SPECIES *in the* SPOTLIGHT: Survive to Thrive

Recovering Threatened and Endangered Species

FY 2013–2014 Report to Congress

NOAA FISHERIES

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U.S. DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration
National Marine Fisheries Service

NOAA FISHERIES

Letter from the Assistant Administrator

Dear Readers:

Thank you for taking the time to review this annual report to Congress. The report is important because it documents NOAA Fisheries' core mission work to conserve and restore protected species and highlights the status of our most vulnerable species. These *Endangered Species Act* (ESA)–listed species, for which NOAA is responsible, include a number of species of great interest to the public—from large whales, to sea turtles and fish, to colorful invertebrates, such as corals. However, we are also responsible for dozens of less well known species, which are also included and profiled in this report.

As we begin the fifth decade of administering the ESA, we rededicate ourselves to ensuring we do not lose any species on our watch. The ESA has been successful in preventing species extinctions—less than 1 percent of the species listed under the ESA have been delisted because of extinction. While we have recovered and delisted a small percentage of listed species since 1973, we would likely have seen hundreds of species go extinct without the ESA.

Of all the species NOAA protects under the ESA, we consider eight among the most at risk of extinction in the near future. For some, their numbers are so low they need to be bred in captivity; others are facing human threats that must be addressed. I firmly believe that these species can be saved if we act now with renewed commitment and intensified efforts.

Starting on May 15, 2015—Endangered Species Day—NOAA Fisheries will begin a concerted agency-wide effort to spotlight and save these highly at-risk species. On that day, we launch our "Species in the Spotlight: Survive to Thrive" initiative with the goal of marshalling resources for these species. This initiative will include targeted efforts vital for stabilizing their populations and preventing their extinction. Our approach involves intensive human efforts to stabilize these species, with the goal that they will become candidates for recovery. We want these species, as well as all of our listed resources, to survive and thrive. More details are presented in this report.

The eight "Species in the Spotlight" are:

- Atlantic Salmon Gulf of Maine Distinct Population Segment (DPS)
- Central California Coast Coho Evolutionarily Significant Unit (ESU)
- Cook Inlet Beluga Whale DPS
- Hawaiian Monk Seal
- Pacific Leatherback Sea Turtle
- Sacramento River Winter-run Chinook ESU
- Southern Resident Killer Whale DPS
- White Abalone

How were these eight species selected? All eight are listed as endangered, their populations are declining, and the best available information points to their extinction if action isn't taken. These species are considered a recovery priority #1, which is defined as a species whose extinction is almost certain in the immediate future because of a rapid population decline or habitat destruction, whose limiting factors and threats are well understood and the needed management actions are known and have a high probability of success, and is a species that is in conflict with construction or other developmental projects or other forms of economic activity. We know the threats facing these species and understand the management actions we can take that will have a high probability of success. Our goal is to focus NOAA's recovery actions, and motivate partners and interested citizens to work with us on these actions to turn this situation around.

This initiative will guide agency actions where we have the discretion to make critical investments to safeguard these species, which are among those most endangered domestically. The strategy will not divert resources away from the important and continued efforts to support all ESA-listed species under our authority. Many of our species have long-standing conservation programs supported by multiple partners. We remain committed to those programs.

As part of this initiative, we are developing 5-year plans of action for these eight species, which will build upon existing recovery plans and detail the focused efforts we plan to take over the next 5 years. We know we cannot do this alone. Key to our strategy is engaging federal, state, tribal, and local agencies, industries, non-governmental organizations, institutions, and the public to take the actions they can to prevent these species, and all species we protect, from becoming extinct.

We know we can be successful in making significant progress toward recovery, because we have done so in the past. For example, the eastern distinct population segment of Steller sea lions, listed as threatened under the ESA almost a quarter century ago, has recovered and was removed from the list. The delisting of this population of Steller sea lions—which was once depleted due to harvests, predator control programs, and indiscriminate killing—demonstrates that species can recover with targeted conservation efforts. Special protections were put in place to prohibit shooting at or within specified distances of Steller sea lions, and this action brought about heightened public awareness of the species' plight, enhanced its conservation, strengthened NOAA Fisheries' ability to reduce illegal shooting, reduced disturbance to the species on terrestrial sites, helped maintain the conservation values of its habitat, and ultimately allowed for its recovery.

We have the vision, we have the tools, and we have dedicated partners. We need greater focus, targeted resources, and even more partners to prevent the extinction of these eight species. We look forward to your continued support and help to ensure we do not lose any of the species on our watch. Our world would be irrevocably changed and our natural heritage diminished without them.

Eileen Sobeck
Assistant Administrator for Fisheries

Background

The primary purpose of the Endangered Species Act (ESA) of 1973, as amended, is the conservation of endangered and threatened species and the ecosystems on which they depend. Conservation is defined as "…the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary." As one means of achieving recovery, the ESA requires the development of recovery plans for listed endangered or threatened species (except those species for which it is determined that such a plan will not promote the conservation of the species). These plans organize and guide the recovery process.

The ESA amendments of 1988 added a requirement that the Secretaries of Commerce and the Interior report to Congress every 2 years on the status of efforts to develop and implement recovery plans, and on the status of all species for which recovery plans have been developed (section 4(f)(3)). The Secretary of Commerce has delegated responsibility for endangered and threatened species recovery to the National Marine Fisheries Service (NMFS) of the National Oceanic and Atmospheric Administration (NOAA). This is the 13th Report to Congress on the status of the recovery program for these species.

SPECIES *in the* SPOTLIGHT

The eight species that are most at risk of extinction are:

- Atlantic Salmon Gulf of Maine Distinct Population Segment (DPS)
- Central California Coast Coho Evolutionarily Significant Unit (ESU)
- Cook Inlet Beluga Whale DPS
- Hawaiian Monk Seal
- Pacific Leatherback Sea Turtle
- Sacramento River Winter-run Chinook ESU
- Southern Resident Killer Whale DPS
- White Abalone

Leatherback Credit: Scott Benson/NOAA

Overview

Recovery is the process of restoring listed species and their ecosystems to the point they no longer require the protections of the ESA. A recovery plan serves as a road map for species recovery—it lays out where to go and how to get there. Without a plan to organize, coordinate, and prioritize recovery actions, the efforts by so many agencies, non-profit organizations, tribal entities, stakeholders, and citizens may be inefficient, ineffective, or misdirected. Focused implementation can use limited resources effectively. Recovery plans are guidance documents, not regulatory, and the ESA clearly envisions recovery plans as the central organizing tool guiding each species' progress toward recovery.

This report summarizes efforts to recover all domestic species under NMFS' jurisdiction from October 1, 2012, through September 30, 2014. It includes a summary table (Table 1) outlining the status of each species the Secretary has found would benefit from having a recovery plan, the status of the recovery plan, and the date the last 5-year review was completed.

With this report, NMFS is embarking on a strategic approach to endangered species recovery that focuses agency resources on species for which immediate, targeted efforts are needed to stabilize their populations and prevent extinction. This report highlights the recovery stories of the eight at-risk species we've identified as most needing our attention. They are the Atlantic Salmon Gulf of Maine Distinct Population Segment (DPS), Central California Coast Coho Evolutionarily Significant Unit (ESU), Cook Inlet Beluga Whale DPS, Hawaiian Monk Seal, Pacific Leatherback Sea Turtle, Sacramento River Winter-run Chinook ESU, Southern Resident Killer Whale DPS, and White Abalone. They are notable because the best available information points to their extinction in the near future because of rapid population decline or habitat destruction. These are the species for which focused efforts are needed to mobilize human intervention to stabilize their population declines and prevent their extinction.

During the 2 years covered in this report (October 1, 2012 – September 30, 2014), the number of listed species under NMFS jurisdiction increased 27 percent. We now manage over 86 domestic species of salmon, sturgeon, sawfish, seagrass, mollusks, sea turtles, corals, and marine mammals, and 34 foreign species. In this report, we address the 86 domestic species managed by NMFS, including 17 newly listed domestic species:

- Main Hawaiian Islands Insular False Killer Whale DPS listed as endangered on November 28, 2012 (77 FR 70915)
- Arctic subspecies of Ringed Seal (3 foreign for total 4 listed): listed as threatened on December 28, 2012 (77 FR 76706)
- 3 DPSs of Scalloped Hammerhead Shark (1 foreign for total 4 listed): Central and Southwest Atlantic DPS, Indo-West Pacific DPS listed as threatened, Eastern Pacific DPS listed as endangered on July 3, 2014 (79 FR 38214)
- 12 domestic Corals (8 foreign for total 20 listed)[1]: *Acropora globiceps, Acropora jacuelineae, Acropora refusa, Acropora speciose, Euphyllia paradivisa, Isopora crateriformis, Seriatopora aculeate, Orbicella franksi, Orbicella annulans, Orbicella faveolata, Dendrogyra cylindrus, and Mycetophyllia ferox* listed as threatened on September 10, 2014 (79 FR 53852)

[1] Most species of coral lack a common name. Thus, the genus and species names are provided.

Between October 1, 2012, and September 30, 2014, of the 86 domestic listed species, 45 had final recovery plans, one had a draft recovery plan, 16 plans were in development, and 24 had no plans. Because we have many multispecies plans, as well as multiple plans for one species (marine turtles), the number of plans does not directly correspond with the number of species.

