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# Biological Opinion for the Federal Emergency Management Agency's National Flood Insurance Program in the State of Oregon

## Overview

To settle a lawsuit by environmental groups, the Federal Emergency Management Agency (FEMA) consulted with NOAA Fisheries under Section 7 of the Endangered Species Act (ESA) to determine whether implementation of its National Flood Insurance Program (NFIP) in Oregon impacts the survival of listed species. Throughout the state, 15 salmon and steelhead species are listed under the ESA, and each of these species depends on healthy, functioning floodplain habitat. Development in floodplains can disconnect this important area from river channels and destroy natural riparian and wetland vegetation. Altering the natural processes that allow habitat to form and recover from disturbances, such as floods, can affect multiple stages of the salmon life cycle and impede their survival and long-term recovery.

Through the consultation process, NOAA Fisheries' determined that the NFIP in Oregon reduces the quantity and quality of floodplain and in-channel habitat, which will jeopardize the continued existence of 17 marine and anadromous species (including eulachon and Southern Resident killer whales, in addition to the salmon and steelhead species) and adversely modify critical habitat for 16 of these species. NOAA Fisheries' provided a reasonable and prudent alternative (RPA) to ensure FEMA's implementation of the NFIP avoids harming these species. Key elements of the RPA include:



- Updating floodplain maps to more accurately identify where flood-related risks are and where they are expected under future conditions. This information is critical to making sure development impacts are minimized in flood-prone areas and habitat values needed to support salmon survival are preserved.
- Limiting the types of *future* development allowed in floodways and channel migration zones, since these highest risk areas for people also have the highest habitat values for fish.
- Tracking floodplain development and requiring mitigation of the impacts of development to ensure that floodplain features and the ESA-listed species associated with them are not lost.



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These frequently asked questions provide background on the National Flood Insurance Program, the importance of floodplain habitat to salmon survival, and the consultation between NOAA Fisheries and the Federal Emergency Management Agency.

## Questions & Answers

### What is an Endangered Species Act Section 7 Consultation?

Section 7 of the ESA requires every federal agency to avoid jeopardizing listed species, and to avoid destroying their critical habitat. This section of the Act requires federal agencies to request consultation with NOAA Fisheries and/or the U.S. Fish and Wildlife Service (depending on the species) to ensure that proposed federal actions to meet this requirement. Through the consultation process, NOAA Fisheries' determined that the NFIP in Oregon reduces the quantity and quality of floodplain and in-channel habitat, which jeopardizes 15 salmon and steelhead species, as well as eulachon and Southern Resident killer whales; and adversely modifies critical habitat for 16 of these species.

### How do floodplains support salmon and steelhead?

Floodplains are vital to the health of Pacific salmon and steelhead because they provide important habitat during the freshwater phase of their life cycle. Healthy floodplains contribute to the biological processes necessary for salmon and steelhead survival in many ways, including:

- Allowing the river to naturally migrate and form a diversity of habitat types critical to the survival of different salmon species at various life stages;
- Providing off-channel areas with a high abundance of terrestrial and aquatic food sources;
- Creating shallow habitat with cover that allows small salmon to hide from larger predators;
- Providing slow-water refuge for juvenile salmon to avoid high river flow volume, which allows salmon to rear as long as necessary and conserve energy for their entry to the ocean;
- Providing coarse beds of sediment through which water flows, filtering excess nutrients and other chemicals to maintain high water quality;
- Providing an expanded area for depositing and storing excess sediment, particularly fine sediment. This reduces the effects of turbidity on fish; and
- Allowing ground saturation and percolation of water through soils, which provides cool water recharge of streams well into the summer when temperatures are hottest.

### Why aren't Oregon's floodplains functioning the way nature intended?

- In the Willamette Valley, the Willamette River has been channelized and stripped of large wood. Gregory et al. (2002) calculated that between 1895 and 1995, the total mainstem Willamette River channel area decreased from 41,000 to 23,000 acres. In the reach between Eugene and Albany alone, the river lost 45 percent of its channel length, along with 74 percent of alcoves and 80 percent of island areas.
- On the Oregon Coast, Tillamook Bay has lost 90 percent of its tidal estuary wetlands, and with them the capacity to handle flooding and provide habitat for salmon and steelhead.
- In the Interior Columbia River Basin, half of all floodplains have been converted to urban and agricultural land use, predominantly by levees and channel filling.
- In the Columbia River estuary, approximately 24,000 acres of estuarine habitat was converted to developed floodplain areas between 1870 and 1983.





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## The NFIP is an insurance program-how does it affect salmon?

The NFIP has minimum criteria that state or local governments must adopt in order for residents to obtain flood insurance (required for federally backed mortgages) and for communities to qualify for federal flood disaster assistance. NOAA Fisheries' consultation reviewed what happens to ESA-listed species and their habitats when these current NFIP minimum criteria are applied in NFIP communities. The consultation found that the current criteria facilitate floodplain management decisions that hinder the recovery of ESA-listed species and allow further degradation of their critical habitat.

