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Klamath Mountain Province Steelhead Project

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Description

ESA Issues

A National Marine Fisheries Service status review concluded that KMP steelhead were threatened with extinction. In contrast, an ODFW evaluation concluded that summer steelhead (STS) populations were depressed, but the winter steelhead (STW) populations were healthy. Subsequent discussions lead to a deferral of the proposed ESA listing. Oregon agreed to terminate STW harvest in KMP streams (except the Rogue River Basin remained open) and to improve population assessments. Oregon also committed to development of population health goals for steelhead (first attempted for KMP steelhead).

Background

The KMP includes coastal basins from Cape Blanco to just south of the Klamath River in California. In Oregon, all basins produce STW, but STS are produced only in the Rogue River Basin. ODFW estimated that returns of wild steelhead to the Rogue River averaged about 20,000 STS in 1976-99 and about 43,000 STW in 1977-80. Returns of wild STW to other coastal streams have not been directly estimated. Some KMP steelhead have an unusual life history, making a false spawning run after only 3-5 months in the ocean. These fish are known as "half-pounders" and are found only in the Rogue, Klamath, and Eel River basins. Steelhead of hatchery origin are released only in the Rogue River Basin and in the Chetco River.

Project Goal and Objectives

Develop and implement assessment methods to determine the status of wild steelhead in the Oregon portion of the KMP.

Objectives: 1. Develop population health goals and allied monitoring methods.

2. Determine resource status in relation to health goals.

Population Health Goals Adopted by ODFW

In 1999, ODFW developed six population health goals for KMP steelhead:

1. Characteristics of fresh water habitat in areas accessible to steelhead should become more similar to ODFW benchmarks of habitat quality established for streams in western Oregon.
2. During late summer and autumn, the mean density of trout fry should be at least 0.50 fish per m² and the mean density of age ³ 1+ steelhead should be at least 0.10 (0.05 in riffles) fish per m².
3. Juvenile steelhead should be present in at least 80% of sites accessible to spawners, or the percentage of sites inhabited by juvenile steelhead should increase through time.
4. Mean production rates in intermittent streams used by spawning summer steelhead should be a minimum of 7,000 trout fry per kilometer.
5. Annual returns to Gold Ray Dam should be a minimum of 4,000 wild summer steelhead and 4,000 wild winter steelhead, while annual returns to the Rogue River should be a minimum of 10,000 wild late-run adult summer steelhead.
6. Fish with half-pounder life histories should compose at least 95% of the late-run adult summer steelhead in the Rogue River.

Project Findings

Sampling to determine resource status in relation to population health goals began in summer of 1999. A summary of results follow, with an emphasis on goal 2:

Goal 1: ODFW's Aquatic Habitat Inventory Project completed the sampling.

Goal 3: The distribution goal was met. We found juvenile steelhead at 93 of 95 (98%) random sites judged accessible to spawners.

Goal 4: No results to date. Sampling began in spring 2000.

Goal 5: Return goals were met except for wild summer steelhead that passed Gold Ray Dam.

Goal 6: About 200 scale samples were taken and need to be interpreted.

Goal 2: We estimated the summer densities of juvenile trout at 42 randomly selected sites in the Rogue River Basin and at 52 randomly selected sites in other coastal basins of the KMP. Mean densities of subyearling trout in the Rogue River Basin, and in other coastal basins, exceeded the population health goal. In contrast, mean densities of age ³ 1+ steelhead did not meet the population health goal in either the Rogue River Basin or in other coastal basins.

We electrofished to estimate the densities of trout in first to third order streams on a 1:100,000 USGS stream layer. Densities were relatively easy to estimate in small streams, but were difficult or impossible to estimate in the larger third order streams. In most cases, subyearling steelhead could not be visually distinguished from subyearling cutthroat trout.

We found that densities of age ³ 1+ steelhead tended to be greater in the larger streams. This finding indicates that mean density estimates for KMP streams are probably affected by the size of the streams that are sampled. In addition, if electrofishing remains the preferred sampling method, inferences about trout densities will remain appropriate for only the smaller streams.

We also found that trout densities exhibited non-normal distributions. Various types of data transformations failed to normalize the data. This finding indicated that nonparametric analytical methods will probably need to be employed to monitor changes in trout densities through time.

Proposed Additions to Population Health Goals

Further discussion and review of the project lead to the development of two additional population health goals in 2000:

7. Mean production rates in coastal streams should be a minimum of 300 wild smolts per kilometer.

8. Wild fish should compose at least 50% of the winter steelhead that return to the Chetco River and at least 90% of the winter steelhead that return to other coastal streams. These run composition goals conform to guidelines of ODFW's wild fish policy.

Management Implications

Attainment of all the goals likely indicates that the populations of wild steelhead in the KMP are healthy and may allow managers to restore harvest opportunities for wild fish. Conversely, failure to attain any of the goals likely indicates that the populations are depressed and should lead to actions designed to minimize fishing mortality. However, in most years it is likely that some goals are attained while some are not. Under that scenario, and depending on which goals are attained, selective fisheries, like the current one for wild winter steelhead in the Rogue River, remain as viable options for fishery managers.

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