to ensure that adequate numbers of fish escape predators and reproduce successfully. High levels of predation may jeopardize population viability during times of low eulachon abundance.

The Inadequacy of Existing Regulatory Mechanisms

The BRT identified bycatch of eulachon in commercial fisheries as a moderate threat to all four populations in the Southern DPS. In the past, protection of forage fishes has not been a priority when developing ways to reduce bycatch in shrimp fisheries. The marine areas occupied by shrimp and eulachon often overlap, making eulachon particularly vulnerable to capture in shrimp fisheries in the United States and Canada. In Oregon shrimp fisheries, the bycatch of various species of smelt (including eulachon) has been as high as 28 percent of the total catch weight (Hannah and Jones, 2007). In Canada, bycatch of eulachon in shrimp fisheries has been significant enough in some years to cause the DFO Canada to close the fishery (DFO, 2008). In 2000, we declared canary rockfish (*Sebastes pinniger*) overfished. In response, the states of Oregon, Washington, and California enacted regulations that require BRDs for canary rockfish on trawl gear used in the ocean shrimp fishery. The BRDs were successful in reducing bycatch of all finfish species (Hannah and Jones, 2007). However, little is known about the degree of injury and mortality eulachon experience as they pass through BRDs and it is not certain what percent of eulachon traveling through BRDs survive. In Oregon, these devices have been shown to reduce the smelt (including eulachon) bycatch to between 0.25 and 1.69 percent of the total catch weight (Hannah and Jones, 2007). The DFO sets bycatch limits for the Canadian shrimp fishery, and the shrimp trawl industry in Canada adopted 100 percent use of BRDs in 2000 (DFO, 2009a). The DFO will implement further management actions if estimated eulachon bycatch meets or exceeds the identified level (DFO, 2009b). Management actions that may be taken by DFO include: closing the entire shrimp trawl fishery; closing certain areas to shrimp trawling; or restricting trawling to beam trawlers,

which have been found to have a lower impact on eulachon than otter trawlers.

Other Natural or Manmade Factors Affecting Its Continued Existence

Natural events such as volcanic eruptions may cause significant local declines in eulachon abundance by causing catastrophic debris flows in rivers and drastically increasing fine sediments in substrates. After the eruption of Mt. St. Helens in 1980, the U.S. Army Corps of Engineers constructed a large sediment retention structure on the Toutle River. This structure was built to prevent debris avalanches resulting from the eruption from moving downstream and causing navigation problems (e.g., filling of the Columbia River shipping channel). Although the structure is designed to reduce the level of fine sediment traveling down the Toutle River and into the Cowlitz River, there is some concern that water released from the structure in the spring may contain a high sediment load that could adversely affect eulachon spawning by destroying or reducing the viability of eggs and spawning sites.

Efforts Being Made to Protect the Southern Distinct Population Segment of Eulachon

Section 4(b)(1)(A) of the ESA requires the Secretary to make listing determinations solely on the basis of the best scientific and commercial data available after taking into account efforts being made to protect a species. Therefore, in making ESA listing determinations, we first identify factors that have led to a species' decline and assess the level of extinction risk. We then assess efforts being made to protect the species to determine if those measures ameliorate the risks faced by the DPS.

The ESA requires us to take into account all conservation efforts being made to protect a species. Oregon and Washington both have abundance-based harvest management regimes that limit harvest impacts at low run sizes. However, it is unknown if these regimes are adequate for conservation. DFO Canada also manages recreational and commercial harvest of eulachon in Canada with abundance-based harvest management regimes. Both recreational and commercial eulachon fisheries in Canada have been limited or closed in recent years due to low eulachon abundance.

