



### INTRODUCTION

The National Flood Insurance Program (NFIP) is a voluntary federal program through which property owners in participating communities can purchase federal flood insurance as a protection against flood losses. In exchange, communities must enact local floodplain management regulations to reduce flood risk and flood-related damages within the mapped Special Flood Hazard Area (SFHA). The National Marine Fisheries Service’s Biological Opinion (BiOp) (September 22, 2008) on the implementation of the National Flood Insurance Program in Puget Sound requires local communities that do not have BiOp-compliant floodplain management ordinances to require and review a Habitat Assessment (HA) before approving a floodplain permit, with some exceptions as noted below.

This worksheet is a tool for land use planners and biologists to 1) determine if an HA is needed and 2) identify items that must, at a minimum, be addressed in HAs. If a project does not fit into the categories in Section 1.1 or 1.2, then an HA would be required.

The permit application reviewer can use this worksheet to work through whether the application meets the requirements. By checking the box, the reviewer can track that the activity has been completed satisfactorily. If an HA is not required, check the box by the criteria that apply and retain this worksheet with the permit file. If an HA is required, complete the worksheet and retain a copy with the permit file.

The [Regional Guidance for Floodplain Habitat Assessment and Mitigation](#) (August 2013) provides more detail on how to prepare an HA and assess impacts of land management actions on Endangered Species Act (ESA)-listed salmonid species, orcas, and their designated critical habitats within floodplains.

For each permit decision, a community is required to retain the documentation relied upon in making the determination of effects on ESA-listed salmonids and orcas in perpetuity. Such documentation may include this completed checklist, the HA, or any other documents, reports, or studies that support the determination of effect on ESA-listed species.

### 1. EXCEPTIONS

#### 1.1 Neither a Floodplain Permit nor Habitat Assessment is needed

Communities may allow the following activities in the floodplain without requiring a floodplain development permit, provided all applicable federal, state, and local requirements are met. A Floodplain Permit is not required because these activities do not meet the NFIP definition of [“development”](#). Note: local community regulations may be more restrictive than the minimum standards (44 CFR 59).

- Routine maintenance of existing landscaping that does not involve grading, excavation, or filling.
- Removal of noxious weeds, hazard trees, and replacement of non-native vegetation with native vegetation.
- Normal maintenance of above ground utilities and facilities, such as replacing power lines and utility poles.
- Normal road maintenance, such as filling potholes, repaving, installing signs and traffic signals, but not including any expansion.
- Normal maintenance of a levee or other flood control facility as prescribed in the operations and maintenance plan for the facility. Normal maintenance does not include repair from flood damage, any expansion of the prism, face or toe expansion, or the addition of material for protection or armor.
- Plowing and other normal farm practices (other than new structures or filling) on legally existing agricultural areas. Clearing additional land for agriculture will likely require a floodplain development permit and a Habitat Assessment.

**“Development”** is “any man-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.” *Source: FEMA*

## 1.2 A Floodplain Permit is required but a Habitat Assessment is not Required

Communities may allow the following activities in the floodplain without an HA, provided a floodplain development permit is obtained, and all applicable federal, state, and local requirements are met. Please include documentation that supports the determination that an application is exempt from the HA requirement in the permit file when any of the following are applied to a project. Documentation must be kept in perpetuity. [10000 Block of Avondale Road Erosion project meets the below exemptions from the need to prepare an HA.](#)

