

Resident Coastal Rainbow Trout (*Oncorhynchus mykiss*):

Data: Alaska Department of Fish & Game

Partners: AK

Species Status Review:

The rainbow trout native to Alaska is also known as coastal rainbow trout (Behnke 2002). There are two forms of coastal rainbow trout native to Alaska: the freshwater resident form and the sea-run form more commonly called steelhead. For the purposes of this document, only the resident form is discussed. Alaska's rainbow trout populations are still largely intact and robust, largely because of remote locations with limited accessibility, abundant and pristine habitat, and conservative management.

The State of Alaska manages coastal rainbow trout following principals outlined the state Wild Trout Management Policy. This policy recognizes that Alaska's wild trout and their ecosystems are important to the quality of life and economy of Alaska and the state has long recognized the value of these fish in its management. Wild trout stocks are managed conservatively and for optimal sustained yield based on management objectives that maximize benefits of the fisheries while maintaining genetic diversity, biologically desirable size composition, and abundance levels that do not require stocking to supplement the wild stocks.

Sportfishing Status of the Resident Coastal Rainbow Trout:

Resident coastal rainbow trout are one the most sought after of Alaska's freshwater native game fishes. Alaska supports some of the most well-known rainbow trout fisheries in the world.

Southwest Alaska has several drainages and lake systems that offer world-class fishing including the Naknek and Kvichak. These river systems are often considered as two of the premier wild trout fisheries in the world and catches of rainbow trout exceeding 10 lbs. are not uncommon.

Southcentral Alaska has very popular rainbow trout fisheries as well. The Kenai River in particular supports the most participation and catch of rainbow trout of any drainage in Alaska, partly due to its accessibility from the main road system and its close proximity to major population centers, as well as the excellent fishing opportunities found there. It is estimated that over 200,000 rainbow trout are caught in the Kenai River drainage annually. There is significant angling pressure on Kenai River rainbow trout which will continue into the foreseeable future.

Throughout Southeast Alaska sport fishing for resident rainbow trout is also very popular in many streams, rivers, and lakes. Rainbow trout are not native to interior Alaska but they have been introduced into many lakes and ponds which provide for popular sport fisheries.

Distribution of Resident Coastal Rainbow Trout:

Native populations of coastal rainbow trout occur in freshwater systems throughout much of the southern coastal zones of Alaska. Their historic distribution in Alaska is from the southern tip of the southeast panhandle north to the southern tributaries of the Kuskokwim River drainage. Their distribution includes the Alaska Peninsula, Kenai Peninsula, Kodiak Island, and the Copper River. They can also be found in the Naknek, Kvichak, Iliamna, Nushagak, Alagnak, Susitna, and Togiak river systems.

Range of Resident Coastal Rainbow Trout:

Rainbow trout in Alaska are native to waters throughout Southeast Alaska west to Kuskokwim Bay, and as far up the Kuskokwim River as Sleetmute. The clear water lakes and streams draining into Bristol Bay provide outstanding habitat. Rainbow trout occur naturally on the

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Kenai Peninsula, throughout the fresh waters of Upper Cook Inlet, on Kodiak Island, and in the Copper River drainage.



Coastal Rainbow Trout Habitat Requirements:

Optimal rainbow trout riverine habitat is characterized by well oxygenated clear, cold water; a silt-free rocky substrate in riffle-run areas with areas of slow, deep water; well vegetated stream banks, abundant instream cover; and relatively stable water flow, temperature regimes, and stream banks.

Optimal lacustrine habitat is characterized by clear, cold, deep lakes that are typically oligotrophic but may vary in size and chemical quality. Rainbow trout are primarily stream spawners and generally require tributary streams with gravel substrate in riffle areas for reproduction to occur.

Concerns, Issues, or Obstacles relative to the Conservation and Improvement of the status of Coastal Rainbow Trout in Alaska:

Population Viability Concerns

While rainbow trout in Alaska trout are distributed over a large geographic area, localized impacts from human activities remains the biggest threat.

Western Native Trout Status report

Throughout much of the native range of rainbow trout, human development has been the primary obstacle to population viability by reducing the amount of available habitat, decreased connectivity, and impeding fish passage along migration routes. Maintaining sufficient genetic variability of rainbow trout populations in Alaska is crucial to maintaining their diverse life histories.

Genetic Considerations

Coastal rainbow trout coevolved with coastal cutthroat trout in Southeast Alaska and parts of Southcentral Alaska. Fertile hybrid offspring from these two trout species are known to occur naturally but it is unknown to what degree or extent this occurs. Changes in habitat related to man-made disturbance or climate change could negatively impact both of these species.

