

# Options for Wild Steelhead Gene Banks in the Coastal Rivers of the Lower Columbia River

Washington Department of Fish and Wildlife – Region 5 Fish Program

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Since early 2011, the Washington Department of Fish and Wildlife (WDFW) has been working to develop regional steelhead management plans for watersheds in the lower Columbia River. These plans are designed to reflect the goals and strategies expressed in the Statewide Steelhead Management Plan (SSMP), addressing such issues as hatchery production, natural production, fishing regulations, habitat conditions, enforcement and other key management considerations.

An important component of the regional management plans is the identification of steelhead gene banks, where wild steelhead stocks are largely protected from the effects of hatchery programs. As stated in the SSMP, “at least one wild stock gene bank will be established for each major population group in each steelhead Distinct Population Segment (DPS).”

## Statewide Steelhead Management Plan (SSMP)

- **Goal:** Restore and maintain the abundance, distribution, diversity, and long-term productivity of Washington’s wild steelhead and their habitats to assure healthy stocks. In a manner consistent with this goal, the Department will seek to protect and restore steelhead to achieve cultural, economic, and ecosystem benefits for current and future residents of Washington State.
- **Natural Production Policy:** Steelhead management shall place the highest priority on the protection of wild steelhead stocks to maintain and restore stocks to healthy levels.
- **Establish a Network of Wild Stock Gene Banks:**
  - At least one wild stock gene bank will be established for each major population group in each steelhead DPS.
  - Each stock selected for inclusion in the gene bank must be sufficiently abundant and productive to be self-sustaining in the future.
  - No releases of hatchery-origin steelhead will occur in streams where spawning of the stock occurs, or in streams used exclusively by that stock for rearing.
  - Fisheries can be conducted if wild steelhead management objectives are met as well as any necessary federal Endangered Species Act (ESA) determinations.

## Steelhead Management Planning Advisory Group Process

WDFW is working to develop steelhead management plans in the lower Columbia River Basin by creating regional watershed work groups to provide input and recommendations on a range of SSMP topics, including wild gene banks.

The membership of the work groups has included sport fishing organizations, conservation organizations and government agencies. In appointing members, WDFW considered individuals' knowledge of fisheries management and their personal commitment to the public process, while also seeking to achieve a wide range of public opinion.

Three work groups were created representing the geographic distribution of steelhead across all of the strata for the lower Columbia River (LCR) DPS. The LCR steelhead DPS is currently listed as "threatened" under the ESA. Three gene banks were established for the LCR DPS and adopted by WDFW in March 2014:

- East Fork Lewis – winter and summer steelhead
- North Fork Toutle/Green – winter steelhead
- Wind – summer steelhead

A fourth work group was established in March 2015 to focus on the Southwest Washington DPS for Columbia River populations downstream of the Cowlitz River, an area designated the Coast Stratum. Steelhead in the Southwest Washington DPS are not currently listed under the ESA. The work group met from March through September of 2015 and made recommendations regarding the establishment of a gene bank in the Coast Stratum based on the following options:

- Grays/Chinook – Primary population designation in the recovery plan
- Elochoman/Skamokawa – Contributing population designation in the recovery plan
- Mill, Abernathy, Germany (MAG) – Primary population designation in the recovery plan

Many pros and cons for each candidate population were discussed by the steelhead management planning workgroup and considered by department staff. The work group came to consensus agreement in recommending that the Elochoman/Skamokawa population not be designated as a gene bank.

Of the two remaining choices, the majority of members recommended the Grays/Chinook population be designated a gene bank, and the minority of members recommended that the Mill, Abernathy, Germany population be designated as a gene bank.

WDFW is now providing an opportunity for additional comment from the public on the gene bank options provided by the advisory work group:

- Grays/Chinook – primary population designation in Recovery plan
- Mill, Abernathy, Germany (MAG) – primary population designation in Recovery plan

## Workgroup Criteria Used in Gene Bank Recommendations

The workgroup assessed the two options based on the following criteria:

### Biological benefits

- **Recent escapement and recovery goals:**

- Grays/Chinook

- 10-year average wild abundance is 562 (2005-14).
    - Recovery goal is 800 fish.

- MAG

- 10 year average abundance is 354 (includes some hatchery spawners; 2005-14).
    - Recovery goal is 500.

- **Habitat Quantity**

- Spawning habitat:

- Grays/Chinook approximately 77 miles.
    - MAG approximately 44 miles.

- Current smolt capacity:

- Grays/Chinook approximately 12,550.
    - MAG approximately 9,850.