- Normal maintenance, repairs, or remodeling of structures, such as re-roofing and replacing siding, provided such work is not a [substantial improvement](#) or a repair of [substantial damage](#). To comply, such work must be less than 50% of the value of the structure(s).
- Expansion or reconstruction of an existing structure that is no greater than 10% beyond its existing footprint. If the structure is in the floodway, there shall be no change in the structure's dimensions perpendicular to flow. All other federal and state requirements and restrictions relating to floodway development still apply.
- Activities with the sole purpose of creating, restoring or enhancing [natural functions](#) associated with floodplains, streams, lakes, estuaries, marine areas, habitat, and riparian areas that meet federal and state standards, provided the activities do not include structures, grading, fill, or impervious surfaces.
- Development of open space and recreational facilities, such as parks, trails, and hunting grounds, that do not include structures, fill, impervious surfaces or removal of more than 5% of the native vegetation on that portion of the property in the floodplain.
- Repair to onsite septic systems, provided ground disturbance is the minimal necessary and [best management practices](#) (BMP's) to prevent stormwater runoff and soil erosion are used.
- Projects that have already received concurrence under another permit or other consultation with the Services, either through Section 7, Section 4d, or Section 10 of the Endangered Species Act (ESA) that addresses the entirety of the project in the floodplain (such as an Army Corps 404 permit or non-conversion Forest Practice activities including any interrelated and interdependent activities.).
- Repair of an existing, functional bulkhead in the same location and footprint with the same materials when the Ordinary High Water Mark (OHWM) is still outside of the face of the bulkhead (i.e. if the work qualifies for a Corps exemption from Section 404 coverage).

A "**Regulatory Floodway**" is the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.  
Source: [FEMA](#)

Table 1: Bulkhead Considerations

Armoring Scope	Habitat Assessment Needed?	Floodplain Development Permit Required
Bulkhead repair in same location and footprint with same materials. Bulkhead must be functioning and OHWM cannot be behind the structure to qualify as a repair.	No HA required	Yes
Bulkhead replacement: different material, different place, or different angle	Yes - An abbreviated HA may be appropriate and address the <a href="#">Marine Shorelines Design Guidelines</a> (MSDG)/ <a href="#">Integrated Streambank Protection Guidelines</a> (ISPG) methodology	Yes
New bulkhead	Yes, address MSDG or ISPG methodology	Yes

# PUGET SOUND BIOLOGICAL OPINION FLOODPLAIN HABITAT ASSESSMENT MINIMUM STANDARDS WORKSHEET (V 1.5)

**Brief Description of Proposal:** 10000 Block of Avondale Road Erosion

**Permit #** LAND-2021-00724 & 00723

Reconstruct the east embankment of Avondale Road with a soldier pile retaining wall; rebuild and replace damaged stormwater infrastructure; and install channel and riparian

habitat enhancements in the Bear Creek floodplain, including: 1) incipient channels; 2) floodplain hummocks; 3) placement of LWD and habitat structures;

4) rebuilding and planting of the Avondale roadway embankment; and 5) removal of invasive species and replanting with native woody species.

This checklist is intended to assist permit reviewers in determining whether an HA meets the minimum standards for the habitat assessment analysis.

## General BiOp Minimum Standards:

Each of the following must be documented in the permit file or an explanation provided as to why it does not apply to the project.

- New structures located in the least impactful location, as practicable. The permit file should include documentation of the measures taken to avoid placing structures in the floodplain and to minimize the impacts of the proposed project on floodplain functions (see [Floodplain Habitat Assessment and Mitigation](#), Section 5.2).
- Any removed large woody debris is replaced per [WDFW Aquatic Habitat guidelines](#).
- Bank armoring/stabilization follows and documents methodology consistent with WDFW [Marine Shorelines Design Guidelines](#) or the [Integrated Streambank Protection Guidelines](#). A needs and alternatives analysis is essential for these projects.
- The project is either inherently designed to avoid adverse impacts on floodplain functions (if in the Protected Area) or compensatory mitigation is provided so there are no adverse impacts on floodplain functions that support ESA listed species. See below for more information.
- As part of the flood permit, applicant has been notified that their property contains land within the Riparian Buffer Zone (RBZ) and/or floodplain.
- Prior to permit issuance, the applicant has recorded a notice on the title of the property stating that the property is within the RBZ and/or the 100-year floodplain.

