We encourage interested parties to continue to gather data that will assist with the conservation of the species. If you wish to provide information regarding the bald eagle, you may submit your information or materials to the Field Supervisor, Arizona Ecological Services Office (*see* **ADDRESSES** section above). The Service continues to strongly support the cooperative conservation of the Sonoran Desert Area bald eagle.

On March 6, 2008, the U.S. District Court for the District of Arizona enjoined our application of the July 9, 2007 (72 FR 37346), final delisting rule for bald eagles to the Sonoran Desert population pending the outcome of our status review and 12-month petition finding. As a result, we put this population back on the List of Threatened and Endangered Species on May 1, 2008. In light of our 12-month finding presented above, we intend to publish a separate notice to remove this population from the List of Threatened and Endangered Wildlife. However, we will only do so once the U.S. District Court for the District of Arizona has confirmed that its injunction, which required us to add this population to the List of Threatened and Endangered Wildlife, has been dissolved. Until that time, the Sonoran Desert Area population will remain protected by the Act.

References Cited

A complete list of all references cited herein is available, upon request, from the Arizona Ecological Services Office of the U.S. Fish and Wildlife Service (*see* **ADDRESSES** section above).

Author

The primary authors of this notice are the staff of the Arizona Ecological Services Office (*see* **ADDRESSES**).

Authority

The authority for this action is the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Dated: February 17, 2010.

Hannibal Bolton,

Acting Director, Fish and Wildlife Service.

[FR Doc. 2010–3794 Filed 2–24–10; 8:45 am]

BILLING CODE 4310–55–P

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS–R1–ES–2008–0128]
[MO 92210–0–0009–B4]

RIN 1018–AW72

Endangered and Threatened Wildlife and Plants; Withdrawal of Proposed Rule To List the Southwestern Washington/Columbia River Distinct Population Segment of Coastal Cutthroat Trout (*Oncorhynchus clarki clarki*) as Threatened

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule; withdrawal.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), have determined that the proposed listing of the Southwestern Washington/Columbia River Distinct Population Segment (DPS) of coastal cutthroat trout as a threatened species under the Endangered Species Act of 1973, as amended (Act), is not warranted. We therefore withdraw our proposed rule (64 FR 16397; April 5, 1999) to list the DPS under the Act. Although we had earlier concluded that this DPS did not warrant listing under the Act, as a result of litigation we have reconsidered whether the marine and estuarine areas of the DPS may warrant listing if they constitute a significant portion of the range of the DPS. Based upon a thorough review of the best available scientific and commercial data, we have determined that the threats to coastal cutthroat trout in the marine and estuarine areas of its range within the DPS, as analyzed under the five listing factors described in section 4(a)(1) of the Act, are not likely to endanger the species now or in the foreseeable future throughout this portion of its range. We, therefore, again withdraw our proposed rule, as we have determined that the coastal cutthroat trout is not likely to become endangered now or in the foreseeable future throughout all or a significant portion of its range within the Southwestern Washington/Columbia River DPS.

ADDRESSES: This withdrawal and supporting documentation are available on the Internet at *http://www.regulations.gov;* search for Docket Number [FWS–R1–ES–2008–0128]. Supporting documentation for this determination is also available for inspection, by appointment, during normal business hours at the U.S. Fish and Wildlife Service, Oregon Fish and Wildlife Office, 2600 SE. 98th Avenue, Suite 100, Portland, OR 97266; telephone 503–231–6179; facsimile 503–231–6195.

FOR FURTHER INFORMATION CONTACT: Paul Henson, Ph.D., State Supervisor, U.S. Fish and Wildlife Service, Oregon Fish and Wildlife Office (*see* **ADDRESSES**, above). Persons who use a telecommunications device for the deaf (TDD) may call the Federal Information Relay Service (FIRS) at 800–877–8339.

SUPPLEMENTARY INFORMATION:

Background

On July 5, 2002, we published a notice of our withdrawal of the proposed rule to list the Southwestern Washington/Columbia River distinct population segment (DPS) of the coastal cutthroat trout (*Oncorhynchus clarki clarki*) as threatened under the Endangered Species Act of 1973, as amended (Act) (67 FR 44934; July 5, 2002). As a result of litigation, we are required to reconsider our withdrawal of the proposed rule with specific regard to the question of whether marine and estuarine areas may constitute a significant portion of the range of the Southwestern Washington/Columbia River DPS of coastal cutthroat trout.

On March 24, 2009, we published a notice of reopening of a comment period on the proposed rule (74 FR 12297). In that notice, we alerted the public, other concerned governmental agencies, the scientific community, industry, and any other interested party of our request for information, data, or comments on the marine and estuarine areas of the Southwestern Washington/Columbia River DPS of coastal cutthroat trout, with particular regard to whether these areas constitute a significant portion of the range of the DPS under the Act, and if so, whether the subspecies is threatened or endangered in those areas.

The comment period closed on April 23, 2009, and we received four comment letters. After analyzing the information received, information in our files, and all other available information, we analyzed the threats to coastal cutthroat trout in the marine and estuarine portion of the DPS to determine whether coastal cutthroat trout are threatened or endangered in that area and, if so, whether the area constitutes a significant portion of the range of the DPS. Although the Court did not ask us to revisit status, trends, and threats to anadromous cutthroat trout or other life-history forms outside of marine and estuarine areas, we have also considered any new information available for these areas that would suggest any significant change in status, trend, or threats for the

remainder of the DPS. This withdrawal of the proposed rule is the result of our determination that coastal cutthroat trout in the marine and estuarine areas of the DPS do not warrant listing as either threatened or endangered.

Previous Federal Actions

The **Federal Register** documents related to this current withdrawal action are listed in table 1 and explained further in text following the table.

TABLE 1—FEDERAL REGISTER PUBLICATIONS CONCERNING THE PROPOSED LISTING OF THE SOUTHWESTERN WASHINGTON/COLUMBIA RIVER DISTINCT POPULATION SEGMENT OF COASTAL CUTTHROAT TROUT (*Oncorhynchus clarki clarki*).

Date of Federal Register Publication	Federal Register Citation	Action
April 5, 1999	64 FR 16397	FWS and NMFS jointly issue a proposed rule to list the southwestern Washington/Columbia River distinct population segment of coastal cutthroat trout as threatened and opened a public comment period until July 6, 1999
April 14, 2000	65 FR 20123	Announced 6–month extension for publishing the final determination on the April 5, 1999, proposed rule from the normal 12–month timeframe required by the Act (extension was from April 5, 2000, to October 5, 2000)
April 21, 2000	65 FR 21376	Announced transfer of regulatory jurisdiction for coastal cutthroat trout from joint FWS and NMFS management to FWS exclusively
June 2, 2000	65 FR 35315	Reopened the comment period on the April 5, 1999, proposed rule until July 23, 2000, and announced a public hearing on June 20, 2000
July 14, 2000	65 FR 43730	Clarified the take prohibitions that would go into effect if the April 5, 1999, proposed rule was finalized
September 6, 2000	65 FR 53974	Reopened the comment period on the July 14, 2000, take clarification document until September 29, 2000, and announced a public hearing on September 21, 2000
November 23, 2001	66 FR 58706	Reopened the comment period on the April 5, 1999, proposed rule to list until December 24, 2001
July 5, 2002	67 FR 44934	Withdrew the April 5, 1999, proposed rule to list
March 24, 2009	74 FR 12297	Reconsidered the July 5, 2002, withdrawal and reopened the comment period on the April 5, 1999, proposed rule to list until April 23, 2009

As indicated in table 1, the National Marine Fisheries Service (NMFS) and the Service jointly published a proposed rule to list the Southwestern Washington/Columbia River ESU (later DPS) of coastal cutthroat trout as a threatened population under the distinct vertebrate population segment provision of the Act on April 5, 1999 (64 FR 16397). In that proposed rule, we noted the uncertainty regarding which agency, the NMFS or the Service, had jurisdiction over the coastal cutthroat trout, and we committed to notify the public once the issue had been resolved. Subsequently, the time to make a final determination on the proposed rule was extended for an additional 6 months, from April 5, 2000, to October 5, 2000, due to substantial scientific disagreement about the status of the population; this action further opened an additional 30–day comment period (65 FR 20123; April 14, 2000).

On April 21, 2000, the NMFS and the Service published a notice of the Service's assumption of sole jurisdiction for coastal cutthroat trout under the Act (65 FR 21376). On June 2, 2000, we again reopened the comment period on the proposed rule and announced a public hearing to be held in Ilwaco, Washington, on June 20, 2000, to allow all interested parties to submit oral or written comments on the proposal (65 FR 35315). On July 14, 2000, we published a notice to clarify the take prohibitions for the Southwestern Washington/Columbia River DPS of coastal cutthroat trout that would apply if the proposed listing were to be finalized, and provided a 30–day public comment period on the list of activities that would, and would not, likely constitute a violation of section 9 of the Act (65 FR 43730). The comment period on the clarification of take prohibitions was reopened on September 6, 2000 (65 FR 53974), and a hearing was held September 21, 2000, in Aberdeen, Washington, based on a request during the initial public comment period. In addition, the comment period on the proposed rule to list the Southwestern Washington/Columbia River DPS of coastal cutthroat trout was again reopened for an additional 30 days on November 23, 2001 (66 FR 58706).

On July 5, 2002, we published a notice of withdrawal of the proposed rule to list the Southwestern Washington/Columbia River DPS of the coastal cutthroat trout as threatened (67 FR 44934; July 5, 2002). The notice set forth the following bases for our determination that the DPS did not meet the listing criteria as a threatened species: (1) new data indicating that coastal cutthroat trout are more abundant in southwest Washington than was previously thought, and that population sizes were comparable to those of healthy populations in other areas; (2) new information and analyses calling into question prior interpretation of the size of the anadromous portion of the population in the Columbia River, and indicating higher numbers than previously described; (3) new data and analyses no longer showing declining adult populations in the Grays Harbor tributaries; (4) new analyses calling into question the past interpretation of trend data, and, therefore, the magnitude of

the trend in the anadromous portion of the population in the Columbia River; (5) new information describing the production of anadromous progeny by non-anadromous and above-barrier cutthroat trout; and, (6) two large-scale Habitat Conservation Plans (HCPs) and significant changes in Washington Forest Practices Regulations, substantially reducing threats to aquatic and riparian habitat on forest lands in Washington. The withdrawal notice concluded that, based on reduced threats and new information and understanding regarding the status of the DPS, the Southwestern Washington/Columbia River DPS of coastal cutthroat trout was not in danger of becoming endangered in the foreseeable future, and, therefore, did not meet the definition of a threatened species.

On February 3, 2005, the Center for Biological Diversity, Oregon Natural Resources Council, Pacific Rivers Council, and WaterWatch filed a legal challenge to the Service's withdrawal of the proposed listing in the U.S. District Court for the District of Oregon (Center for Biological Diversity, *et al.* v. *U.S. Fish and Wildlife Service*, Case No. 05–165–KI). The Court ruled that the Service's decision to withdraw the proposed rule complied with the Act and was not arbitrary and capricious, and dismissed the action on November 16, 2005. Plaintiffs appealed. On April 18, 2008, the U.S. Court of Appeals for the Ninth Circuit affirmed the district court's decision in part and reversed the decision in part. The Ninth Circuit found no error in the Service's determination that the DPS as a whole did not merit listing, but held that the Service had failed to consider whether the marine and estuarine portions of the DPS constitute a significant portion of the range of the coastal cutthroat trout within that DPS under the Act (Center for Biological Diversity, *et al.* v. *U.S. Fish and Wildlife Service*, 274 Fed. Appx. 542 (9th Cir. 2008)). The Ninth Circuit reversed the district court's decision and remanded the matter to the district court.

On July 1, 2008, the U.S. District Court for the District of Oregon issued an amended order remanding the listing decision to the Service for further consideration in light of the opinion of the Ninth Circuit. On March 24, 2009, we reopened a comment period on the proposed rule (74 FR 12297), soliciting information on the question of whether the estuary and other marine areas constitute a significant portion of the range of the Southwestern Washington/Columbia River DPS of the coastal cutthroat trout. The comment period closed on April 23, 2009.

Species Information

The following descriptions of the subspecies coastal cutthroat trout (*Oncorhynchus clarki clarki*), its habitat, and life history, are excerpted from our July 5, 2002, withdrawal of the proposed rule to list the Southwestern Washington/Columbia River DPS of the coastal cutthroat trout as threatened (hereafter "withdrawal notice") (67 FR 44934; July 5, 2002). We incorporate all of the information in the withdrawal notice by reference. Where new information has become available, we have updated these descriptions to ensure we are using the best available scientific and commercial information. Where certain information is critical to the understanding of our reasoning, we have included it here. We have focused on cutthroat exhibiting anadromous life-history strategies as these are the only individuals that use the marine and estuarine areas under consideration here. Please see the withdrawal notice (67 FR 44934; July 5, 2002) for additional information.

The coastal cutthroat trout is 1 of 10 formally described subspecies of cutthroat trout (Behnke 1992) and is a member of the family Salmonidae (collectively known as salmonids). The coastal cutthroat trout is distributed along the Pacific Coast of North America from Prince William Sound in Alaska to the Eel River in California (Behnke 1992, p. 65; Trotter 2008, p. 62) and inland from the Coast Range of Alaska to roughly the crest of the Cascades of Washington and Oregon (Trotter 2008, p. 62).

The Southwestern Washington/Columbia River DPS of coastal cutthroat trout includes the Columbia River and its tributaries from the mouth to the Klickitat River on the Washington side of the river and Fifteenmile Creek on the Oregon side; the Willamette River and its tributaries from its confluence with the Columbia upstream to Willamette Falls; Willapa Bay and its tributaries; and Grays Harbor and its tributaries.

The portion of the range of the DPS being considered here includes three estuaries and areas of nearshore marine ocean habitat off the coasts of these estuaries. In the Columbia River, we have defined the estuary as extending to approximately river mile (rmi) 28 (river kilometer (rkm) 45) where the upstream extent of saltwater intrusion occurs. The Columbia River estuary, from the mouth to the extent of saltwater intrusion, covers approximately 148 square miles (sq mi) (about 383 square kilometers (sq km)). In Grays Harbor and Willapa Bay estuaries, the extent of saltwater intrusion is less distinguishable from the extent of tidal influence, largely due to the less linear shape of the water body. As a result, we define the estuary as extending approximately as far upstream as the extent of saltwater-tolerant shoreline vegetation along each of the respective tributaries. Defined this way, Grays Harbor estuary covers approximately 91 sq mi (about 236 sq km), and Willapa Bay estuary covers approximately 129 sq mi (about 334 sq km).

The marine area included is far more difficult to identify, since anadromous coastal cutthroat trout from within this DPS could potentially intermingle with coastal cutthroat trout from Olympic Peninsula populations to the north, and the Oregon coast populations to the south (Johnson *et al.* 1999, pp. 126–130). We define the nearshore marine area by considering the marine areas known or likely to be used by Columbia River anadromous coastal cutthroat trout. To the south of the mouth of the Columbia River, an acoustic-tagged coastal cutthroat trout from a study by Zydlewski *et al.* (2008, p. 34) was detected by an unrelated acoustic tracking study off the mouth of Nehalam Bay, approximately 38 miles (mi) (about 61 kilometers (km)) south of the Columbia River mouth. We can therefore reasonably assume that coastal cutthroat trout from Grays Harbor estuary in Washington might swim about the same distance north of the mouth of its bay, or approximately to the mouth of the Queets River. According to Trotter (2008, p. 71), coastal cutthroat trout have been collected as far out into the Columbia River plume as 41 mi (about 66 km) from the mouth. The "plume" refers to the area where river water extends into and mixes with the waters of the ocean at the mouth of the river.

The marine areas included in this analysis, therefore, include approximately 4,952 sq mi (about 12,826 sq km) of ocean ranging from the mouth of the Nehalam River in Oregon, out to a point approximately 30 mi (about 48 km) from shore, then to a point approximately 41 mi (about 66 km) west of the Columbia River mouth, then a point approximately 30 mi (about 48 km) west of the mouth of the Queets River, in Washington. The Columbia River plume exhibits highly variable flow and location, depending on river flow, wind patterns, El Nixntilde;o oscillations, and other oceanographic or climatic factors (Hickey *et al.* 2005, p. 1632; Thomas and Weatherbee 2006, p. 169). The area described above is heavily influenced by plume conditions, and thus might provide suitable habitat for anadromous coastal cutthroat trout

that may access the ocean from the three estuaries mentioned. Actual distribution of coastal cutthroat trout in the marine areas may be highly variable at any given time, and, as mentioned above, coastal cutthroat trout from the Southwestern Washington/Columbia River DPS may mingle with coastal cutthroat trout from other populations in this area.

Coastal cutthroat trout spend more time in the freshwater environment and make more extensive use of this habitat, particularly small streams, than do most other Pacific salmonids. The life history of coastal cutthroat trout may be one of the most complex of the Pacific salmonids (Johnson *et al.* 1999, p. 120). Coastal cutthroat trout exhibit a variety of life-history strategies across their range (Northcote 1997, p. 24; Johnson *et al.* 1999, pp. 44–45) that includes three basic variations: resident or primarily nonmigratory; freshwater migrants; and marine migrants. Residents may stay within the same stream segment their entire life. Freshwater migrants may make migrations from small tributaries to larger tributaries or rivers, or may migrate from tributary streams to lakes or reservoirs. Marine migrations (anadromy) are generally thought to be limited to nearshore marine areas; individuals may not venture out of the estuary in some cases (ODFW 2008, p. 8; Krentz 2007, pp. 71–75). There are numerous exceptions to these generalized behaviors. In areas above long-standing barriers, coastal cutthroat trout are generally limited to resident or freshwater migratory life-history strategies, though some individuals may pass the barrier and end up in the ocean but be barred from returning by the barrier. In areas accessible to the ocean, all three life-history strategies (resident, freshwater migratory, and anadromous) are likely to be expressed in the same area.

