

Salmon and Steelhead & Endangered Species Act (ESA)



NOAA Fisheries
(National Marine Fisheries Service)
Salmon Management Division



NOAA Fisheries

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Middle Columbia and Lower Columbia River

ESUs/DPSs



Hatchery Consultations

- If there is a Federal Nexus and no direct take of listed fish.
 - Then Section 7 Consultation
- If there is no Federal Nexus or there is the direct take of listed fish.
 - Then Section 10 permit or
 - 4(d) Rule
- Activities or programs that do not kill or injure protected species (take) do not require any authorization under this rule. No “take,” no problem.





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Hatchery Consultations

- Most hatchery programs in the Columbia River Basin are financed with Federal money in someway:
 - Mitchell Act
 - Bonneville Power Administration
 - Lower Snake River Compensation Plan
 - U.S. Army Corp of Engineers





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Hatchery Consultations

- If there is a Federal nexus and no direct take of listed species:
 - Section 7 Consultation
 - Issuance of an Incidental Take Statement
 - Should include Monitoring and Evaluation Activities
 - Does not require NEPA





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Hatchery Consultations

- If there is a Federal nexus and direct take of listed species or no Federal nexus:
 - Section 10 Permit or
 - Limit 5 of the 4(d) Rule - HGMPs
 - Limit 6 of the 4(d) Rule – Tribal/State Management Plans
 - Tribal 4(d) Rule
 - Both approaches require NEPA
 - Should include Monitoring and Evaluation activities





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Hatchery Consultations

- Section 10(a)(1)(a) permits are for scientific purposes or enhancement activities
- Section 10(a)(1)(b) permits are for incidental take of listed species
- Section 10 permit applications and information are available at
- <http://www.nwr.noaa.gov/Salmon-Harvest-Hatcheries/Hatcheries/Sec-10-Hatchery-Appls.cfm>





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Hatchery Consultations

- The 4(d) Rule adopted by NMFS prohibits anyone from taking a listed salmon or steelhead, except in cases where the take is associated with an approved program.
- The 4(d) Rule approves some specific existing state and local programs, and creates a means for NMFS to approve additional programs if they meet certain standards set out in the rule.
- Tribal 4(d) Rule
- <http://www.nwr.noaa.gov/ESA-Salmon-Regulations-Permits/4d-Rules/Final-4d-Rules.cfm>



Hatchery Consultations

- Activities included under the 4(d) Rule
 - ESA Permits (e.g., Section 10 permits)
 - Rescue and Salvage Actions
 - Fishery Management (FMEPs)
 - Artificial Propagation (HGMPs)
 - Joint Tribal/State Plans
 - Scientific Research (State)
 - Habitat restoration
 - Water diversion screening
 - Routine road maintenance
 - Urban development (Portland Parks Pest Management)
 - Forest practices



Hatchery Consultation Process

- Pre-consultation Process
 - Hatchery operators develop Hatchery and Genetic Management Plans (HGMPs)
 - The HGMPs are used for all ESA consultation processes for hatchery programs
- Information on HGMPs is available at:
- <http://www.nwr.noaa.gov/Salmon-Harvest-Hatcheries/Hatcheries/Sec-10-Hatchery-Appls.cfm>



Hatchery Consultation Process

- Pre-consultation Process cont.
 - Operators submit draft HGMP to NMFS for initial review
 - NMFS provides comments and suggested edits
 - Operators submit updated draft to NMFS
 - NMFS reviews draft and recommends that draft HGMP be formally submitted for ESA consultation





Hatchery Consultation Process

- Pre-consultation Process cont.
 - Formal letter, with attached HGMPs, to NMFS requesting ESA consultation under Section 7, Section 10, or the 4(d) Rule (Tribal and non-tribal)
 - NMFS replies with a sufficiency letter stating that the HGMPs are complete and are ready to begin formal consultation





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Hatchery Consultations

- Section 7 Consultation Process
 - NMFS begins drafting a Biological Opinion to determine the effects of incidental take on listed species from the hatchery programs
 - NMFS drafts a description of the programs and provides the draft to the operators for their review to ensure that the hatchery programs are describe accurately
 - NMFS completes the Biological Opinion and the Incidental Take Statement





Hatchery Consultations

- Section 10 permits and 4(d) Rule Process
 - When HGMPs are sufficient then NMFS will draft applicable NEPA document
 - Draft NEPA document and draft HGMPs then go out for 30-day public comment period
 - After public comment period, HGMPs could be modified, if not, NMFS will begin drafting Biological Opinion on decision to issue permit or 4(d) Rule concurrence letter