Between October 1, 2012, and September 30, 2014, the status of the 86 domestic endangered or threatened species listed under the ESA was:

- 29 (34%) were stabilized or increasing.
- 11 (13%) were known to be declining.
- 8 (9%) were mixed, with their status varying by population location.
- 38 (44%) were unknown, because we lacked sufficient trend data to make a determination.

These percentages reflect a 10 percent reduction in the number of species that were determined to be declining in the 2010-2012 Biennial Report (from 23% to 13%), and reflect an increase of about 15 percent for species with unknown population trends (from 30% to 44%), some of which represent newly listed species. A list of the domestic species managed by NMFS and for which recovery plans have been found to benefit such species or a finding was not made during this biennial reporting period (84 species) is provided in Table 1. The table lists the status of each species/ESU/DPS (unknown, decreasing, mixed, stable, or increasing), the recovery priority number[2], the status of the recovery plan, and the date the last 5-year review was completed. Additional information on these species is available online at www.nmfs.noaa.gov/pr/species/index.htm. Recovery plans are available online at www.nmfs.noaa.gov/pr/recovery/plans.htm.

Recovery plans may also be requested by writing to:
Endangered Species Division — Recovery Plans
Office of Protected Resources — F/PR3
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, MD 20910-3226

This report is available online via the NMFS Office of Protected Resources website at:
www.nmfs.noaa.gov/pr/laws/esa/biennial.htm.

[2] Section 4(h) of the ESA requires the Secretary to establish a system for developing and implementing, on a priority basis, recovery plans. In 1990, NMFS published guidelines (55 FR 24296, June 15, 1990) for prioritizing both listing and recovery plan preparation, which are reported biennially to Congress. The recovery priority number was also used as a criterion to identify the species at most risk of extinction as part of NMFS' strategy to marshal resources on species for which immediate, targeted efforts are vital for stabilizing their populations and preventing their extinction.

TABLE 1: ESA-Listed Species Under NMFS Jurisdiction

ESA-listed species under NMFS jurisdiction through September 30, 2014, where recovery plans were determined to promote the conservation of the species, including listing status, trends, priority numbers, recovery plan status, and 5-year review completion.

Species/ESU/DPS	Date Listed / Reclassified	ESA Status	Trend	Recovery Priority Number[1]	Status of Recovery Plan	Date 5-Year Status Review Completed[2]
SEA TURTLES						
GREEN SEA TURTLE						
Breeding colony populations in Florida, Pacific coast Mexico	7/28/1978	E	Increasing	7	Completed 1/1998 (Pacific); 10/1991 (Atlantic)	08/2007; Review initiated 10/2012
Rangewide	7/28/1978	T	Mixed	5	Completed 1/1998 (Pacific); 10/1991 (Atlantic)	08/2007; Review initiated 10/2012
HAWKSBILL SEA TURTLE	6/2/1970	E	Pacific/Indian (Decreasing) Atlantic (Mixed)	5	Completed 1/1998 (Pacific); 12/1993 (Atlantic)	6/2013
KEMP'S RIDLEY SEA TURTLE	12/2/1970	E	Unknown	1	Completed 8/1992; Revision Completed 9/2011	08/2007, Review initiated 10/2012
LEATHERBACK SEA TURTLE	6/2/1970	E	Pacific (Decreasing) Atlantic/Indian (Mixed)	1	Completed 1/1998 (Pacific); 4/1992 (Atlantic)	11/2013
LOGGERHEAD SEA TURTLE						
Northwest Atlantic Ocean	7/28/1978; 09/22/2011	T	Stable	7	12/1991; Revision Completed 1/2009	08/2009 (full status review)
North Pacific Ocean	7/28/1978; 09/22/2011	E	Decreasing	3	Completed 1/1998; Revision Under Development	08/2009 (full status review)
OLIVE RIDLEY SEA TURTLE						
Breeding colony populations of Pacific coast Mexico	7/28/1978	E	Stable	9	Completed 1/1998	6/2014
Rangewide	7/28/1978	T	Mixed	7	Completed 1/1998	6/2014

Species/ESU/DPS	Date Listed / Reclassified	ESA Status	Trend	Recovery Priority Number[1]	Status of Recovery Plan	Date 5-Year Status Review Completed[2]
PACIFIC SALMON						
CHINOOK						
Chinook, Puget Sound ESU	3/24/1999; 6/28/2005[3]	T	Stable	9	Completed 1/2007	08/2011; Review Initiated 2/2015
Chinook, Lower Columbia River ESU	6/28/2005[3]	T	Stable	9	Completed 7/2013	08/2011; Review Initiated 2/2015
Chinook, Upper Columbia River, Spring Run ESU	3/24/1999; 6/28/2005[3]	E	Stable	5	Completed 10/2007	08/2011; Review Initiated 2/2015
Chinook, Snake River Fall-run ESU	4/22/1992; 6/28/2005	T	Increasing	9	Under Development	08/2011; Review Initiated 2/2015
Chinook, Snake River Spring/Summer-run ESU	4/22/1992; 6/28/2005[3]	T	Stable	9	Under Development	08/2011; Review Initiated 2/2015
Chinook, Upper Willamette River ESU	3/24/1999; 6/28/2005[3]	T	Stable	9	Completed 8/2011	08/2011; Review Initiated 2/2015
Chinook, California Coastal ESU	9/16/1999; 6/28/2005[3]	T	Unknown	5	Under Development	08/2011; Review Initiated 2/2015
Chinook, Central Valley Spring-run ESU	9/16/1999; 6/28/2005[3]	T	Unknown	5	Completed 7/2014	08/2011; Review Initiated 2/2015
Chinook, Sacramento River Winter-run ESU	11/5/1990; 1/4/1994[5]; 6/28/2005[3]	E	Decreasing	1	Completed 7/2014	08/2011; Review Initiated 2/2015
CHUM						
Chum, Hood Canal Summer-run ESU	3/25/1999; 6/28/2005[3]	T	Stable	9	Completed 5/2007	08/2011; Review Initiated 2/2015
Chum, Columbia River ESU	3/25/1999; 6/28/2005[3]	T	Stable	9	Completed 7/2013	08/2011; Review Initiated 2/2015
COHO						
Coho, Lower Columbia River ESU	3/24/1999; 6/28/2005[3]	T	Stable	9	Completed 7/2013	08/2011; Review Initiated 2/2015
Coho, Oregon Coast ESU	8/10/1998[3]; 2/11/2008	T	Stable	9	Under Development	04/2014; Review Initiated 2/2015
Coho, Southern Oregon/Northern California Coast ESU	5/6/1997; 6/28/2005[3]	T	Unknown	5	Completed 9/2014	11/2011; Review Initiated 2/2015
Coho, Central California Coast ESU	10/31/1996; 6/28/2005[3]	E	Decreasing	1	Completed 09/2012	08/2011; Review Initiated 2/2015
SOCKEYE						
Sockeye, Ozette Lake ESU	3/25/1999; 6/28/2005[3]	T	Stable	9	Completed 5/2009	08/2011; Review Initiated 2/2015
Sockeye, Snake River ESU	11/20/1991; 6/28/2005[3]	E	Increasing	5	Draft Completed 7/2014	08/2011; Review Initiated 2/2015

Species/ESU/DPS	Date Listed / Reclassified	ESA Status	Trend	Recovery Priority Number[1]	Status of Recovery Plan	Date 5-Year Status Review Completed[2]
STEELHEAD						
Steelhead, Puget Sound DPS	5/11/2007	T	Decreasing	7	Under Development	08/2011; Review Initiated 2/2015
Steelhead, Lower Columbia River DPS	3/19/1998; 1/5/2006[3]	T	Stable	9	Completed 7/2013	08/2011; Review Initiated 2/2015
Steelhead, Upper Columbia River DPS	8/18/1997; 1/5/2006[3]	T	Stable	9	Completed 10/2007	08/2011; Review Initiated 2/2015
Steelhead, Middle Columbia River DPS	3/25/1999; 1/5/2006[3]	T	Stable	9	Completed 09/2009	08/2011; Review Initiated 2/2015
Steelhead, Upper Willamette River DPS	3/25/1999; 1/5/2006[3]	T	Stable	9	Completed 8/2011	08/2011; Review Initiated 2/2015
Steelhead, Snake River Basin DPS	8/18/1997; 1/5/2006[3]	T	Stable	9	Under Development	08/2011; Review Initiated 2/2015
Steelhead, Northern California DPS	6/7/2000; 1/5/2006[3]	T	Unknown	5	Under Development	12/2011; Review Initiated 2/2015
Steelhead, Central California Coast DPS	8/18/1997; 1/5/2006[3]	T	Unknown	5	Under Development	12/2011; Review Initiated 2/2015
Steelhead, South-Central California Coast DPS	8/18/1997; 1/5/2006[3]	T	Unknown	5	Completed 12/2013	12/2011; Review Initiated 2/2015
Steelhead, Southern California Coast DPS	8/18/1997; 05/01/2002[4]; 1/5/2006[3]	E	Unknown	1	Completed 1/2012	12/2011; Review Initiated 2/2015
Steelhead, California Central Valley DPS	3/19/1998; 1/5/2006[3]	T	Unknown	5	Completed 7/2014	08/2011; Review Initiated 2/2015
ATLANTIC SALMON						
Gulf of Maine DPS	11/17/2000; 6/19/2009[6]	E	Decreasing	1	Completed 11/2005[6]	12/2006
NON-SALMONID FISH						
ATLANTIC STURGEON						
Gulf of Maine DPS	2/6/2012	T	Stable	5	Not Started	N/A
New York Bight DPS	2/6/2012	E	Unknown	5	Not Started	N/A
Chesapeake Bay DPS	2/6/2012	E	Unknown	5	Not Started	N/A
Carolina DPS	2/6/2012	E	Unknown	5	Not Started	N/A
South Atlantic DPS	2/6/2012	E	Unknown	5	Not Started	N/A
BOCACCIO – PUGET SOUND/GEORGIA BASIN DPS	4/28/2010	E	Unknown	3	Under Development	Review Initiated 2/2015
CANARY ROCKFISH – PUGET SOUND/ GEORGIA BASIN DPS	4/28/2010	T	Unknown	7	Under Development	Review Initiated 2/2015