Coastal cutthroat trout appear to exhibit diverse and very flexible life-history strategies. The significance of the various life-history strategies, the extent to which each strategy is controlled by genetic versus environmental factors, and the extent to which individuals expressing these various strategies are isolated from other life-history forms is largely unknown. There is some evidence that individuals may express multiple life-history behaviors in their lifetimes (Johnson *et al.* 1999, pp. 43–44); in other words, apparently an individual fish at various times in its life may switch between these life-history forms, some years acting as a freshwater resident or migrant, and some years acting as a marine migrant (see the "Anadromy and Life History Diversity" section below for more information). For convenience we refer to individuals that migrate to marine waters as anadromous, or as the anadromous life form (also known as "sea-run" cutthroat trout). In doing so, we do not intend to imply that they represent a separate population from freshwater forms. We are treating all forms as part of a single population in this analysis, due to their flexibility in life-history expression and genetic information showing more differentiation between river or stream systems than between individuals expressing various life histories in a single system, as described below.

Coastal cutthroat trout are repeat spawners. Some individuals have been documented to spawn each year for at least 5 years (Giger 1972, p. 33), others may not spawn every year, and some do not return to seawater after spawning, remaining in fresh water for at least a year, demonstrating the flexibility of individual life history strategies. Eggs begin to hatch within 6 to 7 weeks of spawning and fry emerge between March and June, with peak emergence in mid-April. At emergence, fry appear to seek refugia near channel margins and backwater habitats, although they may use fast water habitats (riffles and glides) when exposed to competitive interactions with other native salmonids (Johnson *et al.* 1999, pp. 51–52).

Migratory coastal cutthroat trout juveniles generally remain in upper tributaries until they are 1 or 2 years of age. Like other anadromous salmonids, coastal cutthroat trout on marine-directed migrations undergo physiological changes to adapt to salt water; these changes are called "smoltification," and individuals that have undergone this process are referred to as "smolts." Smoltification of coastal cutthroat trout has been reported to occur from 1 to 6 years of age, but is most common at age 2 (Trotter 2008, p. 71). Migration of juvenile cutthroat from tributaries of the lower Columbia River occurs most months of the year, but peak movement occurs from March through June (Johnson *et al.* 2008, pp. 7–9; ODFW 2008, p. 7).

Anadromous coastal cutthroat trout that enter nearshore marine waters reportedly move moderate distances along the shoreline. Anadromous cutthroat trout along the Oregon coast may swim or be transported long distances with the prevailing currents during the summer; individual marked fish have been reported to move from 45 to 180 mi (72 to 290 km) off the Oregon Coast (Pearcy 1997, p. 30). It is unclear how far offshore coastal cutthroat trout migrate. Cutthroat trout have been routinely caught up to 4 mi (6 km off the mouth of the Nestucca River (Sumner 1953, 1972). Coastal cutthroat trout have also been captured between 6 to 41 mi (10 and 66 km) offshore of the Columbia River (Trotter 2008, p. 71), though it is unclear whether they were carried by the plume of the Columbia River or moved offshore in search of prey. Resident (non-migratory) fish appear to mature earlier (2 to 3 years), are shorter-lived than the migratory form, and are smaller and less fecund (Trotter 2008, p. 85). Sexual maturity rarely occurs before age four in anadromous coastal cutthroat trout (Johnson *et al.* 1999, p. 51). Growth rates increase during the initial period of ocean residence, but decrease following the first spawning due to energy expenditures from migration and spawning (Giger 1972, pp. 29–31). Behnke (1992, p. 70) reports the maximum age of sea-run cutthroat to be approximately 10 years.

The timing of fish returns to estuary and freshwater habitat varies considerably across the range and within river basins (Trotter 2008, p. 73; Behnke 1992, p. 70). For example, return migrations of anadromous coastal cutthroat trout in the Columbia River system usually begin as early as late June and continue through October, with peaks in late September and October. Anadromous coastal cutthroat trout spawning typically starts in December and continues through June, with peak spawning in February.

Significant progress had been made in understanding the biology of anadromous cutthroat trout in the Columbia River since 2002, when we published our initial withdrawal notice (67 FR 44934; July 5, 2002). We received new information from a suite of recent companion studies conducted on coastal cutthroat trout from tributaries on the Washington side of the lower Columbia River. Johnson *et al.* (2008, entire) examined the timing and prevalence of juvenile movement out of tributaries and timing of adult returns. Zydlewski *et al.* (2008, entire) examined movement patterns and extent of use of the mainstem and estuary by coastal cutthroat trout entering the Columbia River from four tributaries known to support anadromous life forms. Finally, Hudson *et al.* (2008, entire) examined movement of adult coastal cutthroat in the lower Columbia River mainstem and estuary. These studies, combined with similar research conducted by the Oregon Department of Fish and Wildlife (ODFW 2008, entire) on several tributaries on the Oregon side of the lower Columbia River, contribute significantly to our understanding of

coastal cutthroat trout. We summarize the findings from these studies below.

Johnson *et al.* (2008, entire) monitored cutthroat trout from three tributaries of the lower Columbia River: Abernathy Creek, rmi 54.0 (rkm 87), Chinook River, rmi 3.7 (rkm 6), and Gee Creek, rmi 87.0 (rkm 140). A total of 4,923 cutthroat were tagged with passive integrated transponders ("PIT tagged") over a 4–year period and subsequently monitored by antennas placed near the confluence of the streams with the Columbia River. Detections of tagged cutthroat followed a seasonal pattern of movement consistent among years with most emigration (downstream migration) occurring between March and May. Although some individuals in this study did not move out of the tributary in which they were tagged, and others were documented moving upstream once they entered the Columbia River, the majority of emigrating fish were assumed to migrate downstream to the Columbia River estuary, plume, and marine environments (i.e., exhibit anadromous behavior).

The number of tagged fish detected emigrating to the Columbia River varied considerably between streams, but within streams the proportion of detected migrants versus the total number tagged was generally consistent among years. In Abernathy Creek, the proportion of detected migrants (percentage of tagged fish emigrating versus total number tagged) averaged 9.0 percent over 4 years; in Chinook River, the proportion averaged 45.2 percent; and in Gee Creek, the average was 12.4 percent. Outmigrating cutthroat trout were generally age 1 or 2. Adults returned between October and December. Cutthroat trout returned from all reaches sampled during initial tagging, suggesting there was no distinct spatial separation between resident and migratory cutthroat.

Adult returns to Abernathy Creek totaled 15 individual tagged fish (2.5 percent of the total number of tagged fish detected emigrating). Subsequently, 8 of those 15 exhibited a second migration to the Columbia River, one of which subsequently returned for a third spawning migration. Adult returns to Chinook River totaled 43 tagged individuals (7.4 percent of the total number of tagged fish detected emigrating). Subsequently, 16 exhibited a second migration to the Columbia River, 10 of which returned. Of those 10 fish, 4 exhibited a third migration back to the Columbia River of which 1 individual returned for a fourth spawning season. Of the 132 fish PIT-tagged from Gee Creek, 17 emigrated to the Columbia River and none were documented returning in subsequent years.

The authors suggested the higher adult return rates and the higher likelihood of multiple migrations in the Chinook River as compared to Abernathy Creek could be due to (1) migrants from the Chinook River being larger relative to those emigrating from Abernathy Creek, which may confer a competitive advantage and predator avoidance, and (2) less loss of Chinook River fish because its confluence with the Columbia River is in the estuary at the mouth of the Columbia River, resulting in a short corridor in which migrants are less subject to anthropogenic and natural threats. The information from this study suggests a large degree of variability among streams in regards to the proportion of the population that exhibits anadromous behavior (i.e., emigrating annually to the Columbia River).

Zydlewski *et al.* (2008, entire) studied cutthroat trout from four tributaries of the lower Columbia River using radio and acoustic telemetry. Individual fish were tracked as they migrated down the Columbia River, through the estuary, and into the ocean. In 2002, cutthroat trout leaving Germany, Abernathy, and Mill creeks took a median of 6.6 days to reach the mouth of the Columbia River (i.e., where the Columbia River meets the Pacific Ocean). Many individuals in this study traveled the distance in 1 to 2 days consistent with the speeds of other species of anadromous salmonids in the Columbia River. The authors of this study suggested that rapid and directed downstream movement seaward may be the most advantageous migratory strategy in this and other large river systems. The observed directed seaward movement documented in this study differs from observations in other estuaries where cutthroat trout make greater use of the estuary (Krentz 2007, entire). The findings of Zydlewski *et al.* (2008, entire) are generally consistent with migration patterns of coastal cutthroat smolts from several tributaries on the Oregon side of the lower Columbia River by the ODFW (2008, entire). Together these data suggest less use of the Columbia River estuary by anadromous cutthroat trout on their first seaward migration than previously thought. Zydlewski *et al.* (2008, p. 35) speculated this somewhat uniform migratory pattern may be a recent condition based on a loss of life-history diversity due to estuary habitat degradation and altered hydrograph, although this speculation was not supported by any data.

Hudson *et al.* (2008, entire) investigated adult coastal cutthroat trout behavior in the lower Columbia River mainstem and estuary using radio telemetry. Post-spawning adult cutthroat trout were captured and tagged in multiple tributaries on the Washington side of the lower Columbia River. Of the 44 fish radio-tagged over 2 years, 30 left tributary habitat between February and May and utilized the lower mainstem Columbia River and estuary. Radio-tracking showed these fish utilize a variety of habitats in the mainstem Columbia River and estuary. In this study the suspected or confirmed mortality rate for tagged, post-spawning anadromous cutthroat trout that moved from spawning streams to the Columbia River and estuary was 59.1 percent.

In summary, these recent studies documented the prevalence of juvenile movements out of tributaries and migration patterns of anadromous cutthroat trout in the lower Columbia River. Cutthroat trout on their first anadromous migration utilized the estuary to a lesser degree than previously thought, although returning adults and those on second or third migrations were documented utilizing the estuary extensively. Emigration rates from natal tributaries to the Columbia River varied among tributaries with rates ranging from 3.5 percent to 45 percent, and adult returns vary from 0.0 percent to 7.4 percent. Although timing of peak outmigrations and return migrations were documented, these studies suggest cutthroat trout can be found in the Columbia River estuary year-round.

Anadromy and Life History Diversity

The presence of an anadromous life-history strategy could be valuable to the DPS for genetic mixing in the long-term and for potential recolonization after large catastrophic events, assuming some level of straying and mixing of breeding cutthroat. Genetic exchange can be important in evolutionary time scales to maintain diversity within populations, though complete genetic mixing requires that only a few individuals interbreed successfully over generation-scale timeframes. The Pacific Northwest is subject to periodic catastrophic events such as volcanic eruptions and stand replacement fires that can seriously depress, and even extirpate, local populations. These types of events occur on very long time scales and at watershed or sub-basin scales; the risk of full river basin impacts is unlikely. Anadromous cutthroat represent one possible source of individuals for recolonization, another being resident or freshwater migratory

cutthroat trout above or outside the area of the catastrophic event. However, the ability of anadromous cutthroat trout to recolonize is limited by barriers. Since the fish cannot make it past large natural barriers, there is no possibility of providing rescue above such barriers. All of these functions can be accomplished with relatively small proportions of the population expressing an anadromous life-history strategy.

The original proposal to list the Southwestern Washington/Columbia River DPS of the coastal cutthroat trout stated that "[a] significant risk factor for coastal cutthroat trout in this [DPS] was a reduction of life-history diversity" based on serious declines in anadromous life-history forms and near extirpation in at least two rivers on the Oregon side of the basin (64 FR 16407; April 5, 1999). The proposed rule acknowledged that freshwater forms remained well distributed and in relatively high abundance (64 FR 16407; April 5, 1999). The proposed rule indicated that habitat degradation in stream reaches accessible to anadromous cutthroat trout, and poor ocean and estuarine conditions, likely had combined to severely deplete the anadromous life-history form throughout the lower Columbia River Basin. Finally, the proposed rule further stated that "Reduced abundance in anadromous fish will tend to restrict connectivity of populations in different watersheds, which can increase genetic and demographic risks. ... The significance of this reduction in life history diversity to the [*sic*] both the integrity and the likelihood of this [DPS's] long-term persistence is a major concern to NMFS." (64 FR 16407; April 5, 1999).

The ODFW and the Washington Department of Fish and Wildlife (WDFW) presented preliminary evidence to the NMFS Status Review team that freshwater cutthroat trout could produce anadromous migrants, which could mitigate risks to the anadromous portion of the population. The proposed rule did note that the presence of well-distributed freshwater forms in relatively high abundance, coupled with the possibility that freshwater forms could produce anadromous progeny "could act to mitigate risk to anadromous forms of coastal cutthroat trout," though the observation that anadromous coastal cutthroat trout population sizes remained consistently low remained a cause for concern at that time (64 FR 16407; April 5, 1999).

The extent to which each life-history expression is partitioned or isolated among and within populations is largely unknown; however, there is evidence that individuals may express multiple life-history behaviors over time (Johnson *et al.* 1999, p. 43). Coastal cutthroat trout believed to be freshwater forms one year may migrate to the sea another year; some individuals may not make their initial migration to sea until age six (Trotter 2008, p. 71). Some sea-run cutthroat trout may not enter saltwater every year after their initial seaward migration (Tomasson 1978). Existing studies show that, although both allele frequencies and morphology may differ some between populations above and below barriers, individuals exhibiting different life-history strategies within a single drainage are generally more closely related to each other than are individuals exhibiting similar life-history strategies from different drainages (Johnson *et al.* 1999, p. 75; Ardren *et al.* (in press)). In other words, a resident fish and an anadromous fish from the same drainage would be more closely related to one another than either would be to another fish with the same life-history expression in a different drainage. These results indicate that migratory and nonmigratory portions of the population of cutthroat trout likely represent a single evolutionary lineage in which the various life-history characteristics have arisen repeatedly in different geographic regions (Johnson *et al.* 1999, p. 75).

For other salmonids with multiple life-history forms, Jonsson and Jonsson (1993, p. 356) suggested that in a single mating, parents may produce offspring with different migratory strategies, though this has not been confirmed experimentally for coastal cutthroat trout (Johnson *et al.* 1999, p. 40). Studies of brown trout have demonstrated that non-anadromous adults can produce anadromous offspring, though at lower levels than anadromous adults. Both the ODFW (1998, p. 4; 2008, entire) and Anderson (2008, p. 12) presented information showing evidence of production of anadromous progeny by freshwater resident coastal cutthroat trout. Many coastal cutthroat populations are isolated above natural barriers. Studies have shown low levels of downstream migration over these natural barriers, indicating that these isolated populations likely are contributing demographically and genetically to populations below them (Griswold 1996, p. 40; Johnson *et al.* 1999, p. 75).

There is increasing evidence that coastal cutthroat trout isolated for relatively long periods of time above impassable dams retain the capacity to produce marine migrants (anadromous fish). The WDFW (2001) reported that between 476 and 1,756 smolts were produced from the freshwater form of coastal cutthroat trout above Cowlitz Falls Dam on the Cowlitz River in 1997 and 1998. A downstream migrant trap at Mayfield Dam recorded between 60 and 812 migrants per year from 1978 to 1999. There was a single release of hatchery-derived anadromous cutthroat trout above Mayfield Dam in 1981, but all cutthroat trout currently above the dam are considered to be freshwater forms (WDFW 2001b, p. 7). Mayfield Dam was built in 1962, blocking upstream migration. WDFW has marked coastal cutthroat trout smolts produced by upstream resident freshwater fish at Cowlitz Falls, which lies above Mayfield Dam. Two adults returned from smolts tagged in 1997, one of which was sacrificed and microchemistry results confirmed it had migrated to salt water and returned. Eight fish from smolts tagged returned in 1998; thus, while this portion of the DPS may contain residualized anadromous cutthroat trout trapped behind the dam, it has continued to produce downstream migrants for over 40 years (more than 10 generations). These results are consistent with the hypothesis that resident fish in anadromous fish zones are capable of producing migratory juveniles (i.e., smolts) and sea-run adults.

Information submitted by the ODFW (2008, p. 1) documents the outmigration of cutthroat trout smolts to the lower Columbia River estuary that are offspring of resident cutthroat trout isolated above a man-made barrier in Big Creek that has been in place since 1941. Despite the fact that the barrier prevented upstream passage of anadromous cutthroat for more than 65 years (until 2004), anadromy has continued to persist in this basin. The level of outmigration (about 5 percent emigration of fish tagged), although at a considerably lower level than in adjacent Bear Creek, which has no such barrier to anadromous returns (about 30 percent emigration of fish tagged), still represents a substantial demographic and genetic input to the downstream population. These reports suggest resident cutthroat trout make potentially important contributions to the anadromous portion of the population, despite extreme selective pressure against anadromy (no anadromous cutthroat had returned to spawn above the barrier for many generations).

