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SALMON SPECIES

The Council manages Chinook and coho salmon. In odd-numbered years, the Council may manage pink salmon near the Canadian border. Sockeye, chum, and steelhead are rarely caught in the Council's ocean fisheries.

Chinook salmon (*Oncorhynchus tshawytscha*) ("king" or "tyee") are the largest and most highly prized of the Pacific salmon. Like all salmon, Chinook are anadromous, which means they hatch in freshwater streams and rivers, migrate to the ocean for feeding and growth, and return to their natal waters to spawn. Chinook salmon can live up to seven years. They return to their natal waters after 1-5 years in the ocean.

Chinook from Washington, Oregon, and California

range widely throughout the Pacific Ocean and the Bering Sea, and as far south as the U.S. border with Mexico.

Some wild

Chinook populations have disappeared from areas where they once flourished, and several "evolutionarily significant units" (distinct populations) have been listed as at risk for extinction under the Endangered Species Act.

Coho or "silver" salmon (*Oncorhynchus kisutch*) are found in streams and rivers throughout much of the Pacific Rim. Coho have a life history similar to Chinook. Coho in Council-managed waters typically spend only one year in the ocean. North of central British Columbia, they tend to spend two years in the ocean.

Coho generally use smaller streams and tributaries than Chinook. They are most abundant in coastal areas from central Oregon to southeast Alaska.

MANAGEMENT

Because salmon migrate so far in the ocean, managing ocean salmon fisheries is extremely complex.

Salmon are affected by many factors in the ocean and on land, including ocean and climate conditions, dams, habitat loss, urbanization, agricultural and logging practices, water diversion, and predators (other fish, birds, marine mammals, and humans).

Several different regions and groups are involved in the salmon fishery:

Recreational fisheries take place in the ocean, Puget Sound, the Strait of Juan de Fuca, coastal bays, and in freshwater (including Columbia River Buoy 10). The Council manages recreational catches in the ocean but works closely with states on management in other areas.

Commercial fisheries include treaty Indian and non-Indian ocean troll and various treaty Indian and non-Indian net fisheries in Puget Sound, Washington coastal bays, and the lower and mid-Columbia River. The tribes manage tribal fisheries in coordination with the Council. The Council manages fisheries in Federal (ocean) waters, but works closely with states and tribes on fisheries in other areas.

Tribal Ceremonial and Subsistence fisheries occur in Puget Sound, Washington coastal rivers and bays, Columbia River and tributaries, and in the Klamath and Trinity Rivers. The tribes manage these fisheries in coordination with the Council.

COUNCIL PROCESS

The Council's Salmon Fishery Management Plan guides the management of commercial and recreational salmon fisheries



ADVISORY BODIES:

- ◆ SALMON ADVISORY SUBPANEL
- ◆ SALMON MANAGEMENT TEAM
- ◆ MODEL EVALUATION WORKGROUP
- ◆ HABITAT COMMITTEE

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off the coasts of Washington, Oregon, and California. The Council works with treaty tribes and its member states (Washington, Idaho, Oregon and California) on salmon management issues.

Management tools such as season length, quotas, and bag limits vary depending on how many salmon are present. There are two central parts of the fishery management plan: *conservation objectives*, which are annual goals for the number of spawners of the major salmon stocks (“spawner escapement goals”), and *allocation provisions* of the harvest among different groups of fishers (commercial, recreational, tribal, various ports, ocean, and inland). The Council must also

comply with laws such as the Endangered Species Act.

Every year the Council follows a preseason process to develop recommendations for management of the ocean fisheries (below).

HOW ARE SALMON COUNTED?