Species/ESU/DPS	Date Listed / Reclassified	ESA Status	Trend	Recovery Priority Number[1]	Status of Recovery Plan	Date 5-Year Status Review Completed[2]
YELLOWEYE ROCKFISH – PUGET SOUND/GEORGIA BASIN DPS	4/28/2010	T	Unknown	7	Under Development	Review Initiated 2/2015
EULACHON – SOUTHERN DPS	3/18/2010	T	Stable	11	Under Development; Recovery Outline 06/2013	Review Initiated 2/2015
SCALLOPED HAMMERHEAD SHARK CENTRAL & SOUTHWEST ATLANTIC DPS	7/03/2014	T	Unknown	9	Not Started	N/A
SCALLOPED HAMMERHEAD SHARK EASTERN PACIFIC DPS	7/03/2014	E	Unknown	7	Not Started	N/A
SCALLOPED HAMMERHEAD SHARK INDO-WEST PACIFIC DPS	7/03/2014	T	Unknown	9	Not Started	N/A
GREEN STURGEON – SOUTHERN DPS	4/7/2006	T	Unknown	5	Under Development; Recovery Outline 12/2010	In Progress
GULF STURGEON	9/30/1991	T	Mixed	7	Completed 9/1995	09/2009
SHORTNOSE STURGEON	3/11/1967	E	Mixed	5	Completed 12/1998	In Progress
SMALLTOOTH SAWFISH – U.S. DPS	4/1/2003	E	Stable	7	Completed 1/2009	10/2010
PLANTS						
JOHNSON'S SEAGRASS	9/14/1998	T	Stable	9	Completed 09/2002	11/2007
INVERTEBRATES						
BLACK ABALONE	1/14/2009	E	Unknown	3	Under Development	In Progress
WHITE ABALONE	5/29/2001	E	Decreasing	1	Completed 10/2008	In Progress
5 CARIBBEAN CORALS ALL IN U.S. JURISDICTION	09/10/2014	T	Unknown	7	Not Started	N/A
7 INDO-PACIFIC CORALS (15 listed but at least 7 species within U.S. jurisdiction)	09/10/2014	T	Unknown	7	Not Started	N/A
ELKHORN CORAL	5/9/2006	T	Mixed	7	Draft Completed 9/2014[7]	8/2014
STAGHORN CORAL	5/9/2006	T	Mixed	7	Draft Completed 9/2014[7]	8/2014

Species/ESU/DPS	Date Listed / Reclassified	ESA Status	Trend	Recovery Priority Number[1]	Status of Recovery Plan	Date 5-Year Status Review Completed[2]
SEALS AND SEA LIONS						
ARCTIC RINGED SEAL	12/28/2012	T	Unknown	7	Under Development	N/A
HAWAIIAN MONK SEAL	11/23/1976	E	Decreasing	1	Completed 3/1983; Revision Completed 08/2007	08/2007
STELLER SEA LION – WESTERN DPS	4/5/1990; 11/26/1990; 5/5/1997	E	Mixed	7	Completed 12/1992; Revision Completed 3/2008	In progress
WHALES						
BELUGA WHALE – COOK INLET DPS	10/22/2008	E	Decreasing	1	Under Development	In Progress
BLUE WHALE	6/2/1970	E	Stable	7	Completed 7/1998; Notice to Revise 4/2012	In Progress
FALSE KILLER WHALE – Main Hawaiian Islands Insular	11/28/2012	E	Unknown	3	Not Started	N/A
FIN WHALE	6/2/1970	E	Unknown	9	Completed 7/2010	12/2011
HUMPBACK WHALE	6/2/1970	E	Increasing	9	Completed 11/1991	03/2015
KILLER WHALE – SOUTHERN RESIDENT DPS	11/18/2005	E	Decreasing	1	Completed 1/2008	03/2011
NORTH ATLANTIC RIGHT WHALE	6/2/1970; 03/06/2008	E	Increasing	3	Completed 5/2005	09/2012
NORTH PACIFIC RIGHT WHALE	6/2/1970; 03/06/2008	E	Unknown	3	Completed 6/2013	07/2012
SEI WHALE	6/2/1970	E	Unknown	11	Completed 12/2011	06/2012
SPERM WHALE	6/2/1970	E	Unknown	7	Completed 12/2010	01/2009; Review Initiated 9/2014

[1] Recovery Priority Numbers are designated according to guidelines published by NMFS on June 15, 1990 (55 FR 24296).
[2] For species listed within 5 years, N/A (Not Applicable) is applied to the 5-Year Review Status.
[3] In *Alsea Valley Alliance v. Evans*, 161 F. Supp. 2d 1154 (D. Or. 2001) *(Alsea)*, the U.S. District Court in Eugene, Oregon, ruled that NMFS could not exclude hatchery fish within the ESU when listing. Although the *Alsea* ruling affected only one ESU, subsequent to the ruling, NMFS initiated new status reviews for 27 ESUs and, in 2005, re-listed 15 ESUs of salmon with revised definitions of the populations to be included in the ESU, delisted one ESU (OR Coast coho) and listed one ESU (Lower Columbia River coho); and in 2006, re-listed 10 ESUs of steelhead (and called them DPSs).
[4] This ESU was first emergency-listed as threatened on 8/4/1989, then officially listed as threatened on 11/5/1990, then reclassified as endangered on 1/4/1994.
[5] This ESU was first listed on 8/18/1997; the southern range extension to the U.S.-Mexico border was added to the listing for this ESU via a final rule on 5/1/2002.
[6] The Gulf of Maine Atlantic Salmon DPS was originally listed on November 17, 2000 (65 FR 69469) and was revised to include the Androscoggin, Kennebec, and Penobscot River basins in 2009 (74 FR 29344, June 19, 2009). A recovery plan was completed in 2005 for the 2000 listing and a new recovery plan is under development for the 2009 revised listing.
[7] The final recovery plan for elkhorn and staghorn corals was published on March 6, 2015 (80 FR 12146) and will be reported as final in the next biennial reporting period October 1, 2014–September 30, 2016.

Hawaiian Monk Seal
Credit: NOAA

Preventing Extinction – Our Journey

Recovery of threatened and endangered species is a long-term challenge, but it also offers long-term benefits to the health of our environment and our communities. Recovery is the process of conserving these species and ecosystems as well as ensuring that listed species remain functioning members of the ecosystems we all depend upon. Actions taken to recover the species in our care also help provide communities with healthier ecosystems, cleaner water, greater opportunities for recreation, and the opportunity for current and future generations to share the benefits of diverse and healthy natural resources.

Actions to achieve a species' recovery may require:

- Restoring or preserving habitat.
- Minimizing or offsetting threats to species.
- Enhancing population numbers.
- A combination of all these actions.

While NMFS is working to recover all listed species under our jurisdiction, the following stories highlight eight species that are most at risk of extinction. All eight species are listed as endangered, and the best available information points to their extinction in the near future because of rapid population decline or habitat destruction. We know the threats facing these species and understand the management actions we can take that will have a high probability of success. The stories describe ongoing efforts and challenges ahead to prevent these species from experiencing further declines.

Atlantic Salmon
Credit: NOAA

SPECIES *in the* SPOTLIGHT

Atlantic Salmon Gulf of Maine Distinct Population Segment

Atlantic salmon *(Salmo salar)*, also known as the "King of Fish," were once found in North American waters from Long Island Sound in the United States to Ungava Bay in Northeastern Canada.
Atlantic salmon are anadromous fish, spending the first half of their life in freshwater rivers and streams along the East Coast of North America and the second half maturing in the seas between Northeastern Canada and Greenland. Today, the last remaining wild populations of Atlantic salmon in U.S. waters exist in just a few rivers and streams in central and eastern Maine. These populations constitute the Gulf of Maine Distinct Population Segment (DPS) of Atlantic salmon that is listed as endangered under the ESA.

Their abundance is critically low (< 500 adults) and the population is continuing to decline. NMFS shares jurisdiction in implementing endangered species programs for Atlantic salmon with the U.S. Fish and Wildlife Service (FWS). NMFS also provides considerable financial support to and works alongside the State of Maine's Department of Marine Resources and Native American tribes in Maine (particularly, the Penobscot Indian Nation) to implement management and conservation measures that benefit Atlantic salmon. Because of the population's critically low abundance and loss of historical range, we will strengthen our efforts with these vital partners and marshal resources within NMFS, to stabilize and prevent the extinction of the "King of Fish."