As mentioned earlier, a few studies show that, although both allele frequencies and morphology may differ between populations above and below barriers, fish with differing life-history

forms are generally more closely related within a drainage than are populations from different drainages (Johnson *et al.* 1999, p. 75). Ardren *et al.* (In Press) examined coastal cutthroat trout to test for genetic separation of sympatric (co-occurring) life-history forms within and between two Columbia River tributaries, Abernathy Creek and the Chinook River. No distinct genetic separation was found between sympatric migratory and resident cutthroat forms within each tributary, and genetic differences were an order of magnitude higher between tributary samples than between life forms within a tributary. These results are consistent with a population that freely interbreeds within each tributary producing progeny that have the genetic capacity to express different life-history forms. Based on the results from this study the authors suggest that sympatric migrant and resident forms of coastal cutthroat trout in the lower Columbia River may be best described as a continuum of life-history forms expressed from a single population. This life history variation likely affords resilience to environmental fluctuation as has been demonstrated with bull trout where loss of life history forms results in higher extirpation probabilities (Dunham and Rieman 1999, pp. 650–651). Considering lower Columbia River cutthroat trout as a single population is consistent with the views of McPhee *et al.* (2007, p. 7), who suggest that, due to lack of reproductive isolation, it may not be appropriate to consider sympatric resident and anadromous rainbow trout (*Oncorhynchus mykiss*) as separate biological units, as they are currently managed.

Anadromous cutthroat trout, particularly in the lower Columbia River estuary, are exposed to the full array of habitat loss or degradation reported for the estuary. However, there are few data describing how they respond to this exposure. The degree to which the reduced numbers of the anadromous portion of the population of coastal cutthroat trout represent a risk to the DPS as a whole depends, in part, on the importance of this life-history strategy and the extent to which the expression of life history strategies are genetically versus environmentally controlled.

NMFS (Johnson *et al.* 1999, p. 201) acknowledged that, if freshwater coastal cutthroat trout can produce smolts, this could mitigate the risks to the anadromous portion of the population, though at the time they lacked information on the length of isolation of populations above Mayfield Dam to fully evaluate this phenomenon. They did note that, even if smolts were being produced, the anadromous portion of the population remains consistently low in many areas, which NMFS concluded was cause for concern at that time. The fact that resident cutthroat isolated by artificial barriers for over 40 years in the Cowlitz and over 65 years in Big Creek in Oregon continue to produce smolts suggests that even if the anadromous portion of the population continues to experience low numbers and possible declines, smolts will be produced that can supplement the anadromous portion of the population and take advantage of any improvement in anadromous habitat (e.g., ocean, estuary, mainstem rivers and tributaries). Further, the reported rates of smolt to adult returns are consistent with literature reports of return ratios among healthy populations of other Pacific salmon species (Bradford 1995, p. 1332; Beckman *et al.* 1999, p. 1130), suggesting that return rates of anadromous cutthroat are not unusually low.

In addition, there is no evidence at this time that coastal cutthroat trout pursuing the anadromous life-history strategy are segregated from the remainder of the population. This further supports the conclusion that anadromous and resident forms are not substantially separate subpopulations. Therefore, based on the evidence that freshwater and isolated portions of the population are capable of producing anadromous migrants and demonstrate rates of return consistent with literature reports of other Pacific salmon species, we conclude that freshwater and isolated portions of the coastal cutthroat trout population are mitigating risks to anadromous forms to some degree. We believe that the ability for non-anadromous cutthroat trout to produce anadromous progeny reduces the risk of loss of the anadromous life-history strategy.

Population Size and Trends

In our 2002 withdrawal (67 FR 44934; July 5, 2002), we acknowledged that little data existed to determine the actual population size of cutthroat trout in the DPS due to the fact that most information was collected incidental to monitoring of salmon and steelhead, counts were generally conducted only in areas monitored for salmon and steelhead, and abundance information originated from trapping facilities not designed for capturing cutthroat trout, thereby limiting the value of the datasets. Given the information available, and acknowledging the limitations of the datasets analyzed, we concluded "... while the anadromous portion of the population of coastal cutthroat trout is likely at lower-than-historical levels, there is little information available to determine the actual size of runs or to indicate that populations, or even the anadromous portion alone, are at extremely low levels in most areas of the DPS."

In assessing trends, we cited similar problems with the reliability of the information based on the short-term nature and gaps in many of the datasets, and biases due to unknown trapping efficiencies and other confounding factors. In regard to trends in the southwest Washington portion of the DPS, we stated in our 2002 withdrawal "there was no reliable evidence that the adult population in the Grays Harbor tributaries is declining over the long term and some indication that the adult population may be stable or increasing in at least some areas" and concluded by stating "we no longer conclude that trends of the adult anadromous portion of the population and outmigrating juveniles in the southwest Washington portion of the DPS are all declining markedly as described in the proposed rule (64 FR 16407) ." (67 FR 44934; July 5, 2002).

We have little new data to assess status and trend of anadromous cutthroat trout in the Grays Harbor and Willapa Bay portion of the DPS beyond what we previously assessed. The only new information we have comes from Anderson (2008, p. 16), who concluded the estimated anadromous smolt production in Bingham Creek between 2002 and 2004 indicated production of coastal cutthroat trout was relatively stable, though somewhat cyclical. This data was not analyzed using regression analysis, and we are not able to determine the significance of this trend or how well the data fit the trend line. In addition, the time series of the study is too short to detect a trend with any statistical confidence. However, this study does show that smolts continue to be produced from the Bingham Creek system. We have no other information since the withdrawal notice on adult or juvenile coastal cutthroat trout in the Grays Harbor watershed, and have no new information from the Willapa Bay watershed. Our evaluation of this information does not alter our original conclusions regarding the status and trend of anadromous cutthroat in these areas.

In our 2002 withdrawal notice, we stated "[d]ata for the lower Columbia River are limited and there are significant concerns about the reliability of the results. There are indications of declines in the anadromous component of the adult portion of the population in the Columbia River, though the rate of the decline is uncertain due to concerns

over the reliability of the analyses and potential biases in the data sets. While the number of anadromous coastal cutthroat trout have likely declined in the Columbia River, we do not have sufficient data to determine a reliable rate of recent decline and, therefore, no longer conclude that returns of anadromous cutthroat trout in almost all lower Columbia River streams have declined markedly over the last 10 to 15 years as described in the proposed rule (64 FR 16407; April 5, 1999). Based on these data, we do not find that the population trends indicate that coastal cutthroat trout are likely to be extirpated from any significant portion of their range in the foreseeable future." (67 FR 44934; July 5, 2002). Our evaluation of what new information there is does not alter our previous conclusion regarding the status and trend of anadromous cutthroat in this area, as described above.

We have little new data to assess status and trend of anadromous cutthroat trout in the Columbia River portion of the DPS. The production of cutthroat trout smolts from Abernathy and Germany creeks shows a slightly declining trend, with an increasing trend in Mill Creek, for the years 2001–2007 (WDFW 2009, p. 2). The number of returning natural-origin anadromous cutthroat trout to the Cowlitz River Hatchery has averaged 107 over the last 7 years, and the trend is positive (WDFW 2009, p. 2). Survival rates of hatchery-origin anadromous cutthroat trout to the Cowlitz River Hatchery have been consistent in recent years, averaging 4.2 percent ± 1.6 percent for the years 1998–2003 and 2005–2006; this range overlaps the hatchery's goal of achieving an average 4.71 percent smolt-to-adult survival (WDFW 2005, as cited in Anderson 2008, p. 13). No information is available to assess population size of anadromous cutthroat trout in the Columbia River, although several new studies cited above in the **Background** section document the continued expression of anadromy by cutthroat trout from tributaries of the Columbia River.

Thus, while the best available scientific and commercial information do not allow us to determine overall status and trend for anadromous coastal cutthroat trout in the DPS, the limited information above documents the continued persistence of the anadromous life-history form and suggests trends in streams that are monitored for coastal cutthroat trout are variable. Although not reflective of a trend in anadromous population size, new information on emigration of cutthroat juveniles from lower Columbia River tributaries in both Oregon and Washington indicates tributaries that are monitored for cutthroat trout are still delivering anadromous smolts to the estuary and that adults are returning at rates that are similar to those of healthy salmon and steelhead populations (ODFW 2008, pp. 6–11; WDFW 2009, p. 2; Johnson *et al.* 2008, pp. 16–20; Bradford 1995, p. 1332; Beckman *et al.* 1999, p. 1130). Although we acknowledge the anadromous life-history form in the DPS is likely at lower levels than it may have been in the past, our current assessment reaffirms the conclusions drawn in our 2002 withdrawal notice (64 FR 16407; April 5, 1999), regarding the unreliability of much of the available data for assessing population status and trend. We do not have evidence that anadromous coastal cutthroat trout are experiencing severe declines, or that the life-history form is likely to be in danger of extinction now or within the foreseeable future.

Significant Portion of the Range

As defined under the Act, an endangered species is any species which is in danger of extinction throughout all or a significant portion of its range (hereafter SPR), and a threatened species is any species likely to become endangered within the foreseeable future throughout all or a significant portion of its range. Due to a number of legal challenges surrounding the meaning of the SPR phrase, on March 16, 2007, the Solicitor of the Department of the Interior issued a formal opinion, "The Meaning of 'In Danger of Extinction Throughout All or a Significant Portion of Its Range'" (U.S. DOI 2007). In the opinion, the Solicitor concluded:

(1) The SPR phrase is a substantive standard for determining whether a species is an endangered species—whenever the Secretary concludes because of the statutory five factor analysis that a species is "in danger of extinction throughout ... a significant portion of its range," it is to be listed and the protections of the Act applied to the species in that portion of its range where it is specified as an "endangered species";

(2) The word "range" in the SPR phrase refers to the range in which a species currently exists, not to the historical range of the species where it once existed;

(3) The Secretary has broad discretion in defining what portion of a range is "significant," and may consider factors other than simply the size of the range portion in defining what is "significant"; and

(4) The Secretary's discretion in defining "significant" is not unlimited; he/she may not, for example, define "significant" to require that a species is endangered only if the threats faced by a species in a portion of its range are so severe as to threaten the viability of the species as a whole.

The Service has defined an SPR as a portion of the range of the listed entity (whether a full species, subspecies, or DPS of a vertebrate) that contributes meaningfully to the conservation of that entity. We consider the significance of an SPR to be based on its contribution to the conservation (resiliency, redundancy, and representation) of the listable entity being considered. Resiliency of a species allows for recovery from periodic disturbance, such as ensuring that large populations persist in areas of high-quality habitat. Redundancy of populations provides for the spread of risk among populations through distribution, such that the species is capable of withstanding catastrophic events. Representation ensures that the species' adaptive capabilities are conserved, such as through genetic variability or the conservation of unique morphological, physiological, or behavioral characteristics.

Section 4 of the Act and its implementing regulations (50 CFR part 424) set forth the procedures for listing species, reclassifying species, or removing species from listed status. "Species" is defined by the Act as including any species or subspecies of fish or wildlife or plants, and any distinct population segment (DPS) of vertebrate fish or wildlife that interbreeds when mature (16 U.S.C. 1532(16)). The first step in considering a listing action is to determine the listable entity, whether it is a species, subspecies, or DPS. It is important to note that a significant portion of the range is not a "species," i.e., it is not a listable entity as defined in the Act; rather it is the portion of a range of a listable entity where we may determine that species to be threatened or endangered. Upon a determination that a species is not endangered or threatened throughout all its range, we then examine whether there are any significant portions of the range where the species is threatened or endangered.

The range of a species can theoretically be divided into portions in an infinite number of ways. However, to meet the intended purpose of the Act, there is no point in analyzing portions of a species' range that are not reasonably likely to be significant and threatened or endangered. To identify only those portions that warrant further

consideration under the Act, we must determine whether there is substantial information indicating that (i) the portions are significant and (ii) the species is in danger of extinction there or is likely to become so within the foreseeable future. To be considered a significant portion of the range that may warrant the protections of the Act, both questions must be answered in the affirmative; the order in which they are answered is not of consequence, and both are equally valid approaches to determining a significant portion of the range that may warrant the protections of the Act.

In practice, a key part of our analysis is whether the threats are geographically concentrated in some way. If the threats to the species are essentially uniform throughout its range, and are not concentrated in some portion such that the species may be in danger of extinction there or likely to become so within the foreseeable future, no portion is likely to warrant further consideration. Alternatively, if any concentration of threats applies only to portions of the range that do not contribute meaningfully to the conservation of the species, such portions will not warrant further consideration. In cases where we do not identify any portions that warrant further consideration for either reason, we document that conclusion and no further analysis is conducted beyond our analysis of whether a species is threatened or endangered throughout its entire range.

Depending on the biology of the species, its range, and the threats it faces, it may be more efficient to address the contribution to conservation question first or the status question first. The first alternative relies on an assessment of significance based on a portion's contribution to the conservation (resiliency, redundancy, representation) of the listable entity. If a portion of the range is identified that is considered as making a meaningful contribution to the conservation of the species, a five-factor threats assessment is then conducted to determine if the species is threatened or endangered in that portion. If we determine that a portion of the range does not make a meaningful contribution to the conservation of the species, we need not continue with our analysis to determine whether the species is threatened or endangered there.

The second alternative is to first conduct a five-factor threats assessment on the portion under consideration to determine whether the species is threatened or endangered in this geographic area. If we determine that the species is not threatened or endangered in that portion of its range, we need not determine if that portion makes a meaningful contribution to the conservation of the species. If, however, we determine that the portion of the range under consideration does make a meaningful contribution to the conservation of the species and the species is threatened or endangered in that portion, we would then propose to add that species to the appropriate list and specify that significant portion of the range as threatened or endangered, as provided under section 4(c)(1) of the Act.

In this case, the Court, based on information presented in the 2002 withdrawal of the proposed rule, has directed us to assess whether the marine and estuarine areas of the Southwestern Washington/Columbia River DPS represent a significant portion of the coastal cutthroat's range. The portion of the species' range to be considered as a potential SPR has, therefore, already been defined for the Service. In order to address the Court's remand, we have elected to conduct a five-factor threats assessment on the portion under consideration, the marine and estuarine areas of the DPS, to determine whether the coastal cutthroat trout is threatened or endangered in this geographic area.

According to the process described above, if we determine through our five-factor threats assessment that coastal cutthroat trout are not threatened or endangered in the marine and estuarine areas of the DPS, the question of whether that portion may make a meaningful contribution to the conservation of the species would not warrant further consideration. If, on the other hand, we determine that coastal cutthroat trout are threatened or endangered in that portion, we would then proceed to consider the question of whether those marine and estuarine areas make a meaningful contribution to the conservation of the species in terms of resiliency, redundancy or representation. If the importance of those marine and estuarine areas to the conservation of coastal cutthroat trout in the DPS were affirmed, we would then propose to add the DPS to the appropriate list and would specify coastal cutthroat trout in that significant portion of the range as threatened or endangered.

Summary of Factors Affecting the Species

As noted above in the **Previous Federal Actions** section, the District Court's remand of our 2002 withdrawal (67 FR 44934; July 5, 2002) of the proposed rule (64 FR 16397; April 5, 1999) was due to the Ninth Circuit's determination that we did not properly consider whether the estuaries and other marine areas of the DPS constitute a significant portion of the range of the DPS. The Court's focus on marine and estuarine areas was due to statements in our record that included: first, acknowledgement of degradation of estuary and marine areas that are vital to the anadromous life-form of the DPS; second, that the anadromous life-form is important to the DPS's long-term survival strategy; and, third, that though there is evidence that resident life-forms can spawn anadromous life-forms, this is only significant if estuary habitat conditions and near-shore environments can support the persistence of this life-history strategy.

To address the Court's remand, the following analysis focuses on current threats, and threats reasonably likely to occur in the foreseeable future, to anadromous cutthroat trout in marine and estuarine areas of the DPS. As described above, we define "estuary" to mean a semi-enclosed coastal body of water that has a free connection with the open sea and within which sea water is measurably diluted with freshwater derived from land drainage (Lauff 1967, as cited in ISAB 2000, p. 2). In the Columbia River, salt water intrusion extends up to roughly rmi 28 (rkm 45) depending on daily tide cycles and seasonal flow volume. For this analysis, we define the Columbia River estuary to rmi 28 (rkm 45). This is distinguished from definitions created for other management processes that are tied to tidal influence rather than salt water intrusion. Because the primary issue for coastal cutthroat trout is based on the expression of anadromy, defining the estuary based on salt water intrusion is more biologically relevant.

There are three estuaries in the DPS: the Columbia River, Willapa Bay, and Grays Harbor. Although the Court did not ask us to revisit status, trends, and threats to anadromous cutthroat trout or other life-history forms outside of marine and estuarine areas, we have considered any new information available for these areas that would suggest a significant change in status, trend, or threats.

Section 4 of the Act and its implementing regulations (50 CFR 424) set forth the procedures for adding species to the Federal Lists of Endangered and Threatened Wildlife and Plants. A species may be determined to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1) of the Act: (A) The present or threatened destruction, modification, or

curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence. Listing actions may be warranted based on any of the above threat factors, singly or in combination. Each of these factors relevant to coastal cutthroat trout in the marine and estuarine portion of the Southwestern Washington/Columbia River DPS are discussed below.

