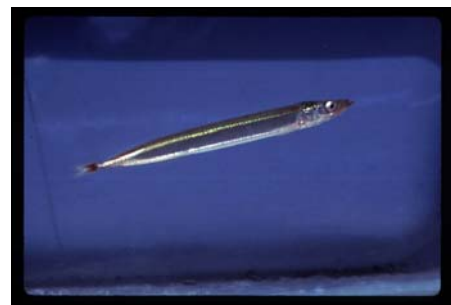


V. Conservation Action Plans

Alaska's CWCS process resulted in creation of conservation action plans for 74 species and species groups. To create these plans, the experts provided information on a standardized form, or "template." On it, they described distribution and abundance, listed key habitats and threats or concerns associated with those habitats, developed objectives with performance measures, and crafted specific conservation actions. They also worked to identify the most important species or species group recovery or management plans and extract findings and conservation actions relating to featured species. These templates constitute the action plan for Alaska's featured species or species groups.

Following is an example conservation action plan for an important species group—
anadromous smelts—which was recommended by both the freshwater fish and marine fish expert groups. The latter addressed anadromous smelts in the marine environment as part of a conservation plan they created for "forage fish occurring in intertidal/shallow subtidal areas." Like all the other conservation action plans created for the CWCS, the forage fish plan can be found in Appendix 4. This extensive appendix forms the technical foundation of Alaska's Strategy and the basis for future collaborative efforts among the department and its partners.



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USFWS

Anadromous Smelts

A. Species Group description

Common name: anadromous smelt (i.e., longfin smelt, eulachon, rainbow smelt)

Scientific names: *Spirinchus thaleichthys*, *Thaleichthys pacificus*, *Osmerus mordax*

B. Distribution and abundance

Range:

Global range comments: Full extent unknown, but populations of some species occur in British Columbia, northwestern and northeastern United States (with introductions in Great Lakes areas), and northwestern Pacific Ocean and Bering Sea (Korea, Japan, Russia)

State range comments: Longfin smelt—Shelikof Strait, southwestern Gulf of Alaska, through Southeast Alaska; rainbow smelt—entire coast of Alaska, but less common along Gulf of Alaska; eulachon—Southwestern Alaska, Aleutians, through Southeast Alaska

<p>Abundance:</p> <p><u>Global abundance comments:</u> Unknown</p> <p><u>State abundance comments:</u> Unknown</p> <p>Trends:</p> <p><u>Global trends:</u> Declining trends for anadromous smelt species across parts of their range</p> <p><u>State trends:</u> Unknown</p> <p>References: McPhail and Lindsey 1970; Mecklenburg et al. 2002; Morrow 1980.</p>
<p>C. Problems, issues, or concerns for species (or species group)</p> <ul style="list-style-type: none"> • Important forage fish for various marine predators, some of which have been identified in this Strategy as of conservation concern (e.g., Cook Inlet beluga whales) (See the Marine Fish template in Appendix 4 called “Forage Fish Occurring in Intertidal/Shallow Subtidal Areas.”) • Alaskan populations of anadromous smelt species poorly documented • Lack of information on these species, including life history, abundance, trophic ecology and instream flow needs • Taken as a human food fish throughout their range • Threats to freshwater and estuarine habitat and fish passage • High interannual variability in populations suggested by saltwater trawl surveys
<p>D. Identify location and condition of key or important habitat areas</p> <ul style="list-style-type: none"> • For all three species: lower reaches of streams and rivers and associated estuaries (e.g., Susitna River); also, eulachon are known to ascend ≥ 100 km up the Susitna (Yentna) system and rainbow smelt to enter Lower Ugashik Lake, likely spawning in tributaries to the lake (M. Weidmer, ADF&G, pers. comm.). • On the North Slope, rearing also occurs in connected lakes in river deltas. • Habitat condition overall thought to be very good to pristine • Marine habitat and ecological conditions unknown
<p>E. Identify concerns associated with key habitats</p> <ul style="list-style-type: none"> • Water diversion or impoundment could impact movements, spawning and rearing habitats, and survival. • Nearshore chronic and acute pollution (such as oil spills, wastewater effluent) • Broad-scale climate shifts affecting marine ecological conditions
<p>F. Goal: Conserve and manage populations of Alaska anadromous smelt species throughout their natural range to ensure sustainable use of these resources</p>
<p>G. Conservation Objectives and Actions</p> <p>Objective 1: Describe and maintain species distribution and population abundance throughout their distributions in Alaska</p> <p>Target: Identify the distribution of anadromous smelt species in Alaska</p>

Measure: Anadromous smelt distribution within Alaska as determined by literature review and surveys at river mouths to the limits of upstream spawning habitat

Target: Anadromous smelt species are within their natural variability of abundance in at least 90% of identified index areas.

Measure: Abundance of anadromous smelt species annually over a 10-year period in identified index areas

Issue 1: Anadromous smelt species are important prey for predators of conservation concern (e.g., beluga whales, loons).