Wild Atlantic salmon populations were once abundant in the United States as far south as the Housatonic River in Connecticut. Atlantic salmon were an important food source that was highly sought after by Native American tribes in the Northeast and American colonists up until the late 1800s. In the late 1800s, Maine's Fishery Commissioner, Charles Atkins, suggested that, based on the number of weirs and the average daily yield described by fishermen, Atlantic salmon annual harvests in the Kennebec River alone may have once exceeded 200,000 fish. He went on to estimate that in the Penobscot River in Maine in 1868, a time in which salmon populations were already declining, approximately 15,000 Atlantic salmon were harvested in fishing weirs and other means. Although these numbers cannot be validated, Atkins' estimates help us understand the value that wild Atlantic salmon once had in the United States, as a source of both food and income. Though populations in the United States had declined significantly by the 1900s, rivers in Maine continued to support enough Atlantic salmon to provide for a commercial fishery through 1947 and a world-famous recreational fishery through the 1990s.

Dams, pollution, and overfishing led to significant declines in wild Atlantic salmon abundance in the late 1800s and early 1900s. By the late 1800s, many rivers were polluted to the point that they were unsafe for both fish and people. Dam construction (that began in many rivers in the Northeastern United States in the early 1600s) blocked or impaired Atlantic salmon from accessing abundant, clean, freshwater habitats that they require for spawning and juvenile rearing. Though laws and policies addressed several threats faced by Atlantic salmon within the United States, such as pollution (e.g., Clean Water Act) and overfishing (e.g., Magnuson-Stevens Fishery Conservation and Management Act and state-mandated closures), the threats associated with dams largely remain.

Atlantic Salmon
Credit: US Fish & Wildlife Service

More than 90 percent of Maine's rivers and streams are impacted from the effects of dams. In fact, only approximately 8 percent of their historic spawning and rearing habitat in Maine is currently accessible. Over 400 dams exist along the rivers and streams that currently support wild Atlantic salmon in Maine and only 75 of these have fishways, a structure such as a fish ladder that allows fish to swim around barriers such as dams to reach their natural spawning grounds. Even at dams where fishways have been constructed, Atlantic salmon are often unable to find fishway entrances, leading to substantial delay and mortality during their migration. Salmon may also experience mortality from increased predation around dams. Dams also directly injure and kill migrating salmon (and other species); these problems are particularly acute at dams with hydroelectric turbines.

High mortality rates in the marine environment represent an ongoing and significant threat to the species. In fact, the threats associated with low marine survival have propelled already low populations of Atlantic salmon in U.S. waters to the point of near extinction. Not all of the causes of low marine survival are well known. However, threats like ocean regime changes, shifts in predator and prey abundance/distribution, and climate change are emerging as important factors influencing salmon survival at sea. In addition, foreign fisheries are a modest but documented threat to Atlantic salmon that spawn in U.S. rivers.

Recovery Efforts

Scientists and managers at NMFS are heavily invested in Atlantic salmon recovery efforts. Through recovery planning we understand the threats and have identified a range of management actions that must be taken to address their decline. Some of the efforts that we are involved in include:

- Work with dam owners as well as state and tribal partners to find solutions that allow Atlantic salmon access to freshwater habitats.
- Conserve and restore other species (e.g., river herring) that salmon may depend upon.
- Negotiate with international partners to minimize impacts to U.S. origin fish in distant-water fisheries.
- Invest in science to ensure we implement conservation measures that will be most effective in restoring salmon populations at the lowest possible cost.

NMFS is working with dam owners and local interests to develop solutions at dams that will allow for salmon recovery. NMFS provided significant resources ($22.5 million) for the oversight, funding, and monitoring of two mainstem dam removals on the Penobscot River, which were part of the Penobscot River Restoration Project. In addition, NMFS staff continue to work with hydropower owners to craft plans for effective downstream and upstream fish passage at nearly all major hydropower dams within the designated critical habitat area for Atlantic salmon. The ultimate goal is to restore access to all necessary habitats for Atlantic salmon so that the fish are able to complete their life cycle moving from marine to freshwater and vice versa.

Atlantic Salmon Smolt
Credit: Larry Shaw/NOAA

In the United States, commercial fisheries for Atlantic salmon have been closed since 1947; however, small but significant fisheries continue within the species' migratory corridor off the coast of Canada and Greenland. To effectively engage in issues requiring international collaboration such as these distant water fisheries, NMFS staff maintains a strong and influential presence at the North Atlantic Conservation Organization (NASCO) and International Conference for the Exploration of the Seas (ICES). NMFS' role is to work to reduce impacts to U.S. stocks from distant water fisheries, and seek to hold ourselves and other countries accountable for the protection and conservation of Atlantic salmon.

NMFS and Maine scientists compile and analyze data on the status of the Gulf of Maine Atlantic salmon DPS and take this information to the International Council for the ICES Working Group on North Atlantic Salmon, which provides scientific advice to NASCO. NMFS scientists coordinate and participate in the international sampling effort for the Greenland internal-use-only fishery. Data collected from this effort and NMFS-funded research have revealed that biological communities in the marine environment that Atlantic salmon depend on have been altered by changes in marine conditions in recent years. Most notable is an apparent shift or decline in capelin, a forage fish that is the primary source of food for Atlantic salmon while off the coast of Greenland. There has been a decline in the size and abundance of capelin in the areas in which Atlantic salmon congregate to feed. This decline may further challenge Atlantic salmon if they are unable to attain enough energy to complete their migrations back to their natal rivers to spawn.

With Atlantic salmon at historically low abundance levels and at such risk of extinction, NMFS is making every effort with our partners to identify and address the threats to the species and achieve recovery. We have identified the Atlantic salmon Gulf of Maine DPS as one of the eight priority species in our strategy to prevent extinction. We are developing a recovery plan and a 5-year plan of action, which build upon existing conservation plans and detail the focused efforts that will be needed over the next 5 years. We cannot successfully stop the population decline without the efforts of our partners in the public and private sectors. It will take time and significant effort and resources to prevent Atlantic salmon from becoming extinct within the United States. Our goal is to stop the population decline and recover this species so that it may resume its critical role in the ecosystem and its role as the iconic King of Fish.

Coho Salmon
Credit: Morgan Bond/NOAA

SPECIES *in the* SPOTLIGHT

Central California Coast Coho Evolutionarily Significant Unit

Central California Coast coho salmon *(Oncorhynchus kisutch)* were first listed as threatened in 1996, and subsequently reclassified as an endangered species in 2005. This unique run of coho salmon, at the southern extent of the species' range, has teetered on the brink of extinction. All available time series show a continued and significant downward trend, poor adult returns, and an increase in the risk of extinction since 2005. The two exceptions are the Russian River and Scott Creek, where recent increases of adult abundances have been observed due to the operation of conservation hatchery programs. To address the critical status of this imperiled species, we are marshalling resources and reaching out to vital partners to stabilize their populations and prevent extinction. Thanks to the concerted efforts of many partners summarized below, there is still hope that Central California Coast coho can be set on a path toward recovery.

The Phoenix Run of Scotts Creek Coho Salmon

The southernmost population of coho salmon in North America is found in the Santa Cruz Mountains. By the late 1990s, coho salmon in this area were reduced to just one remaining population—Scotts Creek—on the verge of extinction. With hopes pinned to this one river, NMFS' Southwest Fisheries Science Center and the Monterey Bay Salmon and Trout Project formed a partnership with other agencies and non-governmental organizations to create a captive broodstock conservation program and hatchery in 2001 (Kingfisher Flats). Returning adults are captured, genetically tested, and spawned to maximize diversity and prevent inbreeding. The eggs are incubated and the young are raised in the hatchery, tagged, and then released into the streams to rear and migrate to the sea. Variable ocean conditions, a simplified freshwater habitat, and disturbances such as fire and floods put strain on fewer and fewer fish. As observed elsewhere in California, salmon populations that are at low abundances and have little life-history or habitat diversity are particularly susceptible to a variable environment and disturbances; Scotts Creek is no exception.

The 2009 Scotts Creek fire was particularly hot, moved rapidly across the watershed, and came within inches of destroying the conservation hatchery. The local fire captain, who was also a board member for the hatchery, and his crew defended the hatchery overnight from the encroaching fire. Despite losing radio contact and having to fight the fire alone, the crew's heroic efforts saved the hatchery. The hillslopes of Scotts Creek still show the impacts from the 2009 fire and subsequent flooding, but the captive broodstock program continues to serve as the lifeboat for this population. Since the fire and floods, there have been several years in which only a few lonesome adults returned to spawn. Beginning in 2010, changes were made to improve the diet of the hatchery broodstock, infuse new genetic diversity, improve the facility, and alter release strategies to better deal with variable ocean conditions. With these changes, despite a record drought, hundreds of coho salmon returned to the Santa Cruz Mountains in 2014 and 2015, representing the largest coho salmon return in over 10 years. Thanks to the dedication and perseverance of these volunteers, scientists, collaborators, and firefighters, this "phoenix run" of Scotts Creek coho salmon rose from the ashes, sustaining our hopes for eventual recovery.