Although no efforts specific to eulachon are currently being made to protect freshwater habitat in the United States, this species indirectly benefits from many Federal, state, and tribal regulatory and voluntary aquatic habitat improvement programs aimed at other species. Based on the available information on eulachon biology, the physical habitat features most likely to be important to eulachon reproduction in fresh water are water quantity, water quality (especially temperature), free passage, and substrate condition. Federal programs carried out under laws such as the Federal Clean Water Act (CWA) of 1972 help to ensure that water quality is maintained or improved and that discharge of fill material into rivers and streams is regulated. Several sections of this law, such as section 404 (discharge of fill into wetlands), section 402 (discharge of pollutants into water bodies), and section 404(d) (designation of water quality limited streams and rivers) regulate activities that might degrade eulachon habitat. Although programs carried out under the CWA are well funded and enforcement of this law occurs, a significant percentage of stream reaches in the range of eulachon do not meet current water quality standards. This indicates that although current programs provide some protection, they are not sufficient to fully protect eulachon habitat.

Section 10 of the Rivers and Harbors Act prohibits placement of any structure in any navigable waterway of the United States without approval from the Army Corps of Engineers (USACE). Most or all freshwater eulachon habitat in the United States is considered to be navigable, and it is not expected that any additional major obstructions (i.e., dams) to eulachon migration would be constructed within their range. Smaller structures such as weirs and fish traps intended for fishery management may be placed in some tributaries of the Columbia River, but it is unclear to what degree these may pose a barrier to eulachon migration (see *http://www.nwr.noaa.gov/Salmon-Harvest-Hatcheries/Hatcheries/Mitchell-Act-EIS.cfm* and NMFS, 2004).

Potential eulachon impacts from dredging activities associated with the USACE Columbia River Channel Improvement Project will be addressed in the Columbia River Channel Improvement Project Adaptive Management Process. WDFW is a member of the Adaptive Management Team that implements this process. State regulatory programs that protect eulachon habitat include wetland/waterway fill-removal programs such as those administered by the Oregon Department of State Lands and the Washington Department of Ecology. Similar to the Federal CWA, these programs regulate filling of wetlands and discharge of fill material that might adversely affect eulachon spawning habitats. In addition, the State of California protects water quality and associated beneficial uses through administration of the Porter-Cologne Act, (also similar to the Federal CWA), and implementation of CDFG 1602 regulations. Fish and Game Code section 1602 requires any person, state or local governmental agency, or public utility to notify the Department before beginning any activity that will do one or more of the following: (1) substantially divert or obstruct the natural flow of any river, stream or lake; (2) substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake; or (3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake. In Canada, dredging is not allowed in the Fraser River during early March to June to protect spawning eulachon. We are not aware of any other specific measures taken to protect eulachon freshwater habitat in Canada.

In general, the described regulatory programs within California, Oregon and Washington are aimed at protecting important riverine and wetland functions, such as maintaining a properly functioning riparian plant community, storing groundwater, and preserving floodplain roughness. They are also aimed at reducing the discharge of fine sediments that might alter or degrade spawning substrates used by eulachon. Therefore it is reasonable to conclude that these laws will provide some protection to eulachon habitat.

The range of eulachon in the Pacific Northwest and California largely or completely overlaps with the range of several ESA-listed stocks of salmon and steelhead as well as green sturgeon (*Acipenser medirostris*). Although the habitat requirements of these fishes differ somewhat from eulachon, efforts to protect habitat generally focus on the maintenance of watershed processes that would be expected to benefit eulachon. In particular, the numerous ESA section 7 consultations carried out on Federal activities throughout the range of eulachon provide a significant level of habitat protection. These and other protective efforts for salmon and steelhead are described in detail in our proposed listing determinations for 27 species of West Coast salmon and steelhead (69 FR 33102, June 14, 2004). Efforts to protect green sturgeon are described in our proposed listing determination for this species (70 FR 17386, April 6, 2005).