- **Habitat Quality:**

- Majority of habitat for both populations is private or state timberland.
    - Remainder largely rural residential, agricultural.
    - Land use impacts have degraded steelhead habitat
    - Because of similar land use, prognosis for future is similar among populations.
    - Active logging rotation in upper Grays, with harvesting of 3rd growth – continued high levels of sediment input
    - Much of upper MAG watersheds in DNR ownership – less current active logging.

- **Population Recovery Designations**

- Both populations are designated as 'Primary' in the recovery plan, indicating the goal is to recover them to a high level of viability.

- This designation is consistent with choices made for gene banks in lower Columbia River ESU.

### **Hatchery issues**

- **Program sizes:**

- Grays – early winter segregated program – 40,000 smolts.
- MAG – integrated winter (research program) – variable release sizes approximately 5,000 to 20,000 smolts.

- **Infrastructure issues**

- Grays River has failing hatchery infrastructure; production is proposed to transition to Beaver Creek Hatchery (Elochoman River).

- **Hatchery Scientific Review Group (HSRG)**

- Grays/Chinook consistent with Hatchery Scientific Review Group (HSRG).
- HSRG noted – “a unique opportunity exists to establish a “Wild Steelhead Management Zone” within the Grays River Basin.
- If Grays Hatchery closes, could have a hatchery free zone for all species in Grays River.

- **USFWS Abernathy Fish Technology Center (AFTC)**

- Currently operates a BPA-funded integrated steelhead hatchery research program in MAG (on Abernathy Creek)
- MAG could not be formally designated a gene bank until this research program ends (sunset date is unclear).
- Recommendation of MAG as a gene bank would require further discussion with USFWS regarding this issue.

### **Harvest**

- Both basins offer popular steelhead sport fishing opportunities.
  - *Harvest fishery (for hatchery steelhead) would be impacted by gene bank designation.*
  - *Catch and Release fishery potential (for wild steelhead) exists in both areas.*
- Access in both basins is limited.
- Number of “fishable” days on Grays may be less due to high turbidity in winter.
- Catch Record Card data indicates more harvest in Grays River than MAG.

### **Other workgroup comments/concerns**

- Designation of MAG as gene bank would create a conflict with the U.S. Fish and Wildlife Service's existing research program at the Abernathy Fish Technology Center. It is unclear how this would be resolved.
- Uncertainty in funding for MAG hatchery steelhead program; current hatchery program depends on BPA research funding – loss of funding could result in loss of sport harvest fishery in MAG regardless of gene bank choice.
- MAG has intensive monitoring and research programs both for wild populations and hatchery research.
  - *Gene bank designation could end valuable hatchery steelhead research conducted by U.S. Fish and Wildlife Service at the Abernathy Fish Technology Center.*
  - *Gene bank designation could benefit wild population monitoring as part of the Intensively Monitored Watershed program.*
- MAG hatchery fish (integrated) have the same timing as the wild fish
  - *Hatchery fish present over longer period.*
  - *However, some hatchery returns are not available during current fishery opening dates.*
  - *Later spawning of hatchery fish complicates monitoring (e.g., identifying hatchery vs natural origin spawners).*
- SSMP does not list economics as a specific criterion for gene bank choices – protection of wild steelhead is the highest priority.

## **Implementation actions required to establish a gene bank**

### Grays/Chinook:

- ✓ Elimination of 40,000 segregated hatchery winter-run steelhead smolt release into the Grays River.
  - Work group recommended these fish be reprogrammed into the Elochoman River.
  - Long-term expectations that Grays River Hatchery be closed and production continue out of Beaver Creek Hatchery on Elochoman River.

### Mill/Abernathy/Germany

- ✓ Elimination of 5,000 – 20,000 integrated hatchery steelhead smolt release on Abernathy Creek.
  - Would require discussions with USFWS regarding discontinuation of steelhead hatchery releases on Abernathy Creek

- Delay of gene bank implementation to allow continuation of USFWS research program uncertain; would require further discussions between WDFW and USFWS

## **Additional links**

Link to WDFW Statewide Steelhead Management Plan:

[http://wdfw.wa.gov/conservation/fisheries/steelhead/management\\_plan.html](http://wdfw.wa.gov/conservation/fisheries/steelhead/management_plan.html)

Link to WDFW Hatchery and Fishery Reform Policy:

<http://wdfw.wa.gov/commission/policies/c3619.html>

Link to 2010 Washington Lower Columbia Salmon Recovery and Fish & Wildlife Subbasin Plan:

<http://www.lcfrb.gen.wa.us/> (go to 'Library' and then 'Publications' to find the document)