Credit: Claudia Makeyev

Saving Russian River Coho Salmon

Historically, more than 30 Russian River streams supported wild coho salmon runs. By 2001, only one stream in the watershed supported coho salmon. In 2001, the U.S. Army Corps of Engineers, California Department of Fish and Wildlife, NMFS, Sonoma County Water Agency, University of California, and non-profit groups took action to save the last of the coho salmon. Between 2001 and 2003, wild juvenile coho salmon were collected and brought into the Warm Springs Hatchery to be used as broodstock. In the hatchery, fish are raised to various ages, fed krill (their natural food source), tagged, and genetically tested to maximize genetic variation during the spawning process. Field crews use water-filled backpacks fitted with aerators and hike the creeks, releasing the juvenile fish at low densities into the best available habitats. This release strategy allows the fish to imprint on the creek with the goal that they will return to these streams as adults to spawn naturally.

The need for facility improvements and funding is a constant challenge, and the prolonged and severe drought has made sustaining Russian River coho salmon difficult. The program, however, is a success. Over the past several years, wild juvenile coho salmon have been documented in 19 of 23 streams surveyed, and the number of adults returning to their release streams has increased steadily. The hatchery also rears small numbers of fish from other creeks across the listed species' range—including some from Scotts Creek. The hatchery efforts work in tandem with a comprehensive monitoring program funded by the U.S. Army Corps of Engineers and operated by the University of California Cooperative Extension, to track progress on coho salmon growth, survival, and abundance. The dedicated group of agencies, scientists, non-profit organizations, and other collaborators have rescued this run of coho salmon in the Russian River from near-certain extinction.

Partnerships – Investments in Recovery

Dedicated partners and focused actions are essential to saving Central California Coast coho salmon from extinction.

- Water agencies are altering flow regimes to attract adults upstream to spawn and improve outmigration conditions for juveniles.
- Counties are changing regulations to discourage the removal of wood from streams.
- State agencies have improved regulations for water management, freshwater recreational fishing, and forestry practices to improve habitat conditions for coho salmon.
- NMFS Pacific Coastal Salmon Recovery Fund is supporting the implementation of priority actions detailed in the Central California Coast Coho Salmon Recovery Plan.

Coho Salmon
Credit: US Army Corps of Engineers

- Multiple organizations are collaborating to monitor the health of salmon populations, and our progress toward achieving recovery.
- The Nature Conservancy's "Salmon Snapshot" website provides a central and comprehensive source of information on populations, habitats, conditions, and actions needed for recovery. The Nature Conservancy has also done something no one else has done before—restoring an entire watershed from the headwaters to the sea to comprehensively address the factors limiting coho salmon recovery.
- The NOAA Veterans Corp pilot program is actively improving habitat conditions for Central California Coast coho salmon while also providing veterans with valuable job skills.
- Timber companies are investing in Habitat Conservation Plans, implementing large-scale instream restoration projects, and conducting critical scientific research.
- Private landowners are also working with state and federal agencies to protect endangered coho. In 2010, for example, NMFS and a private landowner established the first conservation "bank" along coastal California to permanently preserve and restore over 400 acres of prime coho salmon habitat. The stream supports perennial cool flows (even during drought conditions) and the landowner has conducted restoration and allowed outplanting of juvenile coho salmon from the Warm Springs Hatchery program.

What Hope Means for Coho Salmon

These actions are working to save Central California Coast coho salmon from extinction and are paving a path forward to recovery. Sustaining hope for recovery, however, will require additional investment and renewed vigor among our partners implementing recovery actions. Critical improvements are needed for hatchery facilities, including the Warm Springs and Kingfisher Flats hatchery facilities. We have identified the Central California Coast coho as one of the eight priority species in our strategy to prevent extinction. As part of this initiative/strategy, we are developing a 5-year plan of action for this species, which will build upon the Central Coast Coho Salmon Recovery Plan and detail the focused efforts needed over the next 5 years. We will engage our vital partners in the public and private sectors in actions they can take to support this important effort.

Beluga Whale
Credit: Cook Inlet Beluga/LGL Alaska Research Associates

SPECIES *in the* SPOTLIGHT

Cook Inlet Beluga Whale Distinct Population Segment

At the mouth of Ship Creek in Anchorage, Alaska's largest city, anglers brave the boot-sucking mud as they pursue bright silver and king salmon migrating upstream from Cook Inlet. Tourists are often surprised to see the anglers fishing so close to downtown businesses and the busy Port of Anchorage, and then their surprise is magnified when they see beluga whales, which chase those same salmon along the city's waterfront and all across the adjacent Knik Arm. The white whales' squeals, squeaks, and chirps illustrate why sailors long ago called them "sea canaries."

Belugas are a gregarious small whale species (up to 15 feet long) common to many regions in Alaska as well as Russia, Canada, and Greenland. Of the five Alaskan stocks, the Cook Inlet beluga stock is the smallest and the most isolated from other belugas. The whales share Cook Inlet with Alaska's human population center, transportation hub, and largest concentration of industrial activity. Cook Inlet belugas once were a valuable part of the regional Alaska Native subsistence diet, but the population has declined by nearly 75 percent since 1979 (from about 1,300 to 340 whales.) This rapid decline was most likely due to unregulated subsistence harvest at a level that this small population could not sustain. The hunt has been suspended since 2005, but unfortunately the whale population has not recovered as expected. NMFS designated the Cook Inlet beluga whale population as depleted under the Marine Mammal Protection Act in 2000, and listed these belugas as an endangered species under the ESA in 2008. The rapid decline and dire status of the Cook Inlet beluga whale population makes it a priority for focusing efforts within NMFS and with our partners to stabilize and prevent extinction of this iconic species.

These whales exhibit seasonal shifts in distribution and habitat use within Cook Inlet, but they stay in the inlet throughout their lives. The seasonal shifts appear to be related to corresponding changes in their physical environment (e.g., ice and currents) and food sources, specifically the timing of fish runs. Generally, belugas spend the ice-free months in upper Cook Inlet, often in discrete high-use areas with plenty of fish, and then head south to the deeper waters of middle Cook Inlet in winter, but whales may be found anywhere in Cook Inlet at any time of year.

The summer range of Cook Inlet belugas has changed significantly since the 1970s, contracting northward and eastward toward Anchorage in upper Cook Inlet. This range contraction happened at the same time that the population underwent rapid decline. The reason for this change of distribution is not known for sure, but the range contraction puts a larger portion of the endangered population in close proximity to the most densely populated area of the state during the busy summer season, when boating, construction, and other human activities all increase. Summer is an important season for Cook Inlet belugas as well. This is when they give birth, nurse their young, and chase and catch enough salmon and eulachon to sustain them over the winter when prey sources are less abundant.

Beluga Whale
Credit: NOAA

The belugas' summer core range is extremely silty due to the glaciers that feed into upper Cook Inlet. This makes their adept use of sound essential to communicate, locate prey, avoid predators, and navigate. Cook Inlet is a naturally noisy environment due to the extreme tides and heavy silt load. Adding human sounds from ship traffic, construction projects, oil and gas activities, and other sources can make it more difficult for belugas to thrive. Especially loud underwater sounds can kill marine mammals, but sublethal effects are more common, and include injury or behavioral changes that can range from mild (e.g., increased vocalizations) to severe (e.g., abandonment of vital habitat). Thus, assessing and managing the effects of human-caused noise is a major issue for the conservation and recovery of Cook Inlet beluga whales.

To help work toward recovery of these whales, NMFS formed a recovery team of scientists and stakeholders to assist with developing a recovery plan. The draft plan builds upon scientific studies, traditional knowledge, and other observations and sources of information to identify gaps in our knowledge and the research needed to fill those gaps. It reviews and assesses threats to Cook Inlet beluga whales and identifies management actions to help address the threats. Threats with the potential to limit recovery include anthropogenic noise; catastrophic events (e.g., natural disasters, spills, mass strandings); habitat loss or degradation; prey reduction; disease agents (e.g., pathogens, parasites, harmful algal blooms); unauthorized takes and trauma; pollution; predation; hunting, poaching, or intentional harassment; and cumulative and synergistic effects of multiple stressors. The draft recovery plan also identifies specific criteria that will signal the recovery of these animals.

In the development of the draft recovery plan, NMFS reached out to all parties with interests in these whales, including Cook Inlet area local governments, Alaska Native co-management partners, the oil and gas industry, fishing groups, environmental organizations, the State of Alaska, and other federal agencies. The draft plan will be available for public review in 2015 before it is finalized. We have identified the Cook Inlet beluga whale as one of the eight priority species in our strategy to prevent extinction. As part of this strategy, we are publishing the draft recovery plan for the public to review, concurrent with this report, and are developing a 5-year plan of action for this species that builds on the draft recovery plan and details the focused efforts that are needed over the next 5 years. NMFS will continue to involve stakeholders in this priority species initiative as the plan's key strategies for preventing extinction are implemented over the coming years.

SPECIES *in the* SPOTLIGHT

Hawaiian Monk Seal

Hawaiian Monk Seal
Credit: NOAA

The Hawaiian monk seal *(Neomonachus schaunislandi)* **is the last surviving species in its genus, and is endemic to the 1,500-mile-long Hawaiian Islands archipelago, from Hawaii Island to Kure Atoll.** Only about 1,100 Hawaiian monk seals are left in the world and their population is still declining. With numbers that small, the life of every seal can be measured in its impact on the population growth or decline. Focused efforts and heightened partnerships are essential to stabilizing and preventing the extinction of the Hawaiian monk seal. There are inherent challenges to conserving and recovering the Hawaiian monk seal across such an expansive and remote area, especially with a range of ecological and anthropogenic threats affecting the population. Even so, NMFS is better poised than ever to save Hawaiian monk seals from extinction and advance recovery.