A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range

In 1999, the proposed rule (64 FR 16407; April 5, 1999) listed forest management and estuary degradation as principal factors in the decline of coastal cutthroat rangewide, and estuary degradation as the principal factor affecting coastal cutthroat trout in the Southwestern Washington/Columbia River DPS. Our 2002 withdrawal of the proposed rule (67 FR 44934; July 5, 2002) assessed effects to coastal cutthroat trout from forest management and estuary degradation, as well as from agriculture and livestock management, dams and barriers, urban and industrial development, and mining. Our analysis, combined with information presented in the proposed rule, confirmed that all of these land uses, to varying degrees, had previously impacted, and continue to impact, habitat utilized by all life-history forms of coastal cutthroat trout in the DPS. Despite these impacts, we determined that coastal cutthroat trout, including anadromous forms, were not threatened to the degree portrayed in the proposed rule, and further, current regulatory mechanisms conferred a low risk of significant additional destruction or modification of habitat in the foreseeable future.

In regard to curtailment of range, our analysis in the withdrawal notice confirmed that coastal cutthroat trout, especially the freshwater forms, remained well distributed throughout the DPS, at densities comparable to healthy-sized populations in large portions of the subspecies' range outside the DPS. We acknowledged a change in accessibility of some areas to anadromous cutthroat trout due to barriers created by dams, diversions, culverts, dikes, and tidegates, and some streams that were lost to development, such as streams around Portland, Oregon. However, we determined these areas of inaccessibility to the anadromous life form comprised a relatively small portion of the DPS, and that while the anadromous portion of the DPS was likely at lower-than-historical levels, there was little specific information available to support the statement in the proposed rule that the abundance of the anadromous portion was at extremely low levels. Subsequently, we concluded in the withdrawal of the proposed rule that none of the impacts assessed under Factor A were likely to result in coastal cutthroat trout becoming threatened or endangered in the foreseeable future.

We present some new information below regarding potential impacts to habitat utilized by cutthroat trout in marine and estuarine areas, such as the proposed development of liquefied natural gas terminals in the Columbia River estuary and shellfish aquaculture impacts in Willapa Bay and Grays Harbor. In addition, there is also information newly available on the significant actions that have occurred, or are currently under way, to restore and protect estuary habitats in the DPS, particularly in the Columbia River. These restoration and conservation actions are summarized in this section following discussion of factors relevant to estuary degradation.

Columbia River Estuary and Marine Areas

Proposed Liquefied Natural Gas (LNG) Development

Liquefied Natural Gas (LNG) projects include berths for unloading liquefied gas, storage tanks, facilities to vaporize the liquid back to natural gas, and pipelines from the projects to deliver the gas to its final destination. There are two LNG terminals approved or proposed in the lower Columbia River: Bradwood Landing (approved) and Oregon LNG (proposed). In addition, another potential site at St. Helens, Oregon, has been identified.

Aspects of LNG development that could potentially affect aquatic resources include construction activities and associated habitat modification, water appropriations, artificial lighting, accidental spills or leaks of hazardous materials, and operation of the LNG terminal. In-water construction activities include dredging, development of the shoreline, and pile driving and could result in increased sedimentation and turbidity, increased noise, permanent habitat alteration, loss of benthic organisms, re-suspension of contaminants, entrainment through water intake pipes, and alterations to sediment transport and deposition. Activities associated with construction of the terminal, access facilities, and pipelines could indirectly affect aquatic resources through ground disturbances that lead to increased sediment inputs and turbidity in adjacent water bodies, increased water temperature from vegetation removal, noise, and artificial lighting that could alter species behavior (FERC 2008).

Operation of the LNG terminals would entail maintenance dredging of the access channel, potential for accidental spills of hazardous materials, stormwater runoff from impervious surfaces, lighting of ship berth and unloading facilities, operation of noise-producing equipment, and routine discharge of water from the vaporization process and testing of fire suppression equipment. Impacts to aquatic resources could include loss of habitat from increased water temperature, increased turbidity and sedimentation, and modification of animal behavior. Potential impacts to cutthroat trout would vary depending on location of the facilities relative to cutthroat use areas in the estuary (FERC 2008), but is not expected to be a limiting factor.

Although the construction and operation of LNG terminals have the potential to impact anadromous cutthroat trout and associated habitat in the Columbia River, the area of impact relative to the total area of available habitat in the Columbia River and estuary is small. In addition, regulatory mechanisms required through the Federal Energy Regulatory Commission (FERC) and through State land use regulations are expected to provide protective mechanisms to minimize impacts of construction and operation of LNG facilities. For these reasons we do not believe potential impacts rise to a level that constitutes a significant threat to anadromous cutthroat trout in the Columbia River portion of the DPS.

Wave Energy

Currently, there are five wave energy projects being evaluated or proposed in Oregon: (1) Coos Bay Ocean Power Technologies (OPT) Wave Park Project located in the Pacific Ocean about 2.5 mi (1.6 km) offshore in Coos County; (2) Newport OPT Wave Park Project about 3 to 6 mi (1.9 to 3.7 km) offshore in Lincoln County; (3) Oregon Coastal Wave Energy Project in the Pacific Ocean in Tillamook County; (4) Reedsport OPT Wave Park Project (FERC license pending); and (5) Douglas County Wave Energy Project off the Umpqua South jetty. In addition, Oregon State University has an experimental buoy offshore of Newport, Oregon. Given that wave energy is an emerging technology and new to Oregon, there is uncertainty as to its effects on the marine environment.

These potential projects would not occur within the Southwestern Washington/Columbia River DPS, and thus we do not believe potential impacts constitute a threat to anadromous cutthroat trout.

Channel Improvement Project Update

The Columbia River Channel Improvement Project (CRCIP) is a collaborative effort between the U.S. Army Corps of Engineers (USACE) and six river ports in Oregon and Washington to deepen the navigation channel to accommodate the current fleet of international bulk cargo and container ships. The USACE Record of Decision, signed in January of 2004, was to (1) deepen the 40-ft (12.2 m) navigation channel by 3 ft (1 m) to facilitate navigation, and (2) improve the natural environment through several ecosystem restoration projects designed to enhance salmon habitat. The Service and NMFS issued a non-jeopardy opinion on the project in 2002.

Project construction has been largely consistent with the decision criteria developed by the Adaptive Environmental Management Team. Several short-term discrepancies involving monitoring results for temperature and salinity were explained by corresponding variations in river flows or storms. The monitoring of dredging and dredged material disposal continues to show that actual construction volumes and their disposal are within the specifications developed for the project and that these specifications were considered in the non-jeopardy biological opinion. Several monitored deviations of cross-channel survey results from the decision criteria were shown to have returned to pre-project conditions in follow-up monitoring.

Reporting of extensive sediment identified only two locations, well outside the navigation channel, where sediment contaminants might be of concern. Shallow water habitat surveys and fish stranding monitoring are not scheduled to be addressed in detail until project construction has been completed. While completion and maintenance of the CRCIP may cause short-term and low-level impacts now and in the foreseeable future to anadromous cutthroat trout and their habitat, we do not believe these potential impacts constitute a significant threat because of the adequacy of current regulatory mechanisms and limited project scope relative to available habitat.

Columbia River Estuary Restoration Actions

Habitat restoration activities that may offset the threat of habitat destruction or modification in the lower Columbia River have been ongoing since 1999 through a variety of entities and are aimed at restoring habitat conditions to benefit primarily salmon and steelhead. However, they may well provide benefits for cutthroat trout and other species as well by restoring estuary rearing habitat. The database of the Lower Columbia River Estuary Partnership (LCREP) identifies 44 completed and/or ongoing projects in the lower 25 rmi (47 rkm) of the Columbia River and a total of 152 for the Columbia River from the mouth upstream to Bonneville Dam (LCREP 2009). The projects include a variety of conservation and restoration activities designed to benefit salmonids including culvert removal, tidegate alteration or removal, large wood placement, tidal reconnection, dike breaching, invasive species removal, revegetation, water control structures, conservation easements, channel modification, velocity barrier removal, and land acquisitions.

Grays Harbor and Willapa Bay Estuaries and Marine Areas

Loss of estuary habitat

Currently, coastal cutthroat trout use of the various portions of Willapa Bay and Grays Harbor estuaries and marine habitat is unknown. However, recent studies have documented estuary use by coastal cutthroat trout within (Hudson *et al.* 2008, entire) and outside of the DPS (Haque 2008, entire; Krentz *et al.* 2007, entire). Krentz *et al.* (2007, p. 81) examined migratory patterns of coastal cutthroat trout in the Salmon River Estuary, Oregon. Two main life-history forms were identified: Ocean migrants that move quickly through the estuary to marine environments, and estuarine residents that remain in the estuary throughout the spring and summer months. In addition, this study documented trout residing in the estuary but making brief forays into the marine environment and individuals overwintering in the estuary. In South Puget Sound, Haque (2008, p. 26) documented overwintering use of estuaries by coastal cutthroat trout. She also concluded that observed movement patterns and travel distances may indicate different life-history strategies among anadromous coastal cutthroat trout. Both studies may support the existence of opportunistic and adaptable behavior of coastal cutthroat trout.

Coastal cutthroat trout are opportunistic feeders that forage in eelgrass beds in estuary environments (Trotter 1997, p. 10). In nearshore environments in Washington and Oregon, coastal cutthroat trout were found to prey on salmonids, herring, pacific sand lance, shiner perch, surf smelt, anchovy, and invertebrates including gammarid amphipods (family Crangonyctidae), shrimp, and isopods (Jauquet 2008, p. 152; Jones *et al.* 2008, p. 146). Although we have no new information on coastal cutthroat trout migration in estuary or marine areas offshore from Willapa Bay and Grays Harbor, it is likely that estuary habitat within these areas is used extensively by anadromous coastal cutthroat trout.

The proposed rule (64 FR 16402; April 5, 1999) described the potential loss of important estuary habitat through the "[d]redging, filling, and diking of estuarine areas for agricultural, commercial, or municipal uses" and stated "reductions in the quantity and quality of estuarine ... habitat have probably contributed to declines, but the relative importance of these risks is not well understood" (64 FR 16408; April 5, 1999).

The withdrawal notice (72 FR 44948; July 5, 2002) stated "30 percent of the historical wetland habitat in Grays Harbor estuary has been lost, as well as 31 percent of the historical Willapa Bay estuary wetlands." During the public comment period we received additional information on the historical loss of estuary habitats to Willapa Bay and Grays Harbor estuaries (WDFW 2009, pp. 2–3). WDFW reported estimates of a 19 percent loss of native tidal marsh plant communities and extensive dendritic slough systems in the Willapa River Basin and a 36 percent loss in the Bay Basin due to diking and filling along the lower Willapa River. Diking of the river's upper intertidal wetlands, downstream of South Bend, is estimated at 89 percent. However, we have no information documenting any effects of the historical loss of eelgrass and wetland habitat on coastal cutthroat trout populations in Willapa and Grays Harbor estuary habitat.

Ongoing and planned restoration projects in the Columbia River and southwest Washington estuary habitats should benefit coastal cutthroat trout and their prey species (WDFW 2009, p. 2). We have no specific information on restoration projects occurring in Willapa and Grays Harbor estuaries. In addition, we do not have information at this time regarding the responses of coastal cutthroat trout or their prey to estuary enhancement and restoration.

Shellfish Aquaculture

Shellfish aquaculture is likely to degrade water quality temporarily and reduce available foraging habitat for anadromous coastal cutthroat trout and prey species. In Willapa Bay and Grays Harbor estuaries, activities that may potentially affect anadromous coastal cutthroat trout are those that involve bed preparation, mechanical harvest, and shellfish grow-out. Although these specific activities have not been directly investigated, bed preparation activities such as tilling, disking, raking, harrowing, and dragging in eelgrass beds may reduce the density and biomass of eelgrass and their related communities (USFWS 2009, p. 120). Approximately 55 percent of the Willapa Bay estuary is intertidal land (42,502 of 78,876 acres (ac) (17,200 of 31,920 hectares (ha)), and approximately 21 percent (9,000 ac (3,642 ha)) of that intertidal land is intensively cultured. Commercial aquaculture is limited to 3 percent (900 ac (364 ha)) of the intertidal land in the Grays Harbor estuary (Burrowing Shrimp Committee 1992 as cited in Feldman *et al.* 2000, p. 146). Within intertidal areas, eelgrass provides cover, refuge, and supports a prey base for coastal cutthroat trout. Although the loss of eelgrass density and abundance as a result of shellfish aquaculture may have negative effects to individual coastal cutthroat trout, due to the limited area dedicated to intensive shellfish culture, we do not believe these potential impacts rise to the level of a significant threat to coastal cutthroat trout in the marine and estuarine areas, or the DPS as a whole.

Since 1963, the Washington Department of Ecology has issued permits to oyster growers to apply carbaryl to intertidal areas for the purpose of controlling burrowing shrimp (USACE 2008, as cited in USFWS 2009, p. 143). Carbaryl is applied annually in July or August. Between 2000 and 2003, carbaryl was applied on 541 ac (219 ha) on Willapa Bay and Grays Harbor intertidal lands. In 2007, approximately 420 ac (170 ha) in Willapa Bay and approximately 140 ac (55 ha) in Grays Harbor were treated with carbaryl (Booth and Tufts 2007 as cited in USFWS 2009, p. 143). Labenia *et al.* (2007, p. 6) found that coastal cutthroat trout do not avoid carbaryl-contaminated seawater at ecologically representative concentrations potentially found in Willapa Bay. Brief exposure to carbaryl affects the swimming performance of cutthroat trout (Labenia *et al.* 2007, pp. 6–7). Decreased swimming performance may increase predation on coastal cutthroat trout smolts. Because cutthroat trout forage in shallow waters during the summer months it is likely that wild fish will be exposed to carbaryl. Carbaryl is absorbed onto sediments relatively quickly and may remain toxic to burrowing shrimp for up to 28 days (Labenia *et al.* 2007, p. 9).

Carbaryl is acutely toxic to invertebrates (USFWS 2009, p. 144). A secondary indirect exposure pathway to anadromous salmonids may exist through dietary consumption of dead and dying invertebrates and fish (USFWS 2009, p. 146). We have no information as to whether or not coastal cutthroat trout may consume dead and dying invertebrates or fish or how the potential uptake of the chemical in this manner may affect coastal cutthroat trout. The reduction of prey species for several weeks after treatment of oyster beds may indirectly reduce the growth of anadromous cutthroat trout by temporarily reducing the amount of prey species. One or two tidal cycles after spraying, the area may be relatively devoid of macroinvertebrate prey. Recolonization of an area by epibenthic invertebrates is variable, depends on the species and site, and can take anywhere from 2 to 52 days (Simenstad and Fresh 1995, as cited in USFWS 2009, p. 137). Fish would likely recolonize the area more quickly. Given the relatively small portion of the estuaries treated with carbaryl, we do not believe the potential impacts constitute a significant threat to anadromous cutthroat trout in the Willapa Bay and Grays Harbor portion of the DPS. The use of carbaryl on oyster beds is planned to be phased out in 2012 (*http://www.epa.gov/oppsrrd1/REDs/factsheets/carbaryl_factsheet.pdf*).

Summary of Threat Factor A

As discussed in Bottom *et al.* (2005, entire), the Columbia River estuary and plume have undergone significant alteration from historical conditions, which has likely reduced the amount and quality of habitat for anadromous coastal cutthroat trout. While not as much information is available regarding current conditions and foreseeable threats to anadromous cutthroat trout from the Willapa Bay and Grays Harbor watersheds, it is clear these estuaries have also undergone significant alteration.

Despite these altered conditions, anadromous coastal cutthroat trout continue to persist in the DPS and return rates appear to be within the normal range for Pacific salmon, as documented in recent studies on hatchery and wild-origin cutthroat trout returning to Cowlitz River Hatchery (Johnson *et al.* 2008, entire; ODFW 2008, entire; WDFW 2009, pp. 5–7). In addition to documenting the persistence of returning anadromous adults, these studies also provided new information on the prevalence of outmigrating coastal cutthroat smolts, even above long-standing artificial barriers, from tributaries of the lower Columbia River. Although very little new information is available on trend of anadromous cutthroat trout in the DPS, the limited information available does not suggest an overall declining trend of returning adults, or significant limiting factors to anadromous coastal cutthroat trout.

While development and operation of LNG terminals and completion and maintenance of the Columbia River Channel Improvement Project may cause short-term and low-level impacts now and in the foreseeable future to anadromous cutthroat trout and their habitat, we do not believe these potential impacts constitute a significant threat or a limiting factor because of the adequacy of current regulatory mechanisms and limited project scope relative to available habitat. In Willapa Bay, shellfish aquaculture may be impacting anadromous cutthroat trout, but we have no information to determine the nature of these effects; however, we do know that the area of intensive culture represents a small fraction of the habitat utilized by coastal cutthroat trout. Similarly, while the use of carbaryl to control burrowing shrimp in shellfish aquaculture has been shown through lab studies to potentially impact coastal cutthroat trout, the area of exposure within the estuary is relatively small, and we have no information to indicate this pesticide has caused a decline in anadromous cutthroat trout.

Given the adequacy of current regulatory mechanisms and the restoration actions that have occurred, as well as those under way, the overall baseline condition of the estuary is more likely on a positive versus negative trajectory. Furthermore, we have no information to suggest any correlation between the threat factors considered here and any decline in the anadromous life-history form, such that we would consider anadromous coastal cutthroat trout likely to become endangered within the foreseeable future. We have thus evaluated the best available scientific and commercial information and determined anadromous cutthroat trout are not threatened by destruction, modification, or curtailment of its habitat or range in marine and estuarine areas, or the DPS as a whole.

B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes.