Conservation action: Work with marine scientists (e.g., marine mammal biologists, waterbird and seabird biologists) and Native harvesters to document the significance of anadromous smelt species in the diet of target species; determine the trophic ecology of anadromous smelt species

Issue 2: Information is lacking on this species: life history (e.g., iteroparity vs. semelparity), population structure, migration patterns, distribution, trophic ecology, and habitat needs/use

Conservation actions:

- a) Develop sampling and indexing protocols and implement sampling schedule across geographic range
- b) Identify representative index areas
- c) Identify the habitat types or categories used by anadromous smelts (e.g., as used in ADF&G's fish community inventory database)
- d) Develop sampling techniques and document the migration and movement patterns of different species and life stages
- e) Map current distribution and other similar habitats for future investigation
- f) Develop a network of biologists/organizations to establish unified protocols, share data, leverage sampling efforts, and provide voucher specimens to museums (University of Alaska Fairbanks, etc.). AFS-Alaska Chapter might be a venue for organizing and consolidating information.

Issue 3: Habitat alteration, sufficient instream flow, fish passage, and water quality are potential concerns

Conservation actions:

- a) Determine instream flow needs and habitat requirements for all life history phases of smelts
- b) Consider these smelt species when there are issues of fish passage and habitat alteration (e.g., water diversions, dams, timber harvest, mining, sedimentation)
- c) Develop a coordinated effort among governmental and nongovernmental agencies to collate and exchange information on the habitat and instream flow needs of these smelts

Issue 4: Anadromous smelt species are taken as a food fish; harvest levels are not monitored for all species in all locations.

Conservation actions:

- a) Obtain local information and knowledge on local anadromous smelt distribution, relative abundance, and harvest
- b) Develop sampling protocol to monitor locations, timing, magnitude and level of harvest
- c) Collect biological samples (e.g., size, sex ratio, and if possible, species, age structure)
- d) Involve communities in monitoring, and share information
- e) Train local communities to monitor abundance and harvest effort

H. Propose plan and time frames for monitoring species and their habitats

Promote coordination with state agencies, federal agencies, universities, Native entities, and nongovernmental organizations to conduct monitoring every year for 10 years to establish the target indices. Possibly involve to administer the request for proposals process for monitoring.

I. Recommended time frame for reviewing and revising species status and trends

Review at five years.

J. Bibliography

- Froese, R. and D. Pauly, editors. 2004. FishBase. World Wide Web electronic publication. www.fishbase.org, version (03/2004)
- McPhail, J.D. and C.C. Lindsey, 1970. Freshwater Fishes of northwestern Canada and Alaska. Fisheries Research Board of Canada Bulletin 173, Ottawa.
- Mecklenburg, C.W., T.A. Mecklenburg and L.K. Thorsteinson, 2002 Fishes of Alaska. American Fisheries Society, Bethesda, MD.
- Morrow, J. E. 1980. The freshwater fishes of Alaska. Alaska Northwest Publishing Company, Anchorage, AK.

In selecting species to feature in the Strategy, and in generating conservation action plans for them, the experts raised significant points about some species and species groups in Alaska. For example, they pointed out that Alaska has many species or species groups for which one or more of the following is true:

- The species or group may be widely distributed, but so little is known that the experts did not have enough information to generate an initial planning objective.
- Significant verifiable, but unexplained, population declines have occurred in recent years; these species have not been officially listed as candidate, proposed, or threatened and endangered.
- The species is believed to be on the verge of extinction or is already extinct (e.g., Montague Island marmot).
- Concerns exist regarding imminent habitat loss, and the experts have included in the conservation action plan at least one conservation action to study or address that issue.
- Unmonitored or undermonitored human use or take is occurring, but the management/scientific community knows very little about the species' population level.
- Policy changes are believed needed in the next five years, and the experts proposed a conservation action that speaks to at least one such change.
- Collaborative monitoring efforts are not yet underway, but experts thought such efforts could be successfully undertaken in the next several years if funding were provided.
- The species is in need of restoration, and research and survey efforts on that species are needed to identify what factors may assist in its restoration.
- The species is widely considered a key species in an ecosystem, it makes use of a key habitat, and little is known about the species and/or its habitat use; baseline survey information is desirable.

Given how often these same concerns arose among all the featured species and species groups, we did not feel it beneficial to Alaska's conservation efforts to prioritize between or among species in the CWCS. In Appendix 3, featured species and groups are categorized by major ecosystem type (e.g., marine, freshwater aquatic, terrestrial). Meanwhile, in Appendix 4, species are presented in approximate taxonomic order, with species assemblages or groups placed in the order that seemed most logical.

We expect that these species- and group-specific plans will be posted to the department's CWCS website and periodically updated in coming years. This will ensure their availability to a wide audience of potential users, including students, decision-makers, and potential project investigators.