The development and operation of the Federal Columbia River Power System

(FCRPS) and Bureau of Reclamation irrigation projects in the Columbia River basin have altered the hydrology of this river system. We have worked with the USACE, Bonneville Power Administration, and Bureau of Reclamation to develop mitigation measures to minimize the adverse effects of these projects on ESA-listed salmon and steelhead. On May 5, 2008, we issued final biological opinions on the operation of the FCRPS and Upper Snake River Irrigation Projects, and on September 15, 2009, we filed a revised plan in U.S. District Court to implement the biological opinions. The planned mitigation measures, including additional water releases in the spring and predator control programs, will benefit eulachon as well. Since eulachon are known to be plentiful in systems with a strong spring freshet, releasing additional water in the spring to increase survival of juvenile salmon and steelhead is likely to move the hydrograph of the Columbia River to a state more similar to that under which eulachon evolved.

Throughout the eulachon's range in Oregon, Washington, and California, an array of Federal, state, tribal, and local entities carry out aquatic habitat restoration programs. These programs are generally intended to benefit other fish species such as salmon, steelhead, and trout, but eulachon also benefit. Although these programs are too numerous to list individually, some of the larger programs include the Bonneville Power Administration's Columbia Basin Fish and Wildlife Program, the Pacific Coast Salmon Recovery Fund, the Lower Columbia Fish Recovery Board, and the Oregon Watershed Enhancement Board. The Federal land managers (i.e., the U.S. Forest Service, U.S. Bureau of Land Management, and National Park Service) also carry out aquatic restoration projects in some watersheds where eulachon migrate and spawn. These agencies have been conducting restoration projects in these areas for many years, and projects located in the lower reaches of rivers (where eulachon spawn) are likely to provide some benefit to eulachon. Marine waters are managed by state and Federal Governments. At this time, we do not know enough about eulachon use of nearshore ocean habitats to determine the degree to which existing marine habitat management benefits eulachon.

Final Listing Determination

Section 4(b)(1) of the ESA requires that the listing determination be based solely on the best scientific and commercial data available, after conducting a review of the status of the species and after taking into account those efforts, if any, being made by any state or foreign nation to protect and conserve the species. We have reviewed the petition, the two reports of the BRT (NMFS, 2008, 2010), co-manager comments, peer review, public comments and other available published and unpublished information, and we have consulted with species experts and other individuals familiar with eulachon.

Based on this review, we conclude that eulachon populations spawning from the Skeena River in British Columbia (inclusive) south to the Mad River in Northern California (inclusive) meet the discreteness and significance criteria for a DPS (61 FR 4722, February 7, 1996; NMFS, 2008). These southern DPS eulachon are discrete from eulachon occurring north of this area based on differences in spawning temperatures; length- and weight-at-maturity in the species' range; ecological features of both the marine and freshwater environments occupied by eulachon; and genetic characteristics. The southern DPS is significant to the species as a whole because it constitutes over half of the geographic range of the taxonomic species' distribution, and it includes two of the known major production areas (Columbia and Fraser rivers) and a third area that may have been historically a major production area (Klamath River). Although eulachon are rarely seen in the Klamath River at present, sampling in 2007 confirmed they are still found there in small numbers. The loss of the southern DPS would create a significant reduction in the species' overall distribution.

Ongoing efforts to protect Pacific salmonids, as described in the previous section, are also likely to benefit Pacific eulachon and their habitat. However, these efforts do not comprehensively address the threats to eulachon from climate change, altered freshwater habitat and bycatch in the shrimp fishery.

Based on the best scientific and commercial information available, including the draft and final BRT reports, we believe that the southern DPS of eulachon is not presently in danger of extinction, but is likely to become so in the foreseeable future throughout all of its range. Factors supporting a conclusion that the DPS is not presently in danger of extinction include: (1) two core spawning areas have sufficient numbers of eulachon to support spawning, at least at low levels; (2) as observed in the recent past (2001–2003), a reversion to favorable ocean conditions could result in a rebound in abundance; and (3) the species likely strays at a moderate-to-high rate, so that depressed populations could rebuild in the presence of favorable environmental conditions.

