

Introduction: Salmon and Fish Consumption Rates Used in Human Health Criteria for Water Quality Standards

In 2004, Oregon adopted human health criteria based on EPA's Clean Water Act Section 304(a) guidance values. These criteria are calculated using a default fish consumption rate of 17.5 g/day. This rate represents the 90th percentile of consumers and nonconsumers based on a national USDA consumption study¹. EPA's fish consumption rate only includes freshwater and estuarine fish and shellfish.

Why does EPA's default fish consumption rate only include freshwater and estuarine species?

In reviewing fish consumption data from the USDA consumption study, EPA classified the habitat type for the fish consumed. Fish were classified for three types of habitat: freshwater, marine and estuarine. EPA only utilized freshwater and estuarine species in calculating the default fish consumption rate used in the CWA Section 304(a) guidance criteria. Marine species can be included in the Relative Source Contribution variable used in the human health equation (described later in this document).

EPA only utilized freshwater and estuarine species in its default fish consumption rate because water quality standards apply to the navigable waters of the United States, which extend to three nautical miles offshore. Therefore, water quality criteria are applied to fresh and estuarine waters, not deep marine waters. However, EPA also says that coastal States and authorized Tribes could consider using a fish consumption rate that includes marine species when appropriate for protecting the population of concern.

How did EPA classify Pacific salmon habitat as marine in the national default fish consumption rate?

EPA considered the anadromous life history of Pacific salmon (including chum, coho, king, pink and sockeye) when classifying their habitat type. EPA also reviewed Pacific salmon catch data from the National Oceanic Atmospheric Administration Fisheries. A review of this data found that 99% of the salmon consumed in the USDA food survey were harvested in marine waters. Based on this information, EPA classified Pacific salmon habitat as "marine", excluding these species from the final default fish consumption rate of 17.5 g/day.

What is EPA's guidance in using the Relative Source Contribution variable to account for marine species consumption?

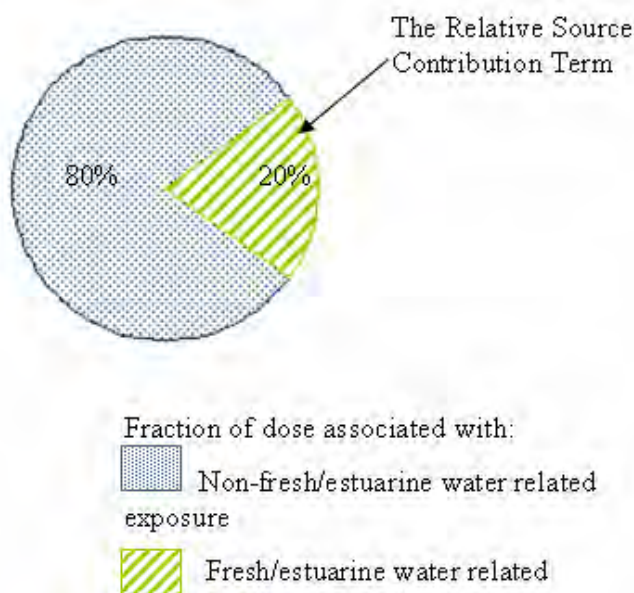
The Relative Source Contribution (RSC) is a variable in the human health equation used to calculate some CWA Section 304(a) guidance criteria. It is used to account for non fresh/estuarine water exposure to pollutants (e.g. dermal, inhalation, marine fish, and other food sources). It is currently applied to select noncarcinogen

¹ 1994-1996 and 1998 Continuing Survey of Food Intakes by Individuals. USDA.

chemicals, which are based on threshold effects. The purpose of the RSC is to ensure that the exposure to a chemical from drinking water and from freshwater/estuarine fish consumption allowed by a criterion, when combined with other identified sources of exposure common to the population of concern, will not result in exposures that exceed the threshold effect. For example, if a population is known to consume marine fish, the RSC can be applied in the human health criteria equation to ensure that exposure does not exceed a given threshold effect.

States and Tribes can develop their own RSC values. However, if a State or Tribe has no data to develop its own RSC values, EPA does provide a default RSC value of 20%. A RSC value of 20% means that 80% of the exposure to the total dose is coming from non fresh/estuarine water sources. Therefore the criterion is limited to allowing 20% of exposure to the dose to come from fresh/estuarine water sources.

Pie represents the total allowable dose from all sources, water and non water



How does this relate to the review of the fish consumption rate used in Oregon's water quality standards?

Determining how to address salmon in the fish consumption rate and ensuring that the criteria are adequately protective of Oregonians will be a key issue in the fish consumption rate review process. As Oregon's current criteria values are based on EPA's CWA Section 304(a) guidance criteria, they do not include salmon in the fish consumption rate. However, EPA has stated that it is within the discretion of States and Tribes to consider including marine fish in the fish consumption rate when appropriate for protecting the population of concern.

Other States and Tribes have exercised this discretion when choosing a fish consumption rate used in human health criteria. For example, New York currently has a fish consumption rate of 33 g/day, which includes marine species. New York chose to adopt this rate as it is consistent with the general health consumption advisory for the State and provides protection for a very high percent of the population. It also chose this

rate because EPA's default fish consumption rate did not include all fish species caught and consumed by recreational anglers in New York (e.g. striped bass and bluefish), which could contain contaminants.

Maine revised its human health criteria using a fish consumption rate of 32.4 g/day in 2005, which also includes marine species. Maine chose to adopt this fish consumption rate because it is consistent with what the Bureau of Health uses for its fish advisories, and is based on local data.

How can you participate in this issue?

The purpose of this handout is to introduce the issue of how Oregon will consider salmon in its final fish consumption rate. This will be a topic for discussion at a future workshop meeting. Please come prepared to share your questions, thoughts, ideas and suggestions about this topic. What do you think DEQ should consider when discussing how to address salmon? You can also provide life history information about salmon or other anadromous species to DEQ or at the next meeting.