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Hatchery Consultations

- Limit 6 Joint Tribal/State and Tribal 4(d) Rule Process
 - NMFS will complete a Biological Opinion on the Plans and applicable NEPA document
 - NMFS will put out for public comment its determination as to whether the plans meet the criteria under the 4(d) Rule
 - And whether it reduces the likelihood of survival and recovery of the affected species





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Hatchery Consultations

- Hatchery Impacts Evaluated
 - There are a number of impacts or risks associated with hatchery programs depending on their purpose





Hatchery Consultations

Categories and Subcategories of Potential Risks Posed by Hatchery Operations				
Current (e.g., in 2007a USFWS opinion (NMFS 2007a))		Revised		Description
Hatchery Operations		Facility effects		Impacts from existence and basic operation of hatchery
	Hatchery facility failure		General facility failure	Impacts on listed fish in the hatchery and fish in wild by electrical failure, flooding, fire, etc.
	Hatchery water intake impacts		Water intake	Impacts on environment from water withdrawal and to fish in stream from screening/impingement
	Hatchery effluent discharge impacts		Effluent	Impacts on environment from water quality changes, and disease incidence caused by effluent
			Structures	Impacts on physical stream environment from physical existence of hatchery structures (e.g., gravel buildup from weirs) and fish movement blockages caused by structures
Broodstock Collection		Fish removal		Impacts on the target population and non-target population caused by removal of fish for culture (usually will be adults but could be juveniles or eggs)
	Collection method		Collection	Injury and death to target and non-target individuals caused by collection (will include discussion of different collection methodologies)
	Adult removal		Demographic	Risk posed to natural-origin component from decreasing numbers due to taking fish into hatchery
Genetic Introgression		Genetic		Losses of fitness and decreases in diversity caused by genetic mechanisms
	Genetic drift		Loss of within-population diversity	Diversity/fitness loss caused by genetic drift, non-representative sampling, and inbreeding depression
	Inbreeding depression			
	Loss of diversity among populations		Outbreeding effects	Fitness/diversity change caused by gene flow from other populations (outbreeding depression and loss of among-population diversity)
	Domestication selection		Domestication selection	Fitness loss and phenotypic change caused by differences between the hatchery and natural environment (includes intentional selection and relaxation of selection), and sampling "errors" during fish culture



Hatchery Consultations

Categories and Subcategories of Potential Risks Posed by Hatchery Operations			
Current (e.g., in 2007a USFWS opinion (NMFS 2007a))	Revised		Description
	Ecological interactions		
Disease		Disease	Disease risk to target and non-target populations from commingling with diseased hatchery fish
Competition/Density Dependence		Competition	Productivity loss in target and non-target populations from competition for limited resources caused by released hatchery fish (includes competition due to residualism)
Predation		Predation	Productivity loss in target and non-target populations from predation by released hatchery fish (includes predation due to residualism)
Residualism			
Nutrient cycling		Marine-derived nutrients	Productivity decreases due to under- or over-abundance of Marine-Derived Nutrients from hatchery carcasses
Fisheries	Harvest		Mortalities in target and non-target populations due to harvest
Monitoring and evaluation	Monitoring and evaluation		
Masking		Marking/masking	Loss of monitoring precision due to inadequate marking rate and type
		Methodology	Injury and death caused by monitoring activities
		Adequacy	Risk of undetected impacts from low power or not monitoring all areas necessary (including inadequate equipment)
		Adaptive management	Decreased ability to respond in timely manner to new information on effectiveness of programs



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Hatchery Consultations

- Hatchery Impacts Evaluated
 - NMFS, through the scoping process, identifies those impacts or risks associated with the hatchery programs that need to be evaluated in more detail within the Biological Opinion.
 - NMFS looks at impacts on individuals, how the impacts on individuals affects the population, and how the impacts on the population affects the survival and recovery of the ESU/DPS
 - NMFS also must look at potential impacts on designated Critical Habitat





Hatchery Consultations

- **Monitoring and Evaluation Activities**
 - M&E is needed to evaluate the impacts of hatchery programs on listed populations
- **Information needed to evaluate hatchery programs**
 - How many hatchery fish are spawning naturally
 - Where are they spawning
 - When are they spawning
 - What is the abundance of the natural-origin population
 - Are hatchery smolts emigrating quickly from the basin
 - Are hatchery smolts residualizing
 - Are hatchery adults straying into other tributaries
 - Are the hatchery fish meeting program goals





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Hatchery Consultations

- **Schedule for Hatchery Consultations**
 - Mitchell Act EIS complete this year
 - Upper Columbia River
 - Snake River Fall Chinook
 - Sandy River
 - Yakima River
 - NE Oregon/SE Washington
 - Middle Columbia River
 - Lower Columbia River
 - Puget Sound – Elwha, Chinook
 - Balance In 2013



Columbia River Hatchery Programs