Our 2002 withdrawal of the proposed rule identified only one potential threat, recreational angling, under Factor B. Based on our analysis we determined the potential threats from recreational angling did not represent a significant threat to the DPS as a whole. In our current review of available information we did not identify any new threats, nor did we find evidence that any previously identified threats had significantly changed. As noted in our withdrawal of the proposed rule, coastal cutthroat trout are not harvested commercially, and bycatch of cutthroat trout in commercial gillnet fisheries is minimal due to the large mesh size of the nets (NMFS 2003; pp. 3–73). Scientific research and collection for educational programs have probably had no discernible negative impact on the anadromous life-history form or the DPS as a whole.

Anadromous cutthroat were a sought-after sportfish for many years, due in part to the multiple hatchery programs operated by the States of Oregon and Washington. While it is likely that sport angler harvest within the DPS contributed to reductions in the anadromous form over time, due in part to liberal size and bag limits (Trotter 2008, p. 95), the legacy of overharvest on today's status of anadromous cutthroat is unknown. Current angling effort for anadromous cutthroat trout has significantly declined in the last two decades (67 FR 44934, July 5, 2002; Rawding 2001 as cited in Anderson 2005, p. 17), and in many areas coastal cutthroat trout harvest is primarily incidental to recreational fisheries for other species of salmonids. Because of harvest restrictions on naturally produced coastal cutthroat trout in many areas and the lack of targeted fisheries, direct mortality due to fishing pressure is thought to be relatively low, at least in recent years (Hooton 1997, p. 66; Gerstung 1997, pp. 53–54).

Washington's fishing regulations have been designed to increase the survival of rearing and migrating cutthroat smolts and to allow adult females to spawn at least once (Washington Department of Game 1984, as cited in Anderson 2008, p. 13). (Note: for additional information on the changes in coastal cutthroat trout angling regulations over time, see the withdrawal notice (67 FR 44934; July 5, 2002)). In 2009, new anti-snagging restrictions were implemented in Washington State (WDFW 2009, p. 15), which may provide further protection of coastal cutthroat trout. In 1998, Washington adopted a catch and release regulation for any coastal cutthroat trout caught in marine waters. Washington's freshwater fishing regulations in the Willapa Bay and Washington zone of the Columbia River provide protection to coastal cutthroat trout by requiring catch and release of naturally produced cutthroat trout. Catch and release restrictions are generally required in the mainstem Columbia River, except for adipose-clipped (removal of fin behind dorsal fin) hatchery fish. Below the Bonneville Dam, two hatchery trout can be retained daily with a minimum size of 12 inches (in) (30.5 centimeters (cm)). A bag limit of five hatchery trout over 12-in (30.5 cm), including no more than two over 20 in (50.8 cm) is allowed in the Cowlitz River. Harvest restrictions are not as restrictive in the Grays Harbor watershed, where harvest of wild coastal cutthroat is allowed in many of its tributaries. Regulations require a 14-in (35.6-cm) minimum size and daily bag limit of two wild cutthroat trout.

Current Oregon sport fishing regulations (ODFW 2009b) in the Columbia Zone, which includes most of the Columbia River in Oregon within the Southwestern Washington/Columbia River DPS, have required catch and release of wild unmarked coastal cutthroat trout since 1997.

Summary of Threat Factor B

We have evaluated the best available scientific and commercial information on the overutilization of anadromous cutthroat trout for commercial, recreational, scientific, or educational purposes. We identified no new or significantly increased threats under this threat factor beyond those analyzed in the 2002 withdrawal notice (67 FR 44934; July 5, 2002). The most relevant information pertaining to this threat factor are the current angling regulations within the DPS in Oregon and Washington, which with few exceptions require the release of naturally produced cutthroat trout. Current fishing regulations within the DPS for Oregon and Washington are generally protective of naturally produced coastal cutthroat trout. Where regulations allow the retention of wild cutthroat trout (some Grays Harbor tributaries), the regulation is designed to increase the likelihood that juveniles and migrating smolts are protected and the majority of adult females are able to spawn at least once (Anderson 2008, p. 13). Based on the information above, we conclude that anadromous cutthroat trout are not threatened now or in the foreseeable future by overutilization in marine and estuarine areas, or any of the remaining portions of the DPS.

C. Disease or Predation.

Our 2002 withdrawal of the proposed rule provided information on several threats to anadromous coastal cutthroat trout identified under Factor C, including the parasite *Ceratomyxa shasta* in the Columbia and Willamette rivers, gas bubble disease below large hydroelectric dams in the Columbia River, and predation by nonnative fishes, pinnipeds, and fish-eating birds such as Caspian terns (*Hydroprogne caspia*) and double-crested cormorants (*Phalacrocorax auritus*) (67 FR 44934; July 5, 2002). We determined these potential threats did not represent significant threats to the DPS as a whole. In our current review of available information we did not identify any new disease or predation threats, nor did we find evidence that any previously identified threats had significantly changed. We did receive new information allowing us to quantify the potential effect of avian predation in the lower Columbia River, which we were forced to deal with qualitatively in the withdrawal notice (67 FR 44934; July 5, 2002).

Estuary predation of outmigrating salmon and steelhead juveniles by fish-eating birds has been studied extensively in the lower Columbia River, focused on colonies of Caspian terns and double-crested cormorants, which have grown in number in recent decades. The largest breeding colony of Caspian terns in the world (10,700 breeding pairs in 2008), and the largest breeding colony of double-crested cormorants (13,700 breeding pairs) in western North America, now nest on East Sand Island. The reasons for these concentrations of fish-eating birds are: (1) the creation of artificial nesting habitat; (2) reliable food supply produced by salmon hatcheries; and, (3) loss of secure nesting sites and food resources elsewhere (BRNW 2009).

From 1999 to 2001, about 4 percent of the PIT tags that were placed on juvenile salmon in the Columbia River system were detected on these island nesting habitats, suggesting a minimal predation rate on salmon and steelhead, varying from 2.6 percent of yearling chinook to 11.5 percent of the juvenile steelhead (Ryan *et al.* 2001 as cited in Quinn 2005, p. 238). The magnitude of predation on salmon and steelhead has more recently been estimated to be approximately 10 percent of salmon and steelhead that survive to the estuary (BRNW 2009). Recent work by Hudson *et al.* (2008, entire) examined estuary bird predation on anadromous coastal cutthroat trout based on PIT tagging of cutthroat trout in 11 tributaries of the

Columbia River from 2001 to 2008. Avian mortality was estimated to be 16.6 percent for all cutthroat trout that were tagged. Mortality rates in individual tributaries ranged from 3.7 percent to 24.2 percent.

PIT tags from Bear Creek and Big Creek coastal cutthroat trout were detected on Caspian tern and double-crested cormorant colonies on East Sand Island during both years of an ODFW study (ODFW 2008, p. 9). Tag detection was not 100 percent efficient, so estimates are conservative. Confirmed mortalities from avian predation made up 5.3 percent of the total outmigrant cutthroat from Big Creek in 2006, 15.4 percent of the Big Creek migrants in 2007, and 14.7 percent of Bear Creek migrants in 2007 (ODFW 2008, p. 9).

The studies by Hudson *et al.* (2008, entire) and ODFW (2008, entire) present new information on impacts to anadromous cutthroat trout from avian predation that was not considered in the withdrawal notice (67 FR 44934; July 5, 2002). Despite the avian predation rates documented in Hudson *et al.* (2008, entire) and ODFW (2008, entire), return rates of adults are similar to or exceed adult return rates for many wild, healthy anadromous salmon and steelhead populations in all but one tributary that was monitored (Bradford 1995, p. 1332; Beckman *et al.* 1999, p. 1130), suggesting avian predation is not a limiting factor for anadromous coastal cutthroat trout.

The USACE initiated a program in 2008 to disperse and relocate the tern and cormorant colonies outside the Columbia Basin to reduce predation impacts on threatened Columbia River salmon and steelhead by creating new nesting habitat in a number of locations along the west coast, including Crump and Summer lakes in southeast Oregon, Fern Ridge Reservoir in the southern Willamette Valley, and in San Francisco Bay, California. Concurrent with the creation of new habitats outside the lower Columbia River estuary, current nesting habitat on East Sand Island is being gradually reduced through vegetation management. Available nesting habitat on East Sand Island in 2009 was reduced by approximately 50 percent from that available in 2008 (BRNW 2009). Nesting by Caspian terns has occurred at the newly created Crump Lake habitat, and evidence from banded birds indicates some of the birds are from the East Sand Island colony. Two newly created islands in Summer Lake are being used by nesting terns. Results from monitoring terns at Crump and Summer lakes indicate initial success. Recent video camera footage revealed that Caspian terns visited newly created nesting habitat at Fern Ridge Reservoir following the 2009 nesting season. Construction of sites in San Francisco Bay will take place prior to the 2010 nesting season.

While there is evidence that relocation efforts are showing success, fish-eating birds have likely always been present in the marine and estuarine portions of the DPS. Research documenting the extent of the predation on salmon and steelhead, and now on coastal cutthroat trout, has begun to portray the nature of the impact of these predators, but does not serve to explain the full measure of the impact. Though we have some data on bird predation, we have no data to explain what proportion of all predation faced by outmigrating coastal cutthroat trout is bird-caused versus other sources. To determine whether this bird predation presents an extinction risk to anadromous coastal cutthroat trout, we reviewed comments submitted by WDFW (2009, pp. 2–7) on hatchery releases and returns at its Cowlitz River hatchery.

Between brood year 1996 and brood year 2004, the rate of returns of released coastal cutthroat trout 2 years after release ranged from a low of 2.36 percent to a high of 7.41 percent (excluding 2004, when some fish may have been double-counted by mistake). Subsequent to brood year 2004, the broodstock trap was moved, making comparisons between the years before and after the move inappropriate. For brood years 2005 and 2006, return rates were measured at 0.92 percent and 1.77 percent, respectively. The Cowlitz Hatchery has as its program goal to achieve an average 4.71 percent smolt-to-adult survival, including harvest and return of up to 5,000 fish at current production levels (WDFW 2005, as cited in Anderson 2008, p. 13). WDFW's submitted comments state that returns for brood years 1998–2006 (excluding 2004) averaged 4.2 percent, ± 1.6 percent., the range of which includes the program goals for smolt-to-adult survival (Anderson 2008, p. 13).

A 3–year study on the Oregon side of the lower Columbia River estuary documented adult return rates of PIT- or acoustic-tagged coastal cutthroat trout that emigrated from Big Creek and Bear Creek (ODFW 2008, entire). ODFW reports: "In Big Creek, none of 30 acoustically tagged fish that emigrated in Spring 2006 returned to the stream, and one of 53 PIT and/or acoustic tagged migrants (two percent) returned to the stream after emigrating in Spring 2007. In Bear Creek, 1 of 20 fish (5 percent) returned to the stream from the 2007 acoustic tagged group, and 2 of 25 PIT-tagged fish that were detected emigrating in spring 2008 returned in autumn 2008 (8 percent). One of the two returning fish from Bear Creek returned to Big Creek, however, indicating that some straying among tributaries occurs. Accordingly, it is possible that some tagged fish may have returned to other unmonitored streams." In the streams that show returns, the rates of return are consistent with literature reports of smolt-to-adult return ratios among other healthy populations of Pacific salmon species (Bradford 1995, p. 1332, Beckman *et al.* 1999, p. 1130), suggesting that conditions experienced post-emigration in the estuary and marine habitats, including present levels of avian predation, do not present a limiting factor to coastal cutthroat trout.

Summary of Threat Factor C

We have evaluated the best available scientific and commercial information on the threat of disease and predation. We did not identify any new disease or predation threats to anadromous coastal cutthroat beyond those identified previously in the proposed rule (64 FR 16397; April 5, 1999) or the withdrawal of the proposed rule (67 FR 44934; July 5, 2002). We did receive information allowing us to quantify the potential level of predation by birds. We found no new evidence to suggest previously identified threats under Factor C are significant sources of mortality to anadromous cutthroat in marine and estuarine areas or the DPS as a whole. While the recent work by Hudson *et al.* (2008, entire) confirms that anadromous cutthroat trout, like other migrating fishes in the estuary, are vulnerable to predation by terns and cormorants, the overall impact to the anadromous life-history form in the Columbia River is unknown. However, we do know that, despite the avian predation rates documented in Hudson *et al.* (2008, pp. 54–55) and ODFW (2008, p. 9), return rates of adults are similar to or exceed adult return rates for many wild, healthy anadromous salmon and steelhead populations (Bradford 1995, p. 1332, Beckman *et al.* 1999, p. 1130) in all but one tributary that was monitored, suggesting avian predation is not a limiting factor for anadromous coastal cutthroat trout. Fish-eating birds will continue to be, and have always been, present in the marine and estuarine portions of the DPS. Although we expect efforts to redistribute Caspian terns and cormorants may reduce predation impacts on anadromous cutthroat trout in the Columbia River estuary, in the near-term, we expect this source of mortality to continue at

current levels. Based on the information above, we conclude that anadromous cutthroat trout are not threatened by disease or predation in marine and estuarine areas, or any of the remaining portions of the DPS.

D. The Inadequacy of Existing Regulatory Mechanisms.

In the 2002 withdrawal of the proposed rule, we concluded that coastal cutthroat trout are not threatened as a result of the inadequacy of existing regulatory mechanisms, including Federal land management practices; Oregon and Washington land use practices; dredge, fill, and in-water construction programs; water quality programs; and hatchery management (67 FR 44934; July 5, 2002). We further noted that many of these regulatory mechanisms were contributing to the recovery of aquatic habitats from degradation that occurred prior to the creation and implementation of many of these State and Federal regulatory mechanisms. Our review of available information indicates that there has been no significant weakening of State and Federal regulatory mechanisms since 2002. Hence, we again conclude that the species is not threatened as a result of inadequacy of regulatory mechanisms.

Summary of Threat Factor D

Inadequacy of regulatory mechanisms was not identified as a threat in the proposed rule, nor was this considered a significant threat at the time of the withdrawal (2002). Based on our current analysis, we have no evidence that any of the previously identified regulatory mechanisms have been significantly weakened from 2002 to 2009, and several changes during this time have strengthened regulatory mechanisms. Although we believe that our 2002 analysis adequately assessed the role of these existing regulatory mechanisms on coastal cutthroat trout in marine and estuarine environments, we have reassessed their role in these geographic areas, considered any changes from 2002 to 2009, and again conclude that anadromous coastal cutthroat trout are not threatened in marine and estuarine areas, or in any remaining portions of the DPS, by inadequacies in these mechanisms.

E. Other Natural or Manmade Factors Affecting Its Continued Existence.

Under Factor E in the withdrawal of the proposed rule, we assessed the potential threats of climate change, catastrophic natural events, and hybridization to coastal cutthroat trout (67 FR 44934: July 5, 2002). We concluded from our analysis that none of these factors were anticipated to significantly threaten the Southwestern Washington/Columbia River DPS of coastal cutthroat trout in the foreseeable future. With the exception of climate change, we have no new significant evidence to analyze that would potentially alter our previous conclusion that these factors do not pose a significant threat to coastal cutthroat trout in marine and estuarine areas or the remaining portions of the DPS.

Climate Change

According to the Climate Impacts Group, an interdisciplinary research group studying the impacts of natural climate variability and global climate change (“global warming”) on the U.S. Pacific Northwest, it is unclear how coastal ocean conditions in the Pacific Northwest will respond to climate change because of the complexity of these systems and the lack of long-term studies (CIG 2009). Considerable research has provided evidence for the likelihood and potential consequences of climate change associated with greenhouse gas emissions. Climate change is anticipated to result in sea level rise, ocean acidification, increased winter precipitation and intensity of storm events, accelerated coastal erosion, and increased water temperatures (OPWG 2006, p. 23). The rate of sea level rise in the Pacific Northwest is projected to be faster than the global average. Sea level rise could result in increased coastal erosion rates and degraded nearshore habitat.

Bottom *et al.* (2005, pp. 80–88) assessed impacts of climate change in the Columbia River Basin. They concluded that the near-term effects of climate change are not large enough to rival the impacts of anthropogenic alterations to the hydrological cycle. Climate change may exacerbate current conditions and conflicts over water supply by increasing demand and decreasing natural flows during the critical spring-freshet period (Hamlet and Lettenmaier 1999, as cited in Bottom *et al.* 2005, p. 80). While physical changes to the near-shore environment appear likely, much remains to be learned about the magnitude, geographic extent, and temporal and spatial patterns of change, and their effects on coastal cutthroat trout.

In this section we summarize new information regarding potential impacts to coastal cutthroat trout in marine environments. New information regarding the condition of the marine environment in Washington and Oregon includes information regarding harmful algal blooms, dead zones, prey availability and quality, and the potential exacerbation of these conditions from climate change.

California Current System

The California Current System (CCS) extends about 190 mi (~300 km) offshore from southern British Columbia, Canada, to Baja California, Mexico, and is dominated by a southward surface current of colder water from the north Pacific (Miller *et al.* 1999, p. 1; Dailey *et al.* 1993, as cited in USFWS 2009b, p. 34). The system is characterized by upwelling, particularly in spring-summer. This is an oceanographic phenomenon involving wind-driven movement of dense, cooler, and usually nutrient-rich water towards the ocean surface, which replaces warmer and usually nutrient-depleted surface water (Smith 1983, as cited in USFWS 2009b, p. 34). Coastal upwelling replenishes nutrients near the surface where photosynthesis occurs, resulting in increased productivity (Batchelder *et al.* 2002, as cited in USFWS 2009b, p. 35).