Although much more work remains before the species is recovered, NMFS and our partners have made significant headway in reducing extinction risks thus far. With more than 30 years of research and management experience with Hawaiian monk seals, NMFS is currently working across the archipelago to address the population decline, and recovery actions are making a measurable difference: up to 30 percent of the monk seals in the population today are alive as a result of direct recovery interventions to save individual seals and allow them to have future offspring. Over this time period, the rate of monk seal population decline has been cut in half.

Saving the species starts with individual seals. Because of their value to the population growth potential, many monk seal recovery efforts focus on young and reproductive females. One example that highlights the success and impacts of these actions is R5AY, fondly known locally as Honey Girl. This seal had seven pups, six of which were also female, by the time she was 15 years old. In 2012, she was found extremely emaciated with hook-and-line entanglement damage so extensive that NMFS needed to intervene. Through this life-saving intervention, this story has a happy ending; Honey Girl survived and went on to successfully birth two more (female) pups to date. Without the efforts of NMFS and our partners, Honey Girl, and other seals like her, would have died and the population trend would be much worse.

Partnerships with the State of Hawaii, non-profit organizations, and individuals are critical to recovery efforts. In an exciting new partnership, The Marine Mammal Center has opened a new, privately funded emergency monk seal hospital, called Ke Kai Ola (or "The Healing Sea"), which is saving monk seals that would almost certainly die without help. Partners also help with engaging fishermen in talk-stories, distributing barbless hooks, and educating the public on the seals and safe viewing practices. A research study in partnership with National Geographic CritterCam is engaging students, communities, and stakeholders on the foraging behavior and movement patterns of monk seals.

Hawaiian monk seal recovery continues to faces challenges. Monk seals have been the victims of intentional killings. Deaths of individual seals and, in one case, a pregnant female, can be devastating to the population. We are working to build capacity to work with communities in combating misinformation and misconceptions about the seals. The growth of a small population of monk seals in the main Hawaiian Islands, while encouraging, has meant increasing numbers

Monk Seal
Credit: Mark Sullivan/NOAA

of interactions with fisheries and other ocean users. Building relationships and trust to effectively develop solutions to these challenges is a delicate task that can only be built over time.

Notwithstanding the challenges, there is significant hope for the recovery of Hawaiian monk seals. NMFS is prepared with the plans, permits, and key stakeholder support in place to execute a new recovery initiative that is expected to reverse the species decline within 5 years. In 2014, NMFS received a new ESA-Marine Mammal Protection Act (MMPA) permit to implement these new and expanded recovery actions. We also have reorganized the Monk Seal Recovery Team to assist with implementation and, with their help, will release a draft Main Hawaiian Islands Monk Seal Management Plan in 2015. We will continue to work with our partners to implement priority recovery actions to accelerate monk seal recovery:

- Human Dimensions of Monk Seal Recovery Implementation and Community Empowerment, including working with communities and stakeholders to recover the species, institute grant programs, and integrate Native Hawaiian and other traditional resource management values and practices into the efforts.
- Northwestern Hawaiian Island Research and Recovery Initiatives, including restoring Northwest Hawaiian Island Recovery Camps to optimal levels to maximize the number of seals benefiting from interventions and ensure robust data collection, while expanding recovery activities, and initiating critical research on the effects of climate change on monk seals.
- Health Assessment, Monitoring, and Emerging Disease Research and Prevention, including increased disease monitoring and health assessments, research on diseases and mitigation strategies, implementation of a vaccination plan to prevent disease outbreaks, and establishing a network of partners to prevent and manage the threats of disease.
- Research, Management, and Mitigation of Human-Seal Interactions, by developing a consortium of partners to mitigate seal-fisheries interactions, developing tools and strategies to address dangerous aberrant behaviors in monk seals, and implementing a multi-faceted social marketing strategy to effectively promote co-existence around monk seals.
- Hawaiian Monk Seal Recovery Program Infrastructure, including hiring additional staff, equipment, tools, and consumables to fully implement recovery initiatives.

NMFS is at a crucial juncture where continued commitment and investment in new monk seal recovery efforts will yield significant benefits for both monk seals and NMFS stakeholders, including local fisheries and communities. The Hawaiian monk seal is one of the eight priority species in our strategy to prevent extinction. As part of this strategy, we are developing a 5-year plan of action for this species that builds on the recovery plan and details the focused efforts that are needed over the next 5 years. We will continue to engage vital partners in the public and private sectors in actions they can take to support this important effort. Through continued commitment and dedication, we can reverse population trends and increase the chances that this rare seal will survive, and future generations can enjoy and co-exist with monk seals (like R5AY Honey Girl and her pups) for years to come.

Leatherback
Credit: Scott Benson/NOAA

SPECIES *in the* SPOTLIGHT

Pacific Leatherback Sea Turtle[3]

Leatherback sea turtles ***(Dermochelys coriacea)*** **are globally listed under the ESA as endangered.** Leatherbacks are known to range as far north as ~71° N, and to 47° S latitude in the southern hemisphere. Nesting occurs on tropical beaches from 38° N to 34° S latitude, depending on ocean basin. Although the leatherback populations in the Caribbean and Atlantic Ocean are generally stable or increasing, the situation in the Pacific Ocean is dire: in recent decades, Western Pacific leatherbacks have declined more than 80 percent and Eastern Pacific leatherbacks have declined by more than 97 percent. Without intervention and making critical investments within NMFS and with our vital partners, further declines are likely to result in the loss of leatherbacks in the Pacific Ocean.

Like other sea turtle species, leatherbacks face significant threats from entanglement and/or hooking in fisheries (bycatch), directed take (including eggs and adults), coastal development, pollution, marine debris, and climate change. While climate change is an emerging and major threat to marine turtle conservation and recovery, leatherbacks are particularly vulnerable to bycatch in fisheries. Gear modification and best practices have been implemented in many fisheries that have reduced incidental bycatch of leatherbacks, but globally impacts from artisanal and industrial fishing operations have not been resolved. Currently, fishery bycatch remains the most significant threat to leatherbacks.

Recovery Efforts

The United States has taken significant steps to protect leatherbacks in its waters. In the Pacific, since 2001 the Pacific Leatherback Conservation Area off of California has prohibited drift gillnet fishing from August 15 to November 15 in 213,000 square miles of the Exclusive Economic Zone. In 2009, the Mariana Trench, Rose Atoll, and Pacific Remote Islands National Monuments (95,000 square miles) were established, prohibiting commercial and recreational fisheries, thus providing important protected areas for leatherbacks. Further, in 2012 critical habitat was designated off of the U.S. West Coast, because these areas are key foraging sites for the western Pacific leatherback. Like the Atlantic fisheries, the Hawaii-based longline fisheries have been regulated to reduce leatherback interactions. The fleet is required to use large circle hooks with whole fin-fish bait, and the shallow-set swordfish-targeting component of the fleet has 100 percent observer coverage and closes for the year if it reaches annual cap of 26 leatherback interactions. As required by NMFS, skippers participating in the Hawaii-based longline fishery and the California drift gillnet fishery must attend Protected Species Workshops annually where they receive new and updated information (including TurtleWatch, a predictive map of where turtles may occur so that fishermen can avoid fishing in those areas), and are trained on safe handling and release procedures, which includes the resuscitation of sea turtles. Longline fishermen are also required to carry and use dipnets, line cutters, and dehookers to release any incidentally caught sea turtles.

The United States has also actively engaged in international efforts to recover Atlantic and Pacific leatherbacks, as U.S. efforts alone will not recover leatherbacks. This includes participation in several multilateral and regional treaties that have resulted in measures to conserve leatherback

[3] The leatherback sea turtle is listed as endangered globally (35 FR 8491, June 2, 1970). Populations in the Atlantic Ocean are generally stable or increasing; however, the situation is dire in the Pacific Ocean where key populations have been extirpated or have significantly declined. Thus, we include the leatherback in our list of most at-risk species due to their status in the Pacific Ocean.

Large female leatherback turtle at a nesting beach in the Solomon Islands. Credit: Karin A. Forney/NOAA

sea turtles. Some of the accomplishments under these agreements include the development of the InterAmerican Convention for the Protection and Conservation of Sea Turtles (IAC) East Pacific Leatherback Task Force, which is identifying ways that IAC Parties can implement the 2012 New Plan of Action for East Pacific Leatherbacks. The United States has also played a leadership role within Regional Fishery Management Organizations, proposing and/or supporting resolutions to protect sea turtles. In addition to these regional and multilateral agreements, NMFS and FWS have supported bilateral projects, either through grants or in-kind support to recover Pacific leatherbacks throughout their range. For instance, in Papua Barat, Indonesia, a significant nesting area for Western Pacific leatherbacks, NMFS and FWS have collaborated with local institutions for more than a decade to reduce poaching on nesting beaches, establish regular nesting surveys, improve community engagement in the protection of the nesting beaches, and ensure that protection continues into the future.