Factors supporting a conclusion that the DPS is likely to become in danger of extinction in the foreseeable future include: (1) low and declining abundance in all surveyed populations, including the two remaining core populations, compromising their ability to rebound; (2) abundance that has likely decreased below the minimum viable population size for several sub-areas of the DPS (e.g. Klamath River, Bella Coola River, Rivers Inlet); and (3) available information suggesting that eulachon in Northern California experienced an abrupt decline several decades ago and, although still present at very low numbers, it is unknown if these fish represent a viable self-sustaining population.

In sum, the current abundance of eulachon is low and declining in all surveyed populations throughout the DPS. Future declines in abundance are likely to occur as a result of climate change and continued bycatch in the shrimp fishery. Taken together, these two points indicate that the southern DPS of eulachon is likely to become endangered in the foreseeable future. Therefore, we are listing the southern DPS of eulachon as a threatened species, as of the effective date of this rule.

Prohibitions and Protective Measures

Section 9 of the ESA prohibits the take of endangered species. The term "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct (16 U.S.C. 1532(19)). In the case of threatened species, ESA section 4(d) leaves it to the Secretary's discretion whether, and to what extent, to extend the section 9(a) "take" prohibitions to the species, and authorizes us to issue regulations it considers necessary and advisable for the conservation of the species. Thus, we have flexibility under section 4(d) to tailor protective regulations, taking into account the effectiveness of available conservation measures. The section 4(d) protective regulations may prohibit, with respect to threatened species, some or all of the acts which section 9(a) of the ESA prohibits with respect to endangered species. These prohibitions and regulations apply to all individuals, organizations, and agencies subject to U.S. jurisdiction. We will evaluate protective regulations pursuant to section 4(d) for the southern DPS of eulachon and issue proposed

regulations in forthcoming rules that will be published in the **Federal Register**.

Section 7(a)(2) of the ESA requires Federal agencies to confer with us on actions likely to jeopardize the continued existence of species proposed for listing or that will result in the destruction or adverse modification of proposed critical habitat. Once a species is listed as threatened or endangered, section 7(a)(2) requires Federal agencies to ensure that any actions they fund, authorize, or carry out do not jeopardize the continued existence of the species. Once critical habitat is designated, section 7(a)(2) also requires Federal agencies to ensure that they do not fund, authorize, or carry out any actions that are likely to destroy or adversely modify that habitat. Our section 7 regulations require the responsible Federal agency to initiate formal consultation if a Federal action may affect a listed species or its critical habitat, (50 CFR 402.14(a)). Examples of Federal actions that may affect southern DPS eulachon include coastal development, dredging, operation of hydropower facilities, point and non-point source discharge of persistent contaminants, contaminated waste disposal, adoption of water quality standards, regulation of newly emerging chemical contaminants, research and monitoring, and fishery harvest and management practices.

Sections 10(a)(1)(A) and (B) of the ESA provide us with authority to grant exceptions to the ESA's Section 9 "take" prohibitions. Section 10(a)(1)(A) scientific research and enhancement permits may be issued to entities (Federal and non-Federal) for scientific purposes or to enhance the propagation or survival of a listed species. The type of activities potentially requiring a section 10(a)(1)(A) research/enhancement permit include scientific research that targets eulachon.

Section 10(a)(1)(B) incidental take permits may be issued to non-Federal entities performing activities that may incidentally take listed species, as long as the taking is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.

Effective Date of the Final Listing Determination

We recognize that numerous parties may be affected by the listing of the southern DPS of eulachon. To permit an orderly implementation of the consultation requirements applicable to threatened species, the final listing will take effect on May 17, 2010.

Critical Habitat

Section 3(5)(A) of the ESA defines critical habitat as "(i) the specific areas within the geographical area occupied by the species, at the time it is listed . . . on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by the species at the time it is listed . . . upon a determination by the Secretary that such areas are essential for the conservation of the species."

Section 4(a)(3) of the ESA requires that, to the extent practicable and determinable, critical habitat be designated concurrently with the listing of a species. Designation of critical habitat must be based on the best scientific data available and must take into consideration the economic, national security, and other relevant impacts of specifying any particular area as critical habitat.