Correctly judging the size of salmon populations is a constant challenge. Salmon are affected by many natural and human-caused factors, so their numbers can vary widely. Estimating the effects of changes in ocean conditions, weather, and freshwater habitat on salmon is difficult. Most models rely on the age structure of a given brood (the various ages of fish

Date	Salmon management action
January	Salmon Technical Team and Council documents become available. Dates and locations of the two Council meetings, public hearings announced. Detailed schedule published. Salmon Technical Team meets to draft the review of ocean salmon fisheries for the previous year.
February through early March	Salmon Technical Team meets in February to draft preseason report with stock abundance forecasts, harvest and escapement estimates. State and Tribal management meetings take place. Salmon Technical Team reports summarizing the previous salmon season (Review), and projections of expected salmon stock abundance for the coming season (Preseason I) are posted online.
First or second full week of March	Council meeting. Typically, three alternatives are adopted for review at public hearings. These alternatives are initially developed by the Salmon Advisory Subpanel, refined by the Salmon Technical Team, then considered along with public comment by the Council. Council also considers any emergency actions needed.
Week following March Council meeting	Public hearings announcement released. Preseason Report II released, outlining Council-adopted alternatives.
Prior to April Council Meeting	Agencies, tribes, and public meet to agree on allowable ocean and inside waters harvest levels north of Cape Falcon. The Council’s ocean fishery options are refined.
Last week of March and first week of April	General time frame for formal public hearings on the proposed salmon management alternatives.
First or second full week of April	Council meeting. Final management measures recommended to National Marine Fisheries Service for adoption.
First week of May	Final notice of Commerce decision. Final management measures published in Federal Register.

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that make up the population) in combination with knowledge about environmental conditions over time.

Various methods are used to estimate salmon abundance. For adult salmon, fish trapped in weirs or passing dams are counted as they migrate upstream. Biologists count salmon carcasses and redds (nests) while doing stream surveys. Creel surveys help estimate catch in sport fisheries. As juvenile fish move downstream and migrate to the ocean, smolts are counted in rotary screw traps, snorkel surveys, and electrofishing (using electric current to temporarily stun young fish, which are then captured in a net).

Juvenile salmon may be marked with an internal tag, either a coded wire tag (CWT) or a passive integrated transponder (PIT) tag. CWTs are placed in the snout of the fish and are used mainly in hatchery fish. They are recovered from dead adult salmon. PIT tags are usually placed in the body cavity of the fish and are recovered from dead adults, but they can also be tracked electronically when a fish passes a receiver (for example at a bridge or dam) as it migrates. Both types of tags provide population and distribution data.

Research continues to explore genetic stock identification (DNA analysis) as a way to study the relationship between environmental conditions and salmon abundance to help improve population estimates and management of salmon stocks.

ADVISORY BODIES

The Salmon Technical Team (STT) helps the Council by summarizing data from the previous season, estimating the number of salmon in the coming season, and analyzing the effects of the Council's recommendations and amendments. The STT is made up of eight people drawn from state, Federal, and tribal fisheries management agencies, all of whom have technical expertise in salmon management. STT meetings, like all Council advisory body meetings, are open to the public.

The Salmon Advisory Subpanel is made up of 16 members who represent commercial, recreational, and tribal interests, as well as a conservation representative. These advisors play a large role in developing the Council's annual salmon management options in March and April.

The Model Evaluation Workgroup (MEW) reviews and modifies models used to predict the effects of harvest on conservation objectives and allocation provisions. The MEW is made up of scientists from state, tribal, and Federal management agencies.

The Habitat Committee tracks habitat issues for the Council. Many (though not all) of these issues involve salmon habitat. For example, the Habitat Committee has developed several Council comment letters on Klamath and Columbia River dam and habitat issues.

HOW TO GET INVOLVED

There are a few ways to get involved in the Federal salmon management process. First, read up on how salmon are managed and become aware of current salmon fishery issues. Listen in on the salmon agenda items during the March and April Council meetings (see our website, www.pcouncil.org, for details). Provide public comment by using our e-Portal (see the Council website for link and comment deadlines). Attend a salmon season hearing in a coastal community (usually held in March), or sit in on a Salmon Advisory Subpanel, Salmon Technical Team, or Habitat Committee meeting. If you have time, volunteer to serve on an advisory body.

CHALLENGES IN SALMON MANAGEMENT

Besides counting the fish, challenges include coordinating with international, regional, and local agencies and groups; judging the effects of regional fisheries on salmon stocks; recovering salmon under the Endangered Species Act; dividing the harvest fairly; and restoring freshwater habitat.

Farmed salmon, genetically modified salmon, bycatch, hatcheries, the differences between wild and hatchery salmon, and the role salmon play as forage for predators such as killer whales are other hot topics relating to salmon.

COUNCIL STAFF

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