Further, NMFS and FWS have grant programs to assist sea turtle conservation activities throughout the world. Between 2000 and 2014, the NMFS Pacific Islands Region Marine Turtle Management and Conservation Program supported several projects to protect or monitor leatherbacks in the Philippines, Malaysia, Papua New Guinea, Solomon Islands, Vanuatu, and Peru. Fishery bycatch mitigation projects have been initiated in Chile, Peru, and Indonesia. Likewise, in 2014 the U.S. FWS Marine Turtle Conservation Act supported leatherback conservation projects in Chile, Costa Rica, Ivory Coast, Democratic Republic of Congo, Equatorial Guinea, Gabon, Ghana, India, Indonesia, Liberia, Mexico, Nicaragua, Panama, Papua New Guinea, Sierra Leone, and Solomon Islands. Through these grants and the associated scientific and technical assistance, NMFS and FWS are working to improve the recovery of Atlantic and Pacific leatherbacks.

What Still Needs to be Done

Fisheries continue to pose the most significant threats to leatherback recovery. NMFS and FWS continue to prioritize reducing fisheries interactions in U.S. waters as well as working with Regional Fisheries Management Organizations to impose binding measures to reduce fisheries interactions in their convention areas. NMFS and FWS are also working bilaterally with several countries to reduce leatherback bycatch in coastal waters, particularly in the Pacific, but these projects need funding and institutional support to continue. Finally, maintaining and increasing nesting beach protection is critical in the Pacific.

We have identified the leatherback sea turtle as one of the eight priority species in our strategy to prevent extinction. As part of this strategy, we are developing a 5-year plan of action for this species, which builds on the recovery plan and details the focused efforts that are needed over the next 5 years. We will engage vital partners in the public, private, and international sectors to undertake actions to support this vitally important effort. Without focused efforts in the Pacific, leatherbacks may not recover and may become extirpated from the entire ocean basin.

Juvenile Chinook Salmon
Credit: John McMillan/NOAA

SPECIES *in the* SPOTLIGHT

Sacramento River Winter-run Chinook Evolutionarily Significant Unit

Chinook salmon ***(Oncorhynchus tshawytscha)*** **are an iconic part California's natural heritage that must be preserved in order to ensure the economic and recreational wellbeing of future generations.** The endangered Sacramento River winter-run Chinook salmon are particularly important among California's salmon runs because they exhibit a life-history strategy found nowhere else on the West Coast. These Chinook salmon are unique in that they spawn during the summer months when air temperatures usually approach their warmest. As a result, winter-run Chinook salmon require stream reaches with cold water sources that will protect their incubating eggs from the warm ambient conditions. Because of this need for cold water during the summer, winter-run Chinook salmon historically occurred only in rivers and creeks fed by cold water springs, such as the Little Sacramento, McCloud, and Pit rivers, and Battle Creek.

The construction of Shasta and Keswick dams eliminated access to the Little Sacramento, McCloud, and Pit rivers, effectively causing the extirpation of the winter-run Chinook salmon populations that spawned and reared there. The fish from these different populations were forced to mix and spawn as one population downstream of Keswick Dam on the Sacramento River. The construction and operation of hydropower facilities in Battle Creek made the creek inhospitable to winter-run Chinook salmon, and that population also was extirpated.

Today, only the one population of winter-run Chinook salmon spawning downstream of Keswick Dam exists. This population crashed in abundance from an average of 87,000 spawning adults in the late 1960s to fewer than 200 in the early 1990s. This represents a 21 percent decline per year. Over the past 10 years of available data (2003–2013), the population's abundance of spawning adults ranged from a low of 738 in 2011 to a high of 17,197 in 2007, with an average of 6,298. The population has persisted in large part due to agency-managed cold water releases from Shasta Reservoir during the summer and artificial propagation from Livingston Stone National Fish Hatchery's (LSNFH) winter-run Chinook salmon conservation program. Thus, winter-run Chinook salmon are dependent on sufficient cold water storage in Shasta Reservoir, and it has long been recognized that a prolonged drought could have devastating impacts, possibly leading to the species' extinction. Without marshalling our resources and continued and heightened engagement with our vital partners, Sacramento River winter-run Chinook may be lost to future generations.

California is in the midst of one of the most severe droughts on record, and winter-run Chinook salmon are experiencing the consequences of low water storage and a limited volume of cold water in Shasta Reservoir. Monitoring data indicated that approximately 95 percent of winter-run Chinook salmon eggs and fry produced in the Sacramento River in 2014 did not survive. Under varying hydrologic conditions from 2002 to 2013, winter-run Chinook salmon egg and fry survival ranged from three to nearly 10 times higher than it was in 2014. Smolts suffered additional mortality migrating to and through the Delta. The extremely limited production in 2014 is hypothesized to be the result of warm water temperatures that caused egg and newly hatched

Sac Winter Run Chinook
Credit: Andrew Jensen

fry mortality and low flows that led to increased predation on juveniles. The drought took a severe toll on winter-run Chinook salmon in 2014, and unfortunately 2015 will be another challenging year for the population given the low water storage levels as of March 2015 in Shasta Reservoir and limited snowpack.

Given these continued dry conditions, the five agencies primarily involved in the coordinated operation and regulation of the federal Central Valley Project and State Water Project, of which Shasta Reservoir is a major component, are planning for a fourth year of drought. Working in close coordination, the United States Department of the Interior Bureau of Reclamation (Reclamation) and Fish and Wildlife Service (FWS), NMFS, the California Department of Water Resources (DWR), and the California Department of Fish and Wildlife (CDFW) have developed an Interagency 2015 Drought Strategy in order to rapidly and equitably balance all of the competing needs for limited water. In addition to serving as a source of cold water to protect winter-run Chinook salmon eggs and fry during the summer, Shasta Reservoir also supports other beneficial uses, including agricultural and urban water deliveries and Delta salinity management.

The ongoing drought has intensified California's water management challenges and accentuated the urgent and critical need to reintroduce winter-run Chinook salmon populations into their historical habitat, an area that is not dependent on Shasta Reservoir storage and is somewhat buffered from drought by the influence of cold water springs. The survival and recovery of winter-run Chinook salmon cannot be achieved without establishing additional populations.

Efforts to reintroduce winter-run Chinook salmon to the McCloud River and Battle Creek are underway. On the McCloud River, a pilot reintroduction feasibility plan is being developed by Reclamation in collaboration with the FWS, NMFS, CDFW, and DWR. This pilot plan will inform decision-making for a long-term reintroduction upstream of Shasta Dam to the McCloud River. On Battle Creek, a major salmon and steelhead habitat restoration project is underway that, when completed, will restore suitable winter-run Chinook salmon habitat and set the stage for reintroduction. The restoration project is a collaborative effort between the Pacific Gas and Electric Company, Reclamation, FWS, NMFS, the Federal Energy Regulatory Commission, the California State Water Resources Control Board, and CDFW, with valuable participation from the public, including the Greater Battle Creek Watershed Working Group and the Battle Creek Watershed Conservancy. In order to efficiently begin using the restored habitat, CDFW is proactively developing a Battle Creek winter-run Chinook salmon reintroduction implementation plan with technical guidance from NMFS and FWS.

These reintroduction planning efforts are significant steps toward the recovery of winter-run Chinook salmon, but hurdles remain. One challenge is acquiring winter-run Chinook salmon to start the reintroductions. The sole existing population is under severe stress from the ongoing drought and therefore using it as a reintroduction source could unintentionally cause further harm

and increase the population's extinction risk. To address this problem, NMFS, CDFW, and FWS have reinitiated a captive broodstock program to provide source fish for reintroductions as well as to provide a backstop against further declines to the Sacramento River population. Reinitiating the captive broodstock program, along with increasing the conservation program's production to protect the population during the drought, have highlighted the limited physical capacity at LSNFH and the need for facility expansion. Continued multi-agency coordination and support is needed to address reintroduction challenges and successfully re-establish winter-run Chinook salmon populations in the McCloud River and Battle Creek.

In 2014, NMFS issued a final recovery plan that covers winter-run Chinook salmon. Key recovery actions from that plan include:

- Manage Shasta Reservoir water supplies in order to provide cold water for spawning adults, eggs, and fry, stable summer flows to avoid dewatering redds, and winter/spring pulse flows to improve smolt survival through the Delta.
- Complete the Battle Creek Salmon and Steelhead Restoration Project to provide habitat that will support winter-run Chinook salmon.
- Reintroduce winter-run Chinook salmon into Battle Creek and the McCloud River.
- Expand LSNFH facilities to support both the captive broodstock and conservation hatchery programs.
- Improve access to historical floodplain habitat along the lower Sacramento River to provide juveniles with ample food and refuge from predators.
- Implement actions to minimize the loss of adults in agricultural ditches within the Colusa Basin.
- Conduct landscape-scale restoration throughout the Delta to improve the ecosystem's health and support native species.

We have identified the Sacramento River winter-run Chinook Evolutionarily Significant Unit as one of the eight priority species in our strategy to prevent extinction. As part of this strategy, we are developing a 5-year plan of action for this species that builds on the recovery plan and details the focused efforts that are needed over the next 5 years. We will engage vital partners in the public and private sectors in actions they can take to support this important effort.

Southern Resident Killer Whale
Credit: Candice Emmons/NOAA

SPECIES *in the* SPOTLIGHT

Southern Resident Killer Whale Distinct Population Segment

The endangered Southern Resident killer whale *(Orcinus orca)* is an icon of the Pacific Northwest and inspires widespread public interest, curiosity, and awe around the globe. These impressive. black and white mammals are recognized for their cultural and spiritual importance to coastal tribes and communities, their value as a keystone species in the marine ecosystem, and their starring role in the region's ecotourism industry. But the Southern Residents are also among the most contaminated marine mammals in the world. Noise and overcrowding from boat traffic, as well as a scarce supply of their preferred food—salmon—pose serious threats to this endangered population. We need to focus efforts and make critical investments within NMFS and continue to engage vital partners to stabilize and prevent the Southern Resident killer whale's extinction.