Therefore, NOAA Fisheries recommends revisions to these minimum criteria and creation of updated maps to reflect environmental changes (such as channel migration) or other modifications that could result from climate change. These recommended revisions will protect important floodplain habitat for salmon, and are designed to mirror FEMA's goals for a Unified National Program for Floodplain Management that includes "continuing efforts that seek to reduce and keep flood losses at acceptable levels while recognizing, preserving, and restoring the floodplain's natural values through wise use of water and related land resources." (FEMA, 1986)



## In what areas does the RPA recommend changes?

The RPA has recommendations for the area of a floodplain based on the inundation risk associated with a one percent annual chance flood event – a flood that has a 1 in 100 chance of happening in any year. The area that such a flood would inundate is called the Special Flood Hazard Area (SFHA).

The RPA also recommends changes to mapped e-zones, areas where flood-related erosion risk is high, such as channel migration zones.

The RPA also refers to a 170 foot buffer, an area in which FEMA proposed limiting uses. That buffer area only applies within the SFHA, so if the SFHA is smaller than 170 feet, the buffer is only as big as the SFHA.

## How is "development" defined under the National Flood Insurance Program? And under the RPA?

FEMA defines "development" as any human-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials (44 CFR 59.1). Following this definition, the RPA focuses on new development and re-development in floodplain areas, and similarly excludes from the definition of "development" the maintenance of existing buildings and facilities, resurfacing of roads; gardening, or plowing and similar agricultural practices that do not involve filling, grading, or construction of levees. The RPA definition of development uses FEMA's definition, and adds vegetation removal, but only when removal is to convert the land to a new use.

Agriculture and silviculture are not considered development in the RPA. The RPA notes that agriculture and silviculture are compatible floodplain uses, even in high hazard areas.

## How will the consultation affect future floodplain development?

NOAA Fisheries recommends changes to the NFIP that will better protect floodplain habitat. Most of NOAA Fisheries' recommendations are based on previous recommendations by FEMA and others as appropriate methods of reducing flood risks. Under the RPA, new development and re-development may continue to occur outside of floodways and channel migration zones, as long as mitigation and best management practices, such as low impact development techniques, are incorporated.

Also, landowners will be able to maintain their existing buildings and facilities; road construction, maintenance, and plowing will continue; and agricultural practices that do not involve filling, grading, or the construction of levees will be permissible. Under the RPA, in high hazard areas (floodways and channel migration zones), existing development may remain, and new development can occur so long as it is a flood-compatible use.



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## Will I be required to alter structures on my property to comply with the new requirements?

No. The requirements only pertain to *new* development in floodplains.

## What is recommended in the biological opinion's reasonable and prudent alternative?

Key elements of the RPA include:

1. Updating floodplain maps to more accurately identify where flood risks are and where they are expected under future conditions. This information is critical to avoiding floods and preserving those areas needed to support salmon survival.
2. Limiting the types of development allowed in floodways and channel migration zones to flood-compatible uses, since these high risk areas also have the highest habitat values.
3. Tracking floodplain development and requiring mitigation of the impacts of development, to ensure that floodplain features critical to survival of listed species are not lost.

In addition, the RPA asks FEMA to do more effectiveness and compliance monitoring:

*Data Collection and Reporting* – Locally issued permits for development in special hazard areas need to be reported to FEMA, and reports need to include: how much flood displacement by fill or structures; how much new impervious surface added; how much vegetation removed; whether floodplain is disconnected or reconnected; and location of development actions and mitigation for floodplain impacts.

*Compliance and Enforcement*—It will take FEMA a number of years to fully implement the RPA. The RPA increases the Community Rating System for early compliance; requires audits/Community Assistance Visits for communities that fall behind schedule in implementation; and sets probation and expulsion requirements for persistent non-compliance.

## How is this RPA going to be implemented, and when?

FEMA and NOAA Fisheries will work with Oregon and local government to make implementation work for their communities. The RPA recommends FEMA work with local governments to carry out Interim Measures for Immediate Implementation. These provisions should be implemented in a timely fashion, with local governments showing progress within six months, and full implementation within two years. These provisions specify that development in floodplains must mitigate for the loss of flood storage, reduction in vegetation, and placement of impervious surface. The long-term RPA measures are expected to be implemented by FEMA after about 8 years.

## Are there examples where restoring floodplain habitat reduces flood risk ?

In Tillamook County, federal, state, and local partners are working with community leaders to re-open more than 500 acres of historical floodplain habitat. The effort is known as the Southern Flow Corridor Project and, once implemented, will reduce flooding in Tillamook's Highway 101 business corridor during 100-year flood events, as well as during more frequent floods. Reducing the frequency and intensity of floods will limit damage to local infrastructure and farmlands—translating directly into reduced economic impacts incurred from road closures and damaged property. Currently, the Wilson and Trask rivers crest above flood stage annually, and often more frequently. Records show that from 1970 to 1996 the Wilson River exceeded flood stage 43 times—resulting in significant economic costs. Between 1996 and 2000 alone, Tillamook County accrued over \$60 million in flood damage to homes, farmland, businesses, and infrastructure.