The **Protected Area** is defined as greater of the Floodway, Riparian Buffer Zone (RBZ), or Channel Migration Zone (CMZ). If no CMZ is identified in a riverine system, the Protected Area extends to the outer limits of the floodplain. **Please note the Protected Area does not extend outside of the SFHA.**

## Minimum Habitat Assessment Standards:

In addition to customary elements of a project application such as a project description, site plans, and methods of work, the HA must show that the proposal will result in no adverse effects on floodplain functions and/or includes appropriate compensatory mitigation. The HA document and analysis must include the elements listed below. This checklist is provided to assist the HA reviewer in determining whether an HA is sufficient.

- Project and action area description, maps, and site plans have been provided
- Methods of work are described
- Projects in the Protected Area are designed to inherently avoid detrimental impacts without mitigation.
- The HA specifically considers both direct and indirect impacts. Indirect impacts are a result of an action and can occur later in time or in a different place and are reasonably foreseeable.
- The HA evaluates the impacts of interrelated and interdependent activities.

The **action area** to be analyzed should typically be well beyond the subject parcel(s) and must consider all areas that could be impacted by the proposal, especially including indirect effects and effects of interrelated and interdependent actions, in the vicinity of and downstream from the proposal (and only within the SFHA).

An **interrelated activity** is part of the the proposed action and depends on the proposed action for its justification. An interdependent activity has no independent utility apart from the proposed action (USFWS, NMFS 1998)

- The HA specifically considers cumulative impacts of reasonably foreseeable projects beyond the subject proposal/lot for all of the elements of the analysis listed below, and especially loss of storage.
- The HA contains sufficient analysis for each specific item below to demonstrate a claim of no adverse effect on the existing (legal) condition of the floodplain functions (baseline condition). If an element does not apply to a particular project, the HA should briefly explain why.
- 1. Water quantity and quality will not be affected by demonstrating that pre-development water pattern will be substantially the same as the post-development water pattern. The following items should be included in the analysis:
  - The HA demonstrates how low impact development techniques have been used
  - New impervious surfaces are noted and included in the analysis
  - Water temperature impacts from development have been evaluated
  - Potential changes in groundwater and hyporheic functions, pollutants, and sediment runoff have been evaluated
  - Stormwater leaves the site with the same frequency, timing, and duration as before the development
- 2. Flood velocities and volumes are not increased, even when considering cumulative impacts.
- 3. Flood storage capacity is not affected or compensatory storage has been proposed that:
  - Provides sufficient capacity to hold displaced flood storage volume
  - Restores ground elevations that are comparable to the existing conditions
  - Maintains floodplain connectivity and fish access (fish will not be stranded or trapped as the floodplain fills and drains)
  - Provides floodplain refugia and habitat for listed fish comparable to the existing condition
  - Is hydrologically connected to the flooding source
  - Is located within the same hydraulic reach as the proposed development to minimize effects on fish populations.
- 4. Riparian vegetation evaluation has been included
- 5. Measures to preserve habitat forming processes (such as large woody debris recruitment) are included
- 6. Refuge from higher velocity floodwaters is provided
- 7. Spawning substrate is provided or protected
- 8. Ensure there are no adverse effects resulting from:
  - Habitat isolation
  - Bank armoring
  - Channel straightening
  - Construction effects (transport of sediment from the work area, noise, etc.)
  - Direct effects

**Cumulative impacts** are the incremental effect of an action, together with impacts of present and reasonably foreseeable future actions by state, tribal, local, or private entities. Cumulative effects can result from individually minor but collectively significant actions taking place over time.

The **hyporheic** zone is a region beneath and alongside a stream bed, where there is mixing of shallow groundwater and surface water.

**Compensatory storage** is generally necessary for displaced flood storage volume and loss of accessible floodplain refugia for listed fish when a project includes fill or structural displacement.

A **refugium** (plural: refugia) is a location which supports an isolated or relict population of a once more widespread species.

**Substrate:** a substance or layer that underlies something, or on which some process occurs, in particular.

- the surface or material on or from which an organism lives, grows, or obtains its nourishment.
- the substance on which an enzyme acts.

**Habitat Isolation** means the separation of habitat components (such as main channel and off channel habitats) such that a species can no longer access all of the habitat elements even though they may still be present on the landscape.