The CCS is affected by El Nixntilde;o-Southern Oscillation (ENSO) and Pacific Decadal Oscillation climatic processes. ENSO is used to describe periodic changes, typically lasting 1 to 2 years, in air-sea interaction in the equatorial Pacific Ocean region. El Nixntilde;o events (warm-water events) result in increased sea-surface temperatures, reduced flow of eastern boundary currents such as the CCS, and reduced coastal upwelling (Norton and McLain 1994, pp. 16,019–16,030; Schwing *et al.* 2006, as cited in USFWS 2009b, p. 35). La Nixntilde;a events (cold-water events) produce effects in the northeast Pacific Ocean that tend to be the reverse of those during El Nixntilde;o events, resulting in colder, more-nutrient rich waters than usual, due to strong upwelling-favorable winds and cold waters near the surface due to a shallow thermocline (zone of rapid temperature change in the water column that typically separates warm water above from cold water below) (Murphree and Reynolds 1995, p. 52; Oedekoven *et al.* 2001, as cited in USFWS 2009b, p. 35).

In addition to climate events such as El Nixntilde;o and La Nixntilde;a, the mid-latitude Pacific Ocean experiences warm and cool phases that occur on decadal time scales (Mantua 2000, as cited in USFWS 2009b, p. 35). The term “Pacific Decadal Oscillation” was coined to describe long-term climate variability in the Pacific Ocean, in which there are observed warm and cool phases, or “regime shifts” (Mantua *et al.* 1997, pp.

1069–1079; Mantua 2000, as cited in USFWS 2009b, p. 35). Recently, the North Pacific Gyre Oscillation concept was developed to help explain the basis for the changing Pacific Decadal Oscillation patterns in the northeast Pacific (Ceballos *et al.* 2009, as cited in USFWS 2009b, p. 35).

Should climate change affect the timing, variability, and/or magnitude of coastal upwelling in the species' range, it could negatively affect coastal cutthroat trout and prey resources. The available information is equivocal, with studies to date reaching different conclusions on whether such upwelling changes are expected. Bakun (1990, as cited in USFWS 2009b, p. 43) outlined a physical mechanism by which coastal upwelling should intensify under global warming. While Bakun's mechanism has received much support, and is based on simple physical principles, two other modeling studies have predicted little change in the magnitude and seasonality of upwelling in the next century (Mote and Mantua 2002; Mote *et al.* 2008, as cited in USFWS 2009b, p. 43). The differing predictions of ocean conditions and changes in upwelling patterns due to climate change prevent an informative threat assessment to coastal cutthroat trout. We, therefore, have no information at this time indicating that climate change poses a significant threat to anadromous coastal cutthroat trout in the marine and estuarine areas, or any remaining areas of the DPS, within the foreseeable future.

Harmful Algal Blooms and Biotoxins

Some algal species cause harm to animals and the environment through toxin production or excessive growth. These algal species are known as harmful algae and can include microalgae that live suspended in the water or macroalgae that live attached to plants or other substrates. Harmful algal blooms are a natural phenomenon, but human activities are thought to contribute to the increased frequency of some of these, e.g., increased nutrient loading is a factor that contributes to increased occurrence of high biomass harmful algal blooms (Lopez *et al.* 2008, as cited in USFWS 2009b, p. 36). All coastal States in the United States have experienced harmful algal bloom events and "it is generally believed that the frequency and distribution of [harmful algal blooms] and their impacts have increased considerably in recent years" (Lopez *et al.* 2008, as cited in USFWS 2009b, p. 36).

The consequences of harmful algal blooms can include the death of whales, sea lions, dolphins, manatees, sea turtles, birds, fish, and invertebrates from direct exposure to toxins; exposure to toxins via contaminated food, water, or aerosols; damaged gills; and starvation due to low or poor food quality (Lopez *et al.* 2008, as cited in USFWS 2009b, p. 36). Ecosystems can be degraded through the formation of such large blooms that they alter habitat quality through overgrowth, shading, or oxygen depletion (see dead zone section below). In addition, mortalities from harmful algal blooms can degrade habitat quality indirectly through altered food webs or hypoxic (low oxygen) events caused by the decay of dead animals (Lopez *et al.* 2008, as cited in USFWS 2009b, p. 36).

Blooms of *Heterosigma akashiwo*, a raphidophyte known to kill fish have been documented in the Pacific Northwest annually since the 1960s and blooms of *Chanttonella*, another raphidophyte, have also killed fish along the Pacific coast. Macroalgal blooms along Washington's coast harm seagrasses, fish, and invertebrates due to hypoxia and potentially due to the production of bioactive compounds (Lopez *et al.* 2008, as cited in USFWS 2009b, p. 37). These blooms may reduce survival of coastal cutthroat trout through exposure to toxins, reducing habitat, and reducing the quality and quantity of prey species. We have no information at this time documenting the effect of these blooms on coastal cutthroat trout, prey species, or foraging habitat in the marine environment within the DPS, or to suggest that these blooms pose a significant threat to anadromous coastal cutthroat trout in the marine and estuarine areas of the DPS within the foreseeable future.

Dead Zones

Ecosystems can be degraded through the formation of such large algal blooms that they alter habitat quality through overgrowth, shading, or oxygen depletion (hypoxia or anoxia) (Lopez *et al.* 2008, as cited in USFWS 2009b, p. 38). Hypoxia or anoxia (low or no dissolved oxygen) can suffocate fish and bottom-dwelling organisms and can sometimes lead to hydrogen sulfide poisoning (Lopez *et al.* 2008, p. 22; Grantham *et al.* 2004, p. 750; Chan *et al.* 2008, as cited in USFWS 2009b, p. 38). In addition, mortality from harmful algal blooms can degrade habitat quality indirectly through altered food webs or hypoxic events caused by the decay of dead animals (Lopez *et al.* 2008, as cited in USFWS 2009b, p. 38). Hypoxic and anoxic events along the Pacific Coast can also be caused by large-scale changes in ocean conditions on near-shore upwelling ecosystem dynamics. Upwelling is part of the California Current coastal ecosystem, but typically, northerly winds alternate throughout the summer with southerly winds. The wind shifts suppress upwelling, mix the water, and prevent nutrient overload. However, every summer since 2002, the Oregon Coast has experienced a hypoxic/anoxic event (also referred to as "dead zone") (Grantham *et al.* 2004; Chan *et al.* 2008, as cited in USFWS 2009b, p. 38), due to changes in typical summer wind patterns along with upwelling of nutrient-rich, but oxygen-poor, waters.

While hypoxic conditions are known to be related to upwelling events, the hypoxic events off Oregon's coast extend from the shallowest reaches (inshore of 30 meter (98 feet) isobath) to the nearshore stations (1.2 to 3.1 mi (2 to 5 km) offshore), which is unusual. Further complicating matters, phytoplankton are two to three times more abundant during these hypoxic events, resulting in increased respiration (expiration of carbon dioxide), which exacerbates the dissolved oxygen deficits (Grantham *et al.* 2004, as cited in USFWS 2009b, p. 38). The severe hypoxic event in 2006 extended into Washington at least as far north as the Quinault River and affected crabs in pots at depths of about 45 to 90 ft (14 to 27m). In addition to unusual summer wind patterns, researchers are also interested in large phytoplankton blooms that occur in the late spring and early summer in the waters off Washington and Vancouver Island. The large blooms in the north might explain why waters off the Oregon coast that now upwell at the coastal shelf break are unusually low in oxygen. The change in wind patterns and the response of the marine ecosystem may be an interlude in a natural cycle or may signal a more permanent shift in the regional climate and the health of the ecosystem (Chan *et al.* 2008, as cited in USFWS 2009b, p. 38).

These seasonal dead zones begin as early as June and typically end in September, times when coastal cutthroat trout are present in nearshore and marine environments. It is unclear how far offshore coastal cutthroat trout migrate; those entering nearshore waters reportedly move moderate distances along the shoreline. These hypoxic events in Oregon and Washington may occur within the marine areas used by coastal cutthroat trout and avoidance of these areas may impact migratory patterns. In addition, dead zones can result in significant mortality of fish and invertebrates (Grantham *et al.* 2004; Chan *et al.* 2008 as cited in USFWS 2009b, p. 39). Reduction of these species

may contribute to low quality and quantity of prey for coastal cutthroat trout. However, we have no information at this time documenting the effects of dead zones on coastal cutthroat trout migration or prey availability.

Summary of Threat Factor E

Although climate change will undoubtedly impact ocean productivity as well as estuary and freshwater habitats, the likely effects to anadromous cutthroat trout and the DPS as a whole are uncertain. At this point we have no information that allows us to make a reliable projection of climate change effects on coastal cutthroat trout within the foreseeable future. We note that coastal cutthroat trout are habitat generalists and, like other generalist species, may be less vulnerable to changing environmental conditions brought on by climate change compared to other species that have a narrower range of habitat requirements (Foden *et al.* 2008, p. 3). As discussed above, we also assessed the potential threats of catastrophic natural events and hybridization under Factor E in the 2002 withdrawal of the proposed rule (67 FR 44934: July 5, 2002). However, as we have no new information to analyze regarding these threats, we consider our previous assessment as still representing the best available information on these subjects. Therefore, we reaffirm our original conclusion that catastrophic natural events and hybridization do not pose a significant threat to coastal cutthroat trout.

We have evaluated the best available scientific and commercial information on natural or manmade factors affecting its continued existence, and we conclude that anadromous cutthroat trout are not threatened in marine and estuarine areas, or any of the remaining portions of the DPS, by climate change, potential catastrophic natural events, or hybridization.

Finding

Based on the remand of the withdrawal of the proposed rule and the direction provided by the Court, we have reassessed our previous analysis to focus on anadromous cutthroat trout in the marine and estuarine portion of the DPS. We relied heavily on our past analysis in order to make a new finding for several reasons. Our previous analysis was comprehensive and included an assessment of threats to anadromous cutthroat upon which we could build. Also, we found that threats have not significantly changed between the date of the withdrawal and now. It was logical to compare the threats we previously identified to any change in threats now or how we projected those threats into the foreseeable future, and to consider whether any new threats have been identified since our last status determination. In this analysis, we have, therefore, considered all information previously evaluated in the 2002 withdrawal notice (67 FR 44934; July 5, 2002), as well as any new information that has become available since that time.

Although 7 years have passed since our withdrawal of the proposed rule, we have little new information available to further assess current status and trend of anadromous cutthroat trout in the Columbia River, Grays Harbor or Willapa Bay watersheds, and marine areas. Although not reflective of a trend, new information on emigration of cutthroat juveniles from lower Columbia River tributaries in both Oregon and Washington indicates tributaries that are monitored for cutthroat trout are still delivering anadromous smolts to the estuary and that adults are returning at rates that are similar to healthy salmon and steelhead populations (ODFW 2008, entire; Johnson *et al.* 2008, entire; Zydlewski *et al.* 2008, entire; Hudson *et al.* 2008, entire; Bradford 1995, p. 1332; Beckman *et al.* 1999 p. 1130). New information from ODFW (2008, entire) provides additional evidence that resident cutthroat trout isolated above long-standing anthropogenic barriers still produce anadromous smolts. This suggests that, to the extent that there is a hereditary basis for life history, it is not lost rapidly even under strong selection against the anadromous form.

We have no evidence of any new significant threats or significant changes in previously identified threats to anadromous cutthroat trout, though we now have additional quantitative information on predation by Caspian terns and cormorants in the lower estuary at East Sand Island. While we acknowledge that avian predation is a source of mortality for anadromous cutthroat trout, its overall impact to anadromous cutthroat trout is unknown. However, we have no evidence to suggest it is a limiting factor. Trends of returning hatchery and naturally produced cutthroat trout at Cowlitz Hatchery have been relatively stable in recent years, suggesting that the large releases of anadromous cutthroat smolts are not being significantly impacted by avian predation. Furthermore, USACE is seeking to reduce this impact. The goal of the program is to reduce the size of the Caspian tern colony by half by 2015. Early results of the USACE's relocation program for Caspian terns, as well as the concurrent program to reduce suitable nesting habitat on East Sand Island, are encouraging.

Future climate change will undoubtedly impact aquatic habitat and aquatic species in the lower Columbia River, and few species will be unaffected. However, coastal cutthroat trout, because of their complex life-history diversity, may be better equipped than many salmonids to handle the environmental stochasticity we may expect to see under future climate change. This fact underscores the importance of conserving and restoring the life-history diversity present in this complex subspecies.

The Columbia River estuary and plume, as well as Willapa Bay and Grays Harbor estuaries, have undergone significant alteration from historical conditions, which has likely reduced the amount and quality of habitat for anadromous coastal cutthroat trout. Despite these altered conditions, anadromous cutthroat continue to persist in the DPS. New information documents the prevalence of outmigrating coastal cutthroat smolts, even above long-standing artificial barriers, from many tributaries of the lower Columbia River, which supports the continued existence of the anadromous life-history form. Although numbers of anadromous coastal cutthroat trout may be lower than they have been historically, the limited information available on trends in anadromous coastal cutthroat trout does not suggest an ongoing decline, or the existence of significant limiting factors to anadromous coastal cutthroat trout.

Projects such as proposed LNG terminals and completion and maintenance of the Columbia River Channel Improvement Project may cause short-term and low-level impacts now and in the foreseeable future to anadromous cutthroat trout and their habitat. However, we do not believe these potential impacts constitute a significant threat because of the adequacy of current regulatory mechanisms and limited project scope relative to available habitat. In Willapa Bay, shellfish aquaculture and the use of carbaryl to control burrowing shrimp in shellfish aquaculture has been shown through lab studies to potentially impact coastal cutthroat trout, but we lack information to suggest these have caused declines in anadromous cutthroat trout; in addition, the areas affected are small compared to available habitat. Given the adequacy of current regulatory mechanisms and the restoration actions that have occurred, as well as those under way, we conclude the overall baseline habitat condition of the Columbia River estuary

is likely on a positive trajectory. Based on our evaluation of the best available scientific and commercial information, we have, therefore, determined anadromous cutthroat trout are not threatened by destruction, modification, or curtailment of their habitat or range in marine and estuarine areas, or the DPS as a whole.

We have evaluated the best available scientific and commercial information on the overutilization of anadromous cutthroat trout for commercial, recreational, scientific, or educational purposes. We identified no new or significantly increased threats under this threat factor beyond those analyzed in the 2002 withdrawal. We, therefore, conclude that anadromous cutthroat trout are not threatened now or in the foreseeable future by overutilization in marine and estuarine areas, or any of the remaining portions of the DPS.

While recent studies confirm that anadromous cutthroat trout, like other migrating fishes in the estuary, are vulnerable to predation by terns and cormorants, the overall impact to the anadromous life-history form in the Columbia River is unknown. However, we do know that, despite the avian predation rates documented in recent studies, return rates of adults are similar to or exceed adult return rates for many wild, healthy anadromous salmon and steelhead populations, suggesting that avian predation is not a limiting factor for anadromous coastal cutthroat trout. We previously determined that potential threats due to disease did not represent significant threats to the DPS as a whole. In our current review of available information we did not identify any new disease threats, nor did we find evidence that any previously identified threats had significantly changed. We, therefore, conclude that anadromous cutthroat trout are not threatened by disease or predation in marine and estuarine areas, or any of the remaining portions of the DPS.

Few regulatory mechanisms were identified as a threat in the proposed rule and none were considered a significant threat at the time of the withdrawal (2002). Based on our current analysis, we have no evidence that any of the previously identified regulatory mechanisms have been significantly weakened from 2002 to 2009, and several changes during this time have strengthened regulatory mechanisms. We, therefore, conclude that anadromous coastal cutthroat trout are not threatened in marine and estuarine areas, and in the remaining portions of the DPS by inadequacies in regulatory mechanisms.

Although climate change will undoubtedly impact ocean productivity as well as estuary and freshwater habitats, the likely effects to anadromous cutthroat trout and the DPS as a whole, are uncertain. Equivocal projections of future conditions do not allow for a reliable prediction of the effects of climate change on the DPS. Coastal cutthroat trout are habitat generalists and, like other generalists, may be less impacted due to changing environmental conditions brought on by climate change and, therefore, more resilient compared to other species that have a narrower range of habitat. We have no new information available that would alter our previous conclusion from the 2002 withdrawal notice that potential catastrophic events and hybridization do not pose a significant threat to coastal cutthroat trout (67 FR 44934; July 5, 2002). We have evaluated the best available scientific and commercial information on natural or manmade factors affecting its continued existence, and we conclude that anadromous cutthroat trout are not threatened in marine and estuarine areas, nor in any of the remaining portions of the DPS, by climate change, potential catostrophic natural events, or hybridization.

Although marine habitats comprise a significant portion (about 90 percent) of the combined marine and estuarine analysis area, we found no information on threats specific to anadromous coastal cutthroat trout or similar fish species in marine habitats. The new information that is available primarily addresses the potential effects of climate change on marine habitat such as seasonal upwelling, El Nixntilde;o and La Nixntilde;a events, near-shore dead zones, and harmful algal blooms (see discussion under Threat Factor E). These events influence primary productivity and thus likely influence the forage base and overall productivity of these marine environments for anadromous coastal cutthroat trout. However, the degree to which these events are impacted now and in the foreseeable future by climate change is uncertain, as are the subsequent potential impacts to anadromous cutthroat trout. Although we acknowledge uncertainty around the potential impacts of climate change, the limited information available on threats to marine habitats within the analysis area does not suggest that current or future conditions represent a threat to anadromous coastal cutthroat trout.