In determining what areas qualify as critical habitat, 50 CFR 424.12(b) requires that we consider those physical or biological features that are essential to the conservation of a given species including space for individual and population growth and for normal behavior; food, water, air, light, minerals, or other nutritional or physiological requirements; cover or shelter; sites for breeding, reproduction, and rearing of offspring; and habitats that are protected from disturbance or are representative of the historical geographical and ecological distribution of a species. The regulations further direct NMFS to "focus on the principal biological or physical constituent elements . . . that are essential to the conservation of the species," and specify that the "[k]nown primary constituent elements shall be listed with the critical habitat description." The regulations identify primary constituent elements (PCEs) as including, but not limited to: "roost sites, nesting grounds, spawning sites, feeding sites, seasonal wetland or dry land, water quality or quantity, host species or plant pollinator, geological formation, vegetation type, tide, and specific soil types."

In our proposal to list the southern DPS of eulachon, we requested information on the quality and extent of freshwater and marine habitats that may qualify as critical habitat. Specifically, we requested identification of specific areas that meet the definition of critical habitat defined above. We also solicited biological and economic information relevant to making a critical habitat designation for the southern DPS of eulachon. We have reviewed the comments provided and the best available scientific information. We conclude that critical habitat is not determinable at this time for the following reasons: (1) sufficient information is not currently available to assess impacts of designation; (2) sufficient information is not currently available on the geographical area occupied by the species; and (3) sufficient information is not currently available regarding the physical and biological features essential to conservation.

Classification

National Environmental Policy Act (NEPA)

ESA listing decisions are exempt from the requirements to prepare an environmental assessment or environmental impact statement under the NEPA. See NOAA Administrative Order 216 6.03(e)(1) and *Pacific Legal Foundation* v. *Andrus657 F2d 829 (6th Cir. 1981)* . Thus, we have determined that this final listing determination for the southern DPS of eulachon is exempt from the requirements of the NEPA of 1969.

Executive Order (E.O.) 12866, Regulatory Flexibility Act and Paperwork Reduction Act

As noted in the Conference Report on the 1982 amendments to the ESA, economic impacts cannot be considered when assessing the status of a species. Therefore, the economic analysis requirements of the Regulatory Flexibility Act are not applicable to the listing process. In addition, this rule is exempt from review under E.O. 12866. This final rule does not contain a collection-of-information requirement for the purposes of the Paperwork Reduction Act.

E.O. 13084 – Consultation and Coordination with Indian Tribal Governments

E.O. 13084 requires that if NMFS issues a regulation that significantly or uniquely affects the communities of Indian tribal governments and imposes substantial direct compliance costs on those communities, NMFS must consult with those governments or the Federal Government must provide the funds necessary to pay the direct compliance costs incurred by the tribal governments. This final rule does not impose substantial direct compliance costs on the communities of Indian tribal governments. Accordingly, the requirements of section 3(b) of E.O. 13084 do not apply to this final rule.

Nonetheless, we will continue to inform potentially affected tribal governments, solicit their input, and coordinate on future management actions.

E.O. 13132 – Federalism

E.O. 13132 requires agencies to take into account any federalism impacts of regulations under development. It includes specific directives for consultation in situations where a regulation will preempt state law or impose substantial direct compliance costs on state and local governments (unless required by statute). Neither of those circumstances is applicable to this final rule. In keeping with the intent of the Administration and Congress to provide continuing and meaningful dialogue on issues of mutual state and Federal interest, the proposed rule was provided to the relevant state agencies in each state in which the species is believed to occur, and these agencies were invited to comment. We have conferred with the States of Washington, Oregon and California in the course of assessing the status of the southern DPS of eulachon, and their comments and recommendations have been considered and incorporated into this final determination where applicable.

References

A list of references cited in this notice is available upon request (see **ADDRESSES**) or via the Internet at *http://www.nwr.noaa.gov*. Additional information, including agency reports and written comments, is also available at this Internet address.

List of Subjects in 50 CFR Part 223

Endangered and threatened species, Exports, Imports, Transportation.