Scientists estimate the minimum historical population size of Southern Residents was about 140 animals. Following a live-capture fishery in the 1960s, 71 animals remained in 1974. Although there was some growth in the population in the 1970s and 1980s, with a peak of 98 animals in 1995, the population experienced a decline of almost 20 percent in the late 1990s, leaving 80 whales in 2001. Over the next several years the population grew to 88 in 2005, but since then the population has continued to decline. The population census in the summer of 2014 counted only 78 whales.

In 2003, NMFS began a research and conservation program with congressional funding, and the Southern Residents were listed as endangered in 2005 under the ESA. The population continues to struggle and has declined over 10 percent since 2005. Over the past decade we have come a long way in our understanding and ability to protect this unique population. Through the work of our scientists and regional partners, we have made significant progress on many of the key questions that were asked a decade ago when the whales were first considered for listing. In 2014, we summarized a decade of research and conservation activities in a special report. The report is available at: www.nwfsc.noaa.gov/news/features/killer_whale_report/index.cfm.

With 10 years of funding, collaboration, and ingenuity we have taken substantial and important steps to aid Southern Resident killer whale recovery. Research projects have illuminated new aspects of killer whale biology, behavior, and ecology and helped us better understand the challenges this population faces. For example, we know a lot more about:

- Where the whales spend their time during the winter months.
- What species and stocks of fish they eat, and how this changes throughout the year.
- How the population reacts to changes in abundance of their prey.
- Which chemical contaminants are most affecting the whales.
- How they react to the presence of boat traffic and noise.

Targeted management actions, informed by research, have been taken to secure protections for the whales and their habitat, including:

- Designation of more than 2,500 square miles of critical habitat.
- Regulations to protect the whales from vessel impacts.
- Coordination with coastwide efforts to implement salmon recovery actions.
- Collaboration with partners on monitoring and minimization of harmful contaminants.
- Oil spill response plans to ensure we are prepared in the event of a spill.

We have much better information to guide our decisions than we did 10 years ago, and this research continues. While we can celebrate important successes, the key threats remain challenging to understand and manage and the Southern Resident population has declined in recent years. In particular, the past decade of research has shown that some of the most important threats facing the whales, such as prey limitation and high contaminant levels, cannot be addressed without a long-term commitment. Recovery of threatened salmon, for example, is a monumental task in itself and is expected to take many years. The threat of contaminants is also challenging, particularly considering that the whales remain contaminated by chemicals that were banned decades ago. Some mysteries also persist. For example, will increases in salmon abundance benefit the Southern Resident whales, or will any increases be consumed by other populations such as the Northern Resident killer whales? Are there health issues, like disease, that we have not yet uncovered? We also must consider new threats and actions as we look to a future with climate change, new alternative ocean energy projects, and continuing development along our coasts and in our ports.

In the next 5 to 10 years, several high-priority projects are planned to help answer these remaining questions and inform management actions to advance recovery. Understanding the factors that affect the whales' health will help us identify the most important threats, how they interact, and what we can do to reduce their impacts. New technologies are being developed to better understand risks of disease, assess individual body condition, and gain a better understanding of the health effects of carrying large contaminant burdens. We also plan to explore additional management actions outlined in the recovery plan to stabilize the population. New information on coastal distribution and habitat use from both acoustic monitoring and satellite tagging will inform designation of additional critical habitat for the whales. Seasonal health assessments, habitat use, and potential times and places with prey limitations or vessel impacts that affect health or feeding will be taken into consideration when determining the need for additional conservation actions.

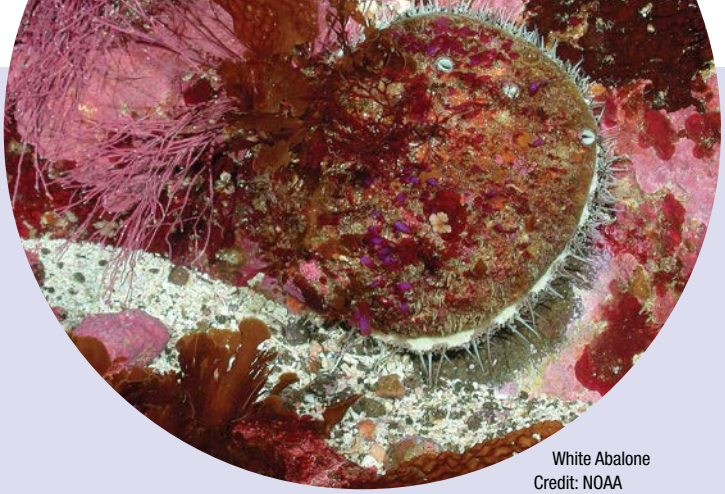
We have identified the Southern Resident killer whale as one of the eight priority species in our strategy to prevent extinction. As part of this strategy, we are developing a 5-year plan of action that builds on the recovery plan and details the focused efforts that are needed over the next 5 years.

Southern Resident Killer Whale
Credit: Candice Emmons/NOAA

Recovery of the Southern Residents and their preferred salmon prey, as well as protection of their broad and diverse habitat, is a long-term process that requires support over a large geographic area, from California to Southeast Alaska. A key to the continued success of research and conservation programs is leveraging resources and maximizing impact through partnerships. For example, the whales spend significant time in Canadian waters and are listed as endangered under the Canadian Species At Risk Act, so transboundary coordination has been, and will continue to be, important to recovery. Our recovery criteria are built around a timeframe of 14 to 28 years based on the biology of these long-lived animals. It will take at least that long for us to evaluate the effectiveness of the protective measures put in place in the past several years. The past 10 years of federal funding and effort have secured a strong foundation of research and conservation, which we can build on to secure recovery of this iconic species for future generations.

SPECIES *in the* SPOTLIGHT

White Abalone



White Abalone
Credit: NOAA

The endangered white abalone *(Haliotis sorenseni)* belongs to an iconic group of herbivorous marine snails that were once plentiful in California kelp forests and that supported a lucrative fishery. Intense commercial harvesting of white abalone began in 1969 and peaked in 1972 at about 143,000 pounds per year. Just 6 years later, the fishing industry caught less than 5,000 pounds. In 1997, California closed all commercial and recreational harvest of abalone except for a highly regulated recreational fishery for red abalone north of San Francisco. A well-studied population in Southern California declined by roughly 78 percent between 2002 and 2010 (from approximately 15,000 to just 3,000 individuals) and will likely continue to decline by approximately 10 percent per year. Intervention is critical for saving the white abalone. NMFS must focus its efforts and continue to engage vital partners to ensure this species does not become extinct in the coming years.

Since 2002, NOAA has conducted research cruises with remotely operated vehicles (ROVs) and SCUBA surveys in the Southern California Bight to monitor abundance of the last known white abalone populations and to characterize their habitat. The number and density of wild white abalone have declined precipitously or remain extremely low at these locations, suggesting that extinction is imminent and natural recovery is not occurring.

White abalone are considered "broadcast spawners," shooting eggs and sperm into the water by the millions when environmental conditions are right. One female can release as many as 10 million eggs at a time, but must be relatively close (on the order of meters, it is thought) to a male for fertilization to occur. Unfortunately the high impact of the fishery diminished the density of white abalone to the point that males and females are not close enough to one another to spawn successfully. Therefore, immediate actions are necessary to reverse the downward abundance trend to prevent the species' extinction and put it on a path toward recovery.

To help avert the likely extinction of the species, a captive propagation and enhancement program was initiated to reintroduce captive-grown white abalone back into the wild. The University of California at Davis' Bodega Marine Laboratory (BML) oversees the program in close coordination with NMFS and in partnership with five other facilities. These efforts are designed to determine whether captive propagation is an effective recovery tool for restoring wild, self-sustaining populations of white abalone. BML and its partners have successfully spawned and reared white abalone each year since 2012, increasing production success and capacity in each successive year. Between 2012 and 2014 the number of animals raised to the juvenile stage has increased by three orders of magnitude, resulting in thousands of settled animals in captivity. BML is currently monitoring the growth and survival of these juveniles, has submitted a request to collect additional broodstock to increase the chances for successful future spawning, and is exploring methods for improving reproductive maturation, fertilization rates, and settlement success. Additional spawning attempts will occur during the spring and early summer of 2015. Success of captive propagation and enhancement programs is essential to reversing white abalone's current trajectory toward extinction.

Concurrent with captive propagation, NMFS is leading efforts with partners to develop innovative methods for outplanting, non-invasive genetic methods for identifying males and females, genomic tools for increasing the fitness potential of captive-raised abalone, non-lethal genetic tagging methods for identifying outplanted abalone, and post-outplant monitoring methods. When the time for reintroducing white abalone comes, these methods and tools will be essential for measuring the survival of outplanted animals and gauging the overall success of the captive propagation and enhancement program.

We have identified the white abalone as one of the eight priority species in our strategy to prevent extinction. As part of this strategy, we are developing a 5-year plan of action for this species, which builds on the recovery plan and details the focused efforts that are needed over the next 5 years. We will continue to engage vital partners in the public and private sectors in actions they can take to support this important effort.

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