It is also helpful to note that, while we have no evidence of potential threats in marine areas, but do know of some potential threats in estuarine areas, based on estuary utilization information from the Columbia River, it appears the vast majority of anadromous coastal cutthroat trout rely less on estuarine habitat than on marine habitat. The degree of this reliance on the estuary varies over the life of an individual fish. New information on coastal cutthroat trout movement from the Columbia River estuary suggests anadromous coastal cutthroat trout on their first outmigration use the estuary largely as a migration corridor only, and spend relatively little time exposed to those threats that may exist in estuarine areas. These younger fish are the ones most susceptible to the types of threats described, but their limited exposure to these threats on their way to marine habitats reduces the likelihood of a response, so such exposure is not likely a limiting factor.

Those anadromous coastal cutthroat trout that return from marine habitats exhibit more extensive use of the estuary than is typical for a first year outmigrant. However, at the older age and larger size they have reached after spawning, they are also generally less vulnerable to potential estuarine threats. Therefore, in the marine areas that comprise 90 percent of the analysis area, we see few if any potential threats specific to anadromous coastal cutthroat trout. In the remaining 10 percent of the analysis area, a small percentage of anadromous coastal cutthroat trout are exposed to, but are less susceptible to, the potential or known estuarine threats.

We have carefully considered the best scientific and commercial information available regarding the status of and threats to coastal cutthroat trout in the marine and estuarine portions of the Southwestern Washington/Columbia River DPS. On the basis of our review and analysis of the five threat factors considered under section 4(a)(1) of the Act, we have concluded that anadromous cutthroat trout are not threatened or endangered in the marine and estuarine portions of the Southwestern Washington/ Columbia River DPS. As stated earlier, to be considered a significant portion of the range that may warrant the protections of the Act, there must be substantial information indicating that both (i) the portions are significant and (ii) the species is in danger of extinction there or is likely to become so within the foreseeable future. Both questions must be answered in the affirmative. Since we have determined that the marine and estuarine areas of the DPS (i.e., the portion of the DPS' range under consideration) are not threatened, then we have determined that the marine and estuarine areas of the DPS do not

warrant the protections of the Act. Furthermore, we have reviewed the comments received for indications of significant changes in threats to coastal cutthroat trout throughout the Southwestern Washington/Columbia River DPS, and concluded there is no new indication that coastal cutthroat trout are threatened or endangered in any other portions of the DPS or the DPS as a whole.

Therefore, based on the lack of significant present or foreseeable threats, we have determined that the Southwestern Washington/Columbia River DPS of coastal cutthroat trout is not likely to become in danger of extinction in the foreseeable future throughout all or a significant portion of its range, including the marine and estuarine areas of the DPS, and, therefore, does not meet the Act's definition of a threatened or endangered species. Consequently, we withdraw our April 5, 1999, proposed rule to list the Southwestern Washington/Columbia River DPS as threatened (64 FR 16397; April 5, 1999).

Current and Future Conservation Actions

While the following information did not contribute to our determination, we believe it is worthwhile to highlight current and planned conservation efforts for coastal cutthroat trout.

In the 2002 withdrawal of the proposed rule, we committed to providing technical assistance to Federal, State, and other entities to encourage them to address the conservation needs of coastal cutthroat trout. We committed to work with these agencies and entities to collect additional biological information, monitor the status of coastal cutthroat trout, and monitor the progress of conservation efforts for the DPS (67 FR 44934; July 5, 2002).

The Service initiated efforts in 2003 to involve the States in development and implementation of a multi-state coastal cutthroat trout conservation strategy. Meetings with ODFW resulted in a Memorandum of Understanding (MOU) signed in January 2005 (Goodson 2008, pp. 9–10). Three products to be accomplished under the MOU included: (1) a cooperative coastal cutthroat trout research, monitoring, and evaluation (RM&E) plan, to be implemented under the Oregon Plan for Salmon and Watersheds and ODFW's Native Fish Conservation Policy; (2) a coastal cutthroat trout conservation plan, developed via ODFW's Native Fish Conservation Policy; and, (3) a Conservation Agreement between the Service and ODFW to specifically identify the RM&E and conservation actions and responsibilities necessary to conserve coastal cutthroat trout in Oregon. The risk assessments identified in the 2005 Native Fish Status Report (ODFW 2005) were used to set conservation plan priorities under the Native Fish Conservation Policy (OAR 635-007-0505(3)). Monitoring of coastal cutthroat trout has been incorporated into existing ODFW programs, although it does not encompass all coastal cutthroat trout habitat (K. Goodson, pers. comm. 2009).

The 2005 Coastal Cutthroat Trout Symposium was held in Port Townsend, Washington, with major support provided by the Service, Oregon Chapter of the American Fisheries Society, and the Pacific States Marine Fisheries Commission (PSMFC). The objectives of the symposium were to: (1) update coastal cutthroat trout information presented during the 1995 symposium in Reedsport, Oregon; (2) enhance knowledge on all facets of coastal cutthroat trout life history and ecology; (3) provide a current assessment of the range-wide status of coastal cutthroat trout populations; and, (4) encourage development of a coordinated range-wide coastal cutthroat trout conservation and monitoring plan (Young *et al.* 2008, p. xi). The Service's presentation encouraged the exploration of opportunities to speed implementation of conservation strategies through the newly formed Western Native Trout Initiative (WNTI) partnership (Finn *et al.* 2008, p. 134). The partnership is funded by a multi-state grant issued through the Association of Fish and Wildlife Agencies. The 17 species and subspecies covered by WNTI are divided into 5 geographically based groups. The Northwest Group focuses on bull trout and coastal cutthroat trout. WNTI is seen as a way not only to address funding the development of conservation plans and actions, but also an opportunity to raise the visibility of coastal cutthroat trout (K. Griswold, pers. comm. 2009).

Following the 2005 symposium and inclusion of coastal cutthroat trout in WNTI, a working group composed of experts throughout the range of coastal cutthroat trout was formed, known as the Coastal Cutthroat Trout Interagency Committee (Committee). The Committee is composed of State wildlife agency representatives from the western States and British Columbia, Federal agencies (Service, U.S. Bureau of Land Management, U.S. Forest Service, and U.S. Geologic Survey), and the Northwest Indian Fisheries Commission; the Committee is sponsored by the PSMFC (K. Griswold, pers. comm. 2009). The Committee was formalized in 2006, and identified the goal of "developing a consistent framework to help guide and prioritize conservation, management, research, and restoration of coastal cutthroat trout throughout their native range" (Griswold 2008, p. 169).

In pursuit of their goal, the Committee has sponsored two workshops; the latest focusing on monitoring needs was held in 2007. As a result of that workshop, the Committee initiated a database project whereby information about the distribution, abundance, and diversity of coastal cutthroat trout could be housed and shared. The project has three current products: (1) a searchable library housed within PSMFC's StreamNet Library; (2) a database with an initial focus on documented occurrence; and, (3) an interactive web-based map to display documented occurrence (K. Griswold, pers. comm. 2009). Work has also started on a draft outline of a coastal cutthroat trout conservation plan, which includes a section addressing research, monitoring, and evaluation.

Summary of Comments and Recommendations

To ensure that any action resulting from the request for information is based on the best scientific and commercial data available, we solicited comments or suggestions from the public, other concerned governmental agencies, the scientific community, industry, or any other interested parties. We particularly sought comments concerning:

(1) Information on those marine and estuarine areas that could potentially constitute a significant portion of the range of the Southwestern Washington/Columbia River DPS of the coastal cutthroat trout, and the suggested boundaries of those areas;

(2) Information on whether and why those marine and estuarine areas constitute a significant portion of the range of the Southwestern Washington/Columbia River DPS of coastal cutthroat trout as defined by sections 3(6) or 3(20) of the Act;

(3) Other information on the status, distribution, population trends, abundance, habitat conditions, or threats specific to those marine and estuarine areas that could constitute a significant portion of the range of the Southwestern Washington/Columbia River DPS of coastal cutthroat trout; and

(4) Information on the effects of potential threat factors that are the basis for a species' listing determination under section 4(a)(1) of the Act (16

U.S.C. 1531 *et seq.*; the "five listing factors") specifically with respect to those marine and estuarine areas of the Southwestern Washington/Columbia River DPS of coastal cutthroat trout. The five listing factors considered under the Act are:

(a) The present or threatened destruction, modification, or curtailment of the species' habitat or range;

(b) Overutilization for commercial, recreational, scientific, or educational purposes;

(c) Disease or predation;

(d) The inadequacy of existing regulatory mechanisms; and,

(e) Other natural or manmade factors affecting its continued existence.

In the reopening of public comment (74 FR 12297; March 24, 2009), we defined "estuary" to mean a semi-enclosed coastal body of water that has a free connection with the open sea and within which sea water is measurably diluted with fresh water derived from land drainage (Lauff 1967, as cited in ISAB 2000, p. 2). All interested parties were requested to submit factual reports or information on the marine and estuarine areas of the Southwestern Washington/Columbia River DPS of coastal cutthroat trout with particular regard to whether these areas constitute a significant portion of the range of the DPS under the Act, and if so, whether the subspecies is threatened or endangered in those areas.

Additionally, we contacted appropriate Federal and State agencies, county governments, scientific organizations, and other interested parties and requested comment, pursuant to section 4(b)(5)(A) of the Act. During the comment period, a total of four comment letters were submitted from government agencies, organizations, or individuals. Specifically, comment letters were submitted by the States of Oregon and Washington, from one individual, and from the Center for Biological Diversity. The following is a summary of substantive issues that were identified within the comments received and our response to each issue.

Comments from the States of Oregon and Washington

Representatives of both the Oregon Department of Fish and Wildlife (ODFW) and the Washington Department of Fish and Wildlife (WDFW) submitted comment letters in response to the request for comments. The ODFW comments provided updated biological information on studies conducted by, or in conjunction with, ODFW, as well as ODFW's opinion that the lower Columbia River estuary "may be considered a significant portion of the range" of the DPS, although no statement was made about the rest of the estuarine and marine areas of the DPS. The ODFW comments also stated that "[w]e do not feel the coastal cutthroat trout in the lower Columbia River estuary are threatened at this time due to their fairly wide distribution in the tributaries of the Columbia River and the fact that many of the threats facing them are being addressed in salmon recovery efforts" (ODFW 2009a, p. 7).

The WDFW provided summarized data and a number of citations for recent coastal cutthroat trout studies, and stated that "marine and estuarine habitat is vital for the individual cutthroat trout that utilize this habitat for foraging" but that "[e]xisting information on abundance and size at return of the sea-going cutthroat trout of the [DPS] does not indicate that these fish are at risk of becoming endangered (WDFW 2009, p. 1)." We have considered all data submitted by ODFW and WDFW in our analysis. In one instance, a comment raised made by the ODFW was similar to those of others who commented; we responded to this comment in the Public Comments section below with attribution.

Public Comments

Comment 1: Several commenters, including the State of Oregon, suggested our definition of estuary is too limited and that we should consider the estuary as areas under tidal influence, not just areas of saltwater intrusion.

Our Response: Although there are many accepted definitions of the term estuary, we chose to use the definition by Lauff (1967, as cited in ISAB 2000, p. 2) that describes an estuary as a semi-enclosed coastal body of water that has a free connection with the open sea and within which sea water is measurably diluted with fresh water derived from land drainage. This definition is consistent with how we have used this term since publication of the proposed rule in 1999 (64 FR 16397; April 5, 1999), and parallels the life-history terminology that coastal cutthroat trout are not anadromous until they experience salt water.

Comment 2: One commenter suggested estuaries may be of greater relative importance to anadromous cutthroat than to Pacific salmon based on the number of times they visit or pass through this habitat during their lifetimes, since anadromous coastal cutthroat trout can spawn up to four times during their lifetime.

Our Response: We acknowledge that anadromous cutthroat trout have the potential to move through and utilize estuaries multiple times during their lifetimes, and recent information from studies of cutthroat trout movement in the lower Columbia River document this (Hudson *et al.* 2008, entire; Johnson *et al.* 2008, entire). However, although anadromous cutthroat have the capability of spawning multiple times, studies suggest a relatively low percentage of individuals return to spawn a second or third time (Hudson *et al.* 2008, pp. 54–55; Johnson *et al.* 2008, pp. 16–18). Consequently, estuaries may be of greater relative importance only to those individuals that return to spawn multiple times, which represent a small fraction of this life history form.

Comment 3: One commenter stated the importance of the Columbia River plume (i.e., the mix of salt and freshwater that extends into the marine environment) to anadromous cutthroat and suggested that the Service consider the plume, as well as the estuary and near-shore travel zones along the mainstem Columbia River, in any future considerations regarding critical habitat designation for coastal cutthroat trout.

Our Response: Since our finding is that listing is not warranted, we are not considering developing a proposed critical habitat rule for the Southwestern Washington/Columbia River DPS of coastal cutthroat trout.

Comment 4: Several commenters suggested that headwater resident cutthroat above barriers do not commonly migrate below these barriers and should not be relied upon to contribute to anadromous populations below the barriers.

Our Response: New information supports the fact that headwater resident cutthroat migrate below natural barriers at low rates (Bateman *et al.* 2008, pp. 62–64). Given this low rate of emigration, it is unlikely that they contribute significantly to anadromous populations downstream. However, there is evidence within the DPS that resident freshwater forms within the zone of anadromy (i.e., not isolated above natural barriers impassable to anadromous fish), even those that have been isolated for long periods of time above man-made barriers, are contributing substantial numbers of emigrating smolts to the Columbia River estuary (ODFW 2008, pp. 9–11, Johnson *et al.* 2008, pp. 19–20). For this reason we expect resident freshwater forms within the zone of current or historical anadromy to continue to contribute to the maintenance of the anadromous life-history strategy

Comment 5: Several commenters suggested there is evidence of genetic

distinctness between anadromous coastal cutthroat, freshwater migratory, and resident cutthroat trout, and that this distinctness provides support for the existence of an SPR within the Southwestern Washington/Columbia River DPS.

Our Response: The best available information suggests there is little genetic differentiation between anadromous and sympatric resident freshwater cutthroat trout. Ardren *et al.* (in press) found no genetic differences between sympatric anadromous and resident life forms within two tributaries of the lower Columbia River. They further found genetic differences were an order of magnitude higher between tributary samples than between life forms within a tributary. Their results are consistent with a population made up of multiple life histories that freely interbreed within each tributary producing anadromous, freshwater migratory and resident life forms. In contrast, there is information to suggest resident cutthroat trout isolated above natural barriers may be genetically distinct from cutthroat below natural barriers due in part to low rates of emigration over these barriers and the inability of anadromous and resident migratory cutthroat to reproduce with coastal cutthroat trout that exist above these barriers (Griswold 1997, pp. 167–169; Bateman *et al.* 2008 pp. 62–64). We find that available information on genetic distinctness between life forms of coastal cutthroat trout does not support the existence of an SPR in the Southwestern Washington/Columbia River DPS, especially for the anadromous life form, which is not genetically distinct from resident forms below natural barriers.

Comment 6: One commenter suggested that resident cutthroat trout above barriers contribute little to anadromous and freshwater migratory forms below barriers and that the designation of DPSs and SPRs should consider this information.

Our Response: We agree that resident cutthroat trout above natural barriers likely contribute little to the maintenance of anadromous and freshwater migratory forms. We have considered this information in our current analysis.

Comment 7: One commenter stated that if the Service finds a marine and estuarine SPR that warrants listing as threatened or endangered, then the whole Southwestern Washington/Columbia River DPS should be listed.

Our Response: Current Service policy per the DOI solicitor's M-Opinion on significant portion of the range allows for applying the protections of the Act to an SPR that is a portion of a listable entity, whether that entity is a DPS, subspecies, or species. In any event, because the Service has determined that the subspecies is not threatened or endangered in the marine and estuarine areas of the DPS, the Service need not decide what the appropriate scope of a listing would be.

Comment 8: One commenter cited the definition of SPR from the Service's draft guidance and suggested, "based on this criteria, marine and estuarine areas easily qualify as an SPR of the range of the Southwestern Washington/Columbia River coastal cutthroat trout because these areas are essential to the survival of sea-run coastal cutthroat trout."

Our Response: Our draft guidance states that a portion of a species' range is significant if it is important to the conservation of the species because it contributes meaningfully to the representation, resiliency, or redundancy of the species. While we agree that marine and estuarine areas are important to the survival of sea-run (anadromous) coastal cutthroat trout, our analysis indicates that the species is not threatened or endangered in these areas and thus further consideration of an SPR is not warranted.

Comment 9: One commenter stated that the Service's withdrawal of the proposed rule failed to provide any evidence that sea-run cutthroat trout are abundant or widespread and that, in fact, most of the information the Service presented indicates continued cause for concern.

Our Response: Our five-factor analysis in the 2002 withdrawal found coastal cutthroat trout to be generally widespread and abundant throughout the DPS. While we acknowledged that the anadromous life form was likely reduced from historical levels, and perhaps was still declining in some areas, we presented new information and highlighted changes in regulations that changed our conclusion about the risk that the DPS may become endangered in the foreseeable future. The Service's withdrawal of the proposed rule did not require we demonstrate that sea-run (anadromous) cutthroat trout be widespread and abundant, only that they are not threatened or endangered, as these terms are defined in section 3 of the Act.

Comment 10: One commenter said that the reopening of the public comment (74 FR 12297; March 24, 2009) misrepresented the court's direction to the Service by suggesting that some portions of the withdrawal of the proposed rule were insulated from review.