Disease Concerns

Mycobolus cerebralis is the causative agent of whirling disease. *M. cerebralis* requires two hosts to complete its life cycle, an aquatic oligochaete (*Tubifex tubifex*) and a susceptible salmonid. There has not been a clinical case of whirling disease documented in Alaska, however *T. tubifex* and *M. cerebralis* have been documented in the state.

Habitat Concerns

Habitat degradation is a threat to coastal rainbow trout in Alaska, especially in areas near population centers and in some remote areas where there are human impacts. Major habitat concerns typically relate to aquatic habitat degradation and alteration from mining, forestry, road construction, and agricultural land use practices that result in sediment loading, elevated temperatures, changes to stream structure and morphometry, and changes in water quality and quantity.

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Introduced Species Concerns

Illegal stocking of northern pike is reducing the quality of fishing in Southcentral Alaska. The northern pike is native to most of Alaska, but it does not naturally occur south and east of the Alaska Mountain Range except for a small, remnant population near Yakutat. Pike are top-level predators in aquatic food chains and are highly piscivorous. In Southcentral Alaska, illegally-introduced pike can change the balance of an aquatic ecosystem by preying on native fish while having few predators of their own. Some lakes and streams that once supported healthy numbers of fish, including rainbow trout now have only small northern pike. Illegally-stocked northern pike continue to threaten wild and stocked fisheries in Southcentral Alaska.

To date, Alaska has had relative few problems with invasive, non-native aquatic plants. However, invasive aquatic plants pose an increasing threat to the integrity of native aquatic communities. Actions taken to detect and prevent the introduction and spread of invasive aquatic plants in Alaska are necessary in order to avoid the environmental and economic harm invasive plants have caused in other parts of the United States.

Overutilization Concerns

There are current mechanisms of regulation that are sufficient as well as mechanisms to adapt regulations as needed to prevent overutilization.

Oil and Gas Development Concerns

Oil and gas development poses significant risks and potential impacts to Alaska's fisheries. Some examples include oil spills from platforms, pipelines, and tankers; losses of habitat and disturbance as a result of construction activity and infrastructure; and harm to fish caused by seismic surveys.

Opportunities and Strategies for Improving Coastal Rainbow trout Status:

- Population surveys and genetic analysis
- Habitat manipulations
- Regulatory actions (fishing regulations, water use, land management, etc.)

Population Surveys and Genetic Analyses:

Key Actions:

Maintain current distribution of rainbow trout in Alaska.
Characterize, conserve, and monitor genetic diversity.
Develop and implement consistent methods for fish population status and trend analyses.
Conduct radiotelemetry to determine migratory pathways and spawning locations.
Conduct standardized surveys and genetic analyses.

Habitat Manipulations:

Key Actions:

Restore and improve altered channel and riparian zone habitats.
Restore and enhance water quality, natural sediment regimes, and physical integrity of channels where feasible.
Control or eradicate nonnative plant species where feasible and appropriate.

Regulatory and Administrative Actions:

Maintaining the sport fish status of the rainbow trout and utilizing regulations to control overutilization will be an important component of maintaining the health of rainbow trout populations. In addition, working with others to maintain appropriate regulations for prevention of disease, water quality impairment, and habitat disturbance are important considerations.

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Key Actions:

Provide technical information, administrative assistance, and financial resources to ensure compliance with protective measures

Maintain and protect rainbow trout habitat from degradation through compliance with existing habitat protection laws, policies, and guidelines.

Enforce regulatory mechanisms that prevent impacts associated with recreational angling and subsistence harvest.

Enhance and maintain regulatory mechanisms that prevent diseases or illegal introduction of nuisance species.

Recommended Actions to improve the status of Coastal Rainbow Trout:

1. Conduct stock assessment surveys to evaluate and improve management strategies.
2. Monitor and mitigate human impacts to rainbow trout habitat, including mining, hydroelectric developments, logging, oil production, and road construction.
3. Monitor populations of rainbow trout in drainages that have important sport fisheries.
4. Identify habitat improvement opportunities for rainbow trout.
5. Work with private landowners and management agencies to protect and improve habitat.
6. Pursue conservation easements to protect habitat from development and other impacts.
7. Explore opportunities for removing or installing barriers for fish passage issues, and conduct barrier monitoring.
8. Review current practice of stocking juvenile salmonids into landlocked lakes, and if necessary change programs to protect current populations.

References:

Behnke, R.J. 2002. Trout and salmon of North America. The Free Press, New York, NY.



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