## Effect Determinations:

Following the evaluation of potential effects, the HA should make a determination of the effect of the proposed development on listed salmonid species and orcas. The effects determination should be one of the following options. Please check which effects determination has been made in the HA under review.

- No Effect (NE):** The project will have no effect whatsoever on listed species and designated floodplain functions. An insignificant or discountable affect is not the same as no effect. If work affects any items evaluated in the HA section above, even insignificantly, an NE determination is typically not appropriate.
- May Affect, Not Likely to Adversely Affect (NLAA):** The appropriate conclusion when effects on the species or floodplain functions that support those species are expected to be beneficial, discountable, or insignificant - even when considering direct, indirect, and cumulative impacts. Beneficial effects are positive impacts without any adverse effects on fish or habitat. Insignificant effects refer to the size of the impact and discountable effects are those extremely unlikely to occur due to timing. Based on best judgement, a person cannot meaningfully measure, detect, or evaluate insignificant effects or expect discountable effects to occur. The term "negligible" means the same as "insignificant" (immeasurable).
- Likely to Adversely Affect (LAA):** The effect of the project is likely to result in a short or long-term adverse effect on listed species or floodplain functions.

## Proposal is Within the Protected Area

If the proposal is within the Protected Area, the following four conditions must be met through the HA analysis. The Protected Area is defined below.

- All "General BiOp Minimum Standards" have been met.
- All minimum "Habitat Assessment Standards" have been addressed.
- No mitigation is proposed. The project design inherently avoids adverse effects. Project design elements that consider and improve floodplain functions that support ESA-listed species may be incorporated.
- The proposal will result in an NE or NLAA effects determination for ESA-listed species..

Table 2: Minimum Area of Habitat Assessment in Protected Areas

Water/Stream Type	RBZ
CMZ	CMZ+50 feet
S (Shorelines of the State)	250 feet
F >5' and Marine Shorelines	200 feet
F <5' and Lakes <sup>1</sup>	150 feet
N w/unstable slopes	225 feet
N	150 feet

The **riparian buffer zone (RBZ)** is the land adjacent to streams and other bodies of water where vegetation is strongly influenced by the presence of water. They are often thin lines-of-green containing native grasses, flowers, shrubs and trees that line the banks of streams and other bodies of water.

The **channel migration zone (CMZ)** is the area along a river within which the channel(s) can be reasonably predicted to migrate over time as a result of natural and normally occurring hydrological and related processes.

<sup>1</sup>Lakes are defined as over 20 acres.

## Proposal is Outside the Protected Area and Within the SFHA

If the proposal is outside of the Protected Area, but still within the SFHA the following conditions must be met through the HA analysis.

- All "General BiOp Minimum Standards" have been met.
- All minimum "Habitat Assessment Standards" have been addressed.
- New structures are located at least 15 feet from edge of the Protected Area, in previously disturbed/cleared areas, or outside of the SFHA, as practicable.
- Removal of native vegetation leaves at least 65% of the area of the lot within the SFHA in an undeveloped state.
- 10, 50, and 100-year flood zones are conveyed to the applicant and marked onsite.
- Creation of new impervious surfaces does not exceed 10% of the portion of the lot in the SFHA unless sufficient mitigation is provided.
- New structures are located such that new flood protection or armoring will not be needed.
- The proposal will result in an NE or NLAA effects determination for ESA-listed species.

Flood zones describe the probability of a flood occurring:

- 100 year = once every 100 years or 1% chance
- 50 year = once every 50 years or 2% chance
- 10-year = once every 10 years or 10% chance

Any property having a 1% or greater chance of flooding is in the floodplain.

## Additional Considerations for Lake and Coastal Floodplains

- Armoring/stabilization:** See "General BiOp Standards" section above.
- Lakes:** The Protected Area is the RBZ (150 feet from the OHWM) because floodways and CMZ's are not applicable.
- Coastal:** The Protected Areas is the SFHA located within 200 feet of the OHWM (i.e. the coastal RBZ) because floodways and CMZs are not applicable.

### NOTES:

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