Our Response: While we believe the Court's remand was based solely on our failure to adequately consider whether the marine and estuarine portions of the DPS constituted a "significant portion of the range" of the DPS, we agree that the withdrawal decision was remanded in full by the Court's ruling, and that data regarding impacts in areas of the DPS outside marine and estuarine areas are also relevant to the current finding. The reopening of the public comment (74 FR 12297; March 24, 2009) on the proposed rule specifically sought data on the five listing factors within the marine and estuarine areas, but did not limit submissions to these areas. We have received and considered comments on issues specific to the marine and estuarine as well as the DPS as a whole.

Comment 11: One commenter pointed out that the Service based its reversal of the proposed rule in part on the fact that resident cutthroat trout can occasionally produce anadromous offspring, but that this same information was available to NMFS when it conducted its status review and NMFS still concluded that listing was warranted.

Our Response: Information on the contribution of resident cutthroat trout to anadromy was not available to NMFS when completing its status review, although it was available prior to the proposal to list the ESU (now DPS). Our withdrawal of the proposed rule was based on multiple factors, including additional information that was not available to NMFS suggesting that resident cutthroat trout do produce anadromous offspring. New information in our current analysis further supports the fact that resident cutthroat trout below natural barriers are contributing to the anadromous life-history component of cutthroat trout in this DPS.

Comment 12: One commenter suggested that, if poor habitat conditions are suppressing anadromous cutthroat trout, then any anadromous progeny produced by resident cutthroat trout would face the same habitat limitations, thereby providing limited contribution to the conservation of the anadromous life-history form.

Our Response: We agree that the anadromous component of coastal cutthroat trout in the DPS is likely reduced from historical levels and that this reduction has likely been caused in part by habitat degradation. We also agree that any anadromous progeny produced by resident cutthroat trout would face the same habitat limitations. However, even with historical habitat degradation in the three estuaries within the DPS, our analysis indicates anadromous cutthroat trout are still

present and are still returning to many tributaries within the DPS at rates that are generally comparable to return rates for healthy anadromous salmonid species, and that the nature of threats are such that the anadromous life-history form is not likely to become threatened or endangered in the foreseeable future.

Comment 13: One commenter suggested that forest management practices will continue to impact coastal cutthroat trout for decades to come through ongoing impacts from past activities.

Our Response: While it is true that some legacy effects of past logging practices will continue into the future, there is no information demonstrating anything more than a speculative link suggesting that these types of impacts pose a risk of extinction of coastal cutthroat trout throughout the DPS, or in the marine and estuarine areas of the DPS. In fact, in our 2002 withdrawal of the proposal to list, we concluded that management of forested landscapes is expected to improve in the future due to improvements in the requirements for private timber harvest regulations in Washington State, and information received during the recent comment period from the State of Washington describes improvements in migratory corridors and other watershed improvements under the Washington State Forest and Fish rules.

Comment 14: One commenter asserted that private lands forest management in proximity to the estuaries has a disproportional impact to anadromous coastal cutthroat trout as compared to upper tributary populations that may be more affected by Federal forest management.

Our Response: While it is true that there are more acres of privately managed forest lands in close proximity to the estuarine areas of the DPS, the commenter offers no information to show that forest management in these areas has had impacts to coastal cutthroat trout. Exposure to some of the negative aspects of these practices is described in the comment, but no response by coastal cutthroat trout is articulated.

Comment 15: One commenter provided an expansive list of potential threats or factors to a variety of coastal cutthroat trout life-history forms (e.g., "anadromous," "sea-run," "migratory"), many of which cite back to the 2002 withdrawal notice or documents used by the Service in support of the withdrawal notice, but without any new information cited in support of these as actual threats. The commenter failed to identify how coastal cutthroat trout that may be exposed to some of these potential threats may respond, for example in terms of population declines, increases in extinction risk, reductions in reproductive capacity or output, or any other measure indicating that the exposed fish are responding to these factors such that they should be considered threats. The factors addressed in this manner include, but are not limited to:

- Urban and industrial sprawl
- Agriculture
- Grazing
- Mining
- Cumulative effects, or a synergy of impacts "greater than the sum of the parts"
- The fish diseases *Ceratomyxa shasta* and gas bubble disease
- Predation by other fishes, mammals, or birds
- The inadequacy of Federal Forest management in Oregon and Washington to protect coastal cutthroat trout, because the Federal forests are too far away from the estuary and marine areas
- The inadequacy of regulations covering urban, industrial, and agricultural "sprawl" in Oregon and Washington
- Oregon Forest Practices Act.

Our Response: In conducting a "5-factor" analysis in the listing process, we must consider all factors that the best available scientific and commercial information identifies as threats faced by the species in question. In considering what factors might constitute threats, we must look beyond the mere exposure of the species to the factor to determine whether the species responds to the factor in a way that causes actual impacts to the species. If there is exposure to a factor, but no response, or only a positive response, that factor is not a threat. If there is exposure and the species responds negatively, the factor may be a threat and we then attempt to determine how significant a threat it is. If the threat is significant, it may drive or contribute to the risk of extinction of the species such that the species warrants listing as threatened or endangered as those terms are defined by the Act. This does not necessarily require empirical proof of a threat. The combination of exposure and some corroborating evidence of how the species is likely impacted could suffice. The mere identification of factors that could impact a species negatively is not sufficient to compel a finding that listing is appropriate; we require evidence that these factors are operative threats that act on the species to the point that the species meets the definition of threatened or endangered under the Act.

For the factors offered here, the commenter argues that they exist in places across the landscape and that coastal cutthroat trout in the Southwestern Washington/Columbia River DPS are exposed to these factors to varying degrees. However, the commenter has not provided evidence that coastal cutthroat trout in the DPS are responding to these factors in negative ways such that they constitute actual threats. In some cases, the commenter provides evidence that other, similar species are affected negatively by these factors, and we have considered these instances carefully. Where we lack species-specific studies, and the best available scientific and commercial information does not at least offer corroborating support, we cannot portray such a factor as a threat on the basis of mere exposure. To do so would obviate the need to consider the biology of the species at all.

In the case of coastal cutthroat trout and the factors listed in this issue above, most of these were raised and considered in the 2002 withdrawal of the proposed rule (67 FR 44934; July 5, 2002). We have reconsidered them here, looked for any new information among the best available scientific and commercial information received in response to our reopening of the comment period, and considered whether this new information, in conjunction with the data previously evaluated in our 2002 withdrawal notice (67 FR 44934; July 5, 2002) would lead us to a different conclusion now, even when applied just to the marine and estuarine areas of the DPS. In doing so we find that these factors do not constitute significant threats because, while coastal cutthroat trout may be exposed to them, and in some cases may suffer some degree of harm, there is insufficient evidence to suggest that the species responds in ways that would contribute to a finding of threatened or endangered status in marine and estuarine areas within the DPS or the DPS as a whole.

Comment 16: One commenter stated that the State of Washington's Forest and Fish rules should not have been considered "adequate regulatory mechanisms" for coastal cutthroat trout in our 2002 withdrawal because these rules governing private land timber harvest do not: (a) adequately address the anadromous life history of coastal cutthroat trout; (b) encompass enough of the anadromous form to offer any protection to it; and (c) were speculative at the time we made the original withdrawal finding.

Our Response: At the time of our 2002 withdrawal notice, the finding being reached was on the DPS as a whole, and did not single out life-history forms. We have reconsidered that finding here in light of the best available scientific and commercial information, including any new information received in response to the reopening of the comment period even when applied just to the marine and estuarine areas of the DPS. In all of these analyses, we have considered the impact of the State of Washington's Forest and Fish rules to the full extent, as is appropriate, regardless of life-history form. We acknowledged at the time of the 2002 withdrawal that the rules were relatively new, but we recognized, and still recognize, that they were consistent with improving fish habitat conditions on forested lands over time. The State of Washington's comments articulated significant improvements in fish habitat as a result of the rules supporting the removal of culverts and other barriers to fish migration; we note that no new information was received to suggest these rules have not improved conditions.

Comment 17: One commenter stated that coastal cutthroat trout are more susceptible now to stochastic disturbances and catastrophic natural events because in historical times they were more widespread and thus prior populations would have more resilience to these impacts.

Our Response: At the time of the 2002 withdrawal notice, we found no major gaps in the range or local extirpations within the DPS, and the best available scientific and commercial information, including any new information received in response to the reopening of the comment period, even when applied just to the marine and estuarine areas of the DPS, reaffirms this finding. As a result, stochastic disturbances and catastrophic natural events should constitute no more of a threat to coastal cutthroat trout now than in historical times.

Comment 18 : One commenter cited a number of sources of water pollution, including industrial and sewage effluents, pesticides, fertilizers, mining wastes, metals and others, that coastal cutthroat trout are exposed to in lower rivers and estuaries, using data generally gathered prior to the 2002 withdrawal notice. This commenter then stated that the cumulative effects of pollution are especially dangerous to sea-run cutthroat trout as they spend a great deal of their lives in these areas.

Our Response: As with other issues raised in the comments received, most of these were raised and considered in the 2002 withdrawal of the proposed rule. We have reconsidered them here, looked for any new information among the best available scientific and commercial information, including information received in response to our reopening of the comment period, and considered whether this information would lead us to a different conclusion now, even when applied just to the marine and estuarine areas of the DPS. In doing so we find that these factors do not constitute significant threats because, while coastal cutthroat trout may be exposed to them, there is insufficient evidence to suggest that the species responds in ways that would support a finding of threatened or endangered status in the marine and estuarine areas within the DPS or the DPS as a whole.

Comment 19: One commenter requested that we consider the impacts of climate change on coastal cutthroat trout in the Southwest Washington/Columbia River DPS in both marine and freshwater habitats, but did not provide any new information since the 2002 withdrawal notice regarding climate change impacts.

Our Response: The 2002 withdrawal of the proposed rule (67 FR 44934; July 5, 2002) addressed climate change, and we have extensively reconsidered this issue in this finding (see "Climate Change" discussion, above, under Factor E) in light of the best available scientific and commercial information. We have also considered whether any new information, when considered in conjunction with the data considered in the 2002 withdrawal notice, would lead us to a different conclusion now, even when applied just to the marine and estuarine areas of the DPS. As detailed in our threats analysis under Factor E, in doing so we find that current climate change risk does not constitute a significant threat to coastal cutthroat trout.

Comment 20: One commenter noted that sea-run cutthroat trout make extensive use of estuarine habitat and have likely been negatively impacted by current and historical habitat degradation and loss.

Our Response: We acknowledge that estuaries of Willapa Bay, Grays Harbor, and the Columbia River have been significantly modified from historical condition, and that these habitats are often occupied by the anadromous cutthroat trout life-history form. While we acknowledge that degradation and habitat loss in estuaries has likely had some level of impact on anadromous cutthroat trout, there is no information available directly correlating the loss and degradation of habitat to a significant population decline. For example, the commenter cited new information on habitat degradation and loss of shallow-water habitats in the Columbia River estuary and resulting impacts to detritus- based food webs that support Pacific salmon (Bottom *et al.* 2006, p. 524), thereby suggesting that these same impacts are affecting anadromous cutthroat trout. Despite the documentation of these changes in the food web of the Columbia River estuary, the authors did not provide empirical evidence of a linkage between the loss of a detritus-based food web and the status of Pacific salmon in the Columbia Basin, much less any link to anadromous coastal cutthroat trout.

Comment 21: One commenter described various impacts of dams and barriers on anadromous cutthroat trout ranging from complete blockage to habitat, loss of access to spawning areas, passage mortality and injury through entrainment at dams, gas super-saturation below dams, and inadequate or poor passage at culverts.

Our Response: Much of the information that comprised this comment was derived from the withdrawal of the proposed rule (67 FR 44934; July 5, 2002), or from Moynan (2002, entire), which is an internal Service document associated with our administrative record of the withdrawal of the proposed rule. Although we previously considered this information in support of our withdrawal of the proposed rule, we have reconsidered this information in light of our analysis on anadromous cutthroat trout. Although we acknowledge that dams and barriers have likely contributed to a decline in anadromous cutthroat, there is evidence that anadromous cutthroat continue to persist throughout the DPS, except for above barriers, and there is no evidence that the loss of this life-history form is likely in the foreseeable future.

In addition, there have been a number of passage improvements in recent years that have restored significant amounts of habitat for anadromous coastal cutthroat trout. For example, in 2007, Marmot dam was removed on the Sandy River, thereby removing a potential passage impediment and possible source of entrainment mortality that had been in place for 90 years, and the Little Sandy River Dam is also scheduled for removal in the near future. In addition, comments submitted by the State of Washington noted that new Forest and Fish Rules have provided benefits to cutthroat trout by removing hundreds of barriers on commercial forest lands, doubling the available cutthroat habitat with unobstructed access.

Comment 22: One commenter stated that there are many projects planned for the lower Columbia River that will impact coastal cutthroat trout, including the planned Bradwood Landing Liquified Natural Gas Project. In regards to the Bradwood Landing Project, the commenter noted that a biological assessment developed by NorthernStar Energy, the entity proposing the project, concluded the proposed action "may affect, and is likely to adversely affect" a number of stocks of federally listed salmon and steelhead. The commenter stated that coastal cutthroat trout are associated with and have a similar life history to salmon and steelhead, and thus it can be inferred that they too will be adversely affected by the project.

Our Response: In our five-factor analysis we considered the effects of this and other potential liquefied natural gas (LNG) projects in the Columbia River. While we acknowledge that individual cutthroat trout might be impacted from these types of developments, we note that the scope of potential impacts is small relative to the total area of available habitat in the Columbia River and estuary. In addition, regulatory mechanisms required through the Federal Energy Regulatory Commission (FERC), and through State land uses regulations, are expected to provide protective mechanisms to minimize impacts of construction and operation of LNG facilities. Although a final consultation has not been completed by NMFS and FERC on the Bradwood Landing LNG Project, NMFS has the authority under section 7(a)(2) of the Act to require non-discretionary actions on behalf of the project proponent that may serve to modify how the project is constructed and operated to minimize impacts to salmon and steelhead listed under the Act.

Although the biological assessment developed by NorthernStar Energy determined the project "may affect, and is likely to adversely affect" a number of stocks of listed salmon and steelhead, this determination is not a population-level finding. Rather, it is an acknowledgment that individual fish may be adversely impacted from the action. In regards to potential impacts to anadromous cutthroat trout, we agree that adverse effects to individual fish are possible but there are no data to support a conclusion that such impacts would increase a population-level extinction risk. The commenter's statement regarding NMFS's assertion that "massive numbers of fish" will be entrained in both process water and ballast water withdrawals from the Bradwood Landing LNG Project is unsupported.

Comment 23: One commenter noted that hybridization between cutthroat trout and rainbow trout is widespread and that hybridization may reduce productivity of coastal cutthroat populations. The commenter also noted that cutthroat trout hatchery programs and hatchery programs for salmon and steelhead also have the potential to negatively impact coastal cutthroat trout.

Our Response: We agree that hybridization with native rainbow trout and hatchery rainbow trout is known to occur, but there is no evidence that hybridization has contributed to a decline of anadromous coastal cutthroat trout in the DPS. As we noted in our withdrawal of the proposed rule (67 FR 44934; July 5, 2002), although the data on hybridization between coastal cutthroat trout and rainbow trout/steelhead trout are limited, indications are that hybridization does occur at low levels where these two species coexist. Much scientific uncertainty currently surrounds the causes of hybridization and its evolutionary consequences. In view of the limited nature of hybridization in the DPS and the natural co-occurrence of these species, hybridization between cutthroat trout and rainbow/steelhead trout is not currently considered a significant threat to anadromous cutthroat trout in the DPS. Low levels of hybridization may represent natural interactions between rainbow/steelhead trout and coastal cutthroat trout. Populations with high levels of hybridization are few and isolated.

Likewise, we acknowledge the potential impacts of reduced fitness that could result from wild cutthroat reproducing with hatchery coastal cutthroat trout, but have no evidence that this is occurring in the DPS. As noted in the withdrawal of the proposed action, coastal cutthroat trout production has been reduced to a single hatchery (Cowlitz River Hatchery), and there is no information at this time to indicate the limited ongoing coastal cutthroat trout hatchery releases are having a negative impact on wild cutthroat trout in the DPS.

Hatchery programs for salmon and steelhead, particularly coho and steelhead, have the potential to impact coastal cutthroat trout through competition. However, information demonstrating effects from releases of coho and steelhead in the DPS is limited and the extent to which hatchery management affects the DPS of coastal cutthroat as a whole is unknown. We have no new evidence beyond that previously considered in our 2002 withdrawal of the proposed rule that hatchery releases of salmon and steelhead in the DPS are producing competition above natural levels or represent a significant risk to the DPS. Thus, our conclusion that competition with hatchery fish does not pose a significant threat to coastal cutthroat trout remains the same (67 FR 44934; July 5, 2002).

References Cited

A complete list of all references we cited in this document is available on the Internet at *http://www.regulations.gov* or by contacting the Oregon Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT**).

Author

The primary authors of this notice are the staff members of the Oregon Fish and Wildlife Office, U.S. Fish and Wildlife Service, 2600 SE 98th Avenue, Suite 100, Portland, OR 97266.

Authority

The authority for this action is the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Dated: February 5, 2010.

Sam D. Hamilton,

Director, Fish and Wildlife Service.

[FR Doc. 2010–3803 Filed 2–24–10; 8:45 am]

BILLING CODE 4310–55–S