Dated: March 12, 2010.

Samuel D. Rauch III,

Deputy Assistant Administrator for Regulatory Programs, National Marine Fisheries Service.

■ For the reasons set out in the preamble, 50 CFR part 223 is amended as follows:

PART 223—THREATENED MARINE AND ANADROMOUS SPECIES

■ 1. The authority citation for part 223 continues to read as follows:

Authority: 16 U.S.C. 1531 1543; subpart B, § 223.201–202 also issued under 16 U.S.C. 1361 *et seq.;* 16 U.S.C. 5503(d) for § 223.206(d)(9) *et seq.*

■ 2. In § 223.102, amend paragraph (c) by adding and reserving paragraphs (c)(26) and (c)(27) and adding a new paragraph (c)(28) to read as follows:

§ 223.102 Enumeration of threatened marine and anadromous species.

* * * * *

(c) * * *

Species[1]		Where Listed	Citation(s) for listing determination(s)	Citation(s) for critical habitat designation(s)
Common name	Scientific name			
* *	*	*	*	* *
(28) eulachon - southern DPS	*Thaleichthys pacificus*	Wherever Found	[INSERT FR PAGE CITATION & March 18, 2010]	[INSERT FR PAGE CITATION & March 18, 2010]
* *	*	*	*	* *

[1]Species includes taxonomic species, subspecies, distinct population segments (DPSs) (for a policy statement, see 61 FR 4722, February 7, 1996), and evolutionarily significant units (ESUs) (for a policy statement, see 56 FR 58612, November 20, 1991).

[FR Doc. 2010–5996 Filed 3–17–10; 8:45 am]

BILLING CODE 3510–22–S

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 300

[Docket No. 100119028–0123–02]

RIN 0648–AY31

Pacific Halibut Fisheries; Catch Sharing Plan

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Final rule.

SUMMARY: The Assistant Administrator for Fisheries, National Oceanic and Atmospheric Administration (NOAA AA), on behalf of the International Pacific Halibut Commission (IPHC), publishes annual management measures promulgated as regulations by the IPHC and approved by the Secretary of State governing the Pacific halibut fishery. The AA also announces modifications to the Catch Sharing Plan (CSP) for Area 2A (waters off the U.S. West Coast) and implementing regulations for 2010, and announces approval of the Area 2A CSP. These actions are intended to enhance the conservation of Pacific halibut and further the goals and objectives of the Pacific Fishery Management Council (PFMC) and the North Pacific Fishery Management Council (NPFMC) (Councils).

DATES: The amendment to § 300.63 is effective April 19, 2010. The IPHC's 2010 annual management measures are effective March 1, 2010, except for the measures in section 26 which are effective April 19, 2010. The 2010 management measures are effective until superseded.

ADDRESSES: Additional requests for information regarding this action may be obtained by contacting: The International Pacific Halibut Commission, P.O. Box 95009, Seattle, WA 98145–2009; or Sustainable Fisheries Division, NMFS Alaska Region, P.O. Box 21668, Juneau, AK 99802–1668, *Attn:* Ellen Sebastian, Records Officer; or Sustainable Fisheries Division, NMFS Northwest Region, 7600 Sand Point Way, NE., Seattle WA 98115. This final rule also is accessible via the Internet at the Government Printing Office's Web site at *http://www.regulations.gov.*

FOR FURTHER INFORMATION CONTACT: For waters off Alaska, Peggy Murphy, 907–586–8743, e-mail at *peggy.murphy@noaa.gov;* or, for waters off the U.S. West Coast, Sarah Williams, 206–526–4646, e-mail at *sarah.williams@noaa.gov.*

SUPPLEMENTARY INFORMATION:

Background

The IPHC has promulgated regulations governing the Pacific halibut fishery in 2010 under the Convention between the United States and Canada for the Preservation of the Halibut Fishery of the North Pacific Ocean and Bering Sea (Convention), signed at Ottawa, Ontario, on March 2, 1953, as