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[4] Feds Approve Puget Sound Recovery Plan, But Much Uncertainty Remains

NOAA Fisheries has formally accepted the [salmon recovery plan](#) for ESA-listed Puget Sound chinook and bull trout written by a huge group of regional players over the past few years that came together in a forum called the Shared Strategy. State and county agencies, municipalities, conservation and fishing groups, business interests, along with several tribes, worked together on different levels, including the 14 watersheds, estuaries and nearshore regions, to craft a plan they say will take decades, or maybe even a hundred years to recover the salmon stocks.

It was billed last week as the "most comprehensive" salmon recovery plan ever approved by the feds. "This is a plan built on local salmon-recovery efforts and remarkable cooperation among state, tribal and local governments and others," said Bob Lohn, head of the NOAA Fisheries Northwest regional office. "You can't get a better foundation for recovery than that."

The plan has outlined restoration efforts over the next 10 years, with a billion-dollar price tag attached to it, twice the current spending. Planners say they expect fish numbers to improve by about 20 percent over the next decade if funding is boosted to \$120 million a year.

"There is no exact modeling on this," said Jim Kramer, the Shared Strategy's executive director in an email, "but we expect to get the most gains where there is major restoration of estuaries. This would include the Skagit, Snohomish, Nisqually and Dungeness. There will also be a projected thirty-percent increase in the Nooksack with the removal of the dam on the mid-fork Nooksack."

But one of the basic tools used to analyze the 14 different watersheds is still under review, and until that is cleared up, some scientists say there is still a fair amount of uncertainty over the results. The model used to examine potential productivity gains is complicated and though widely used, still has never undergone a truly independent peer review.

It's called [EDT](#), [Ecosystem Diagnosis and Treatment Model] and it has been a major tool in the development of fish recovery plans throughout the Northwest, sometimes supplemented by other analyses, especially when its results have raised eyebrows too far. The Sound's own technical review team revised historical productivity numbers downward for some river systems when EDT had them pegged up to 10 times higher.

NOAA Fisheries ecologist Paul McElhany said he is in the midst of such a sensitivity analysis to determine how well EDT's complicated parameters actually rate to fish performance. The EDT process examines streams in small pieces and analyses them according to 45 different attributes, a data-intensive exercise

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grafted on to many places where data is scant at best. Without much data, analysts are expected to add their "expert opinion," which critics say increases uncertainty even more for the non-statistically-based analysis.

But EDT supporters say that was one of the reasons why the tool was developed in the first place, to come up with some answers for lack of anything better.

However, McElhany said uncertainty in a model like EDT can add up fast and create much larger uncertainties by the time all factors are included in an analysis that complicated.

A 2000 [review](#) by an expert panel put together by NMFS wasn't too impressed by EDT. The panel said EDT "exemplifies how modeling should not be done. It is over-parameterized, includes key functional relationships that cannot be known and cannot be tested, creates a false sense of accuracy, yet introduces error and uncertainty. Its very complexity makes it difficult to determine the effect of various assumptions and parameter values on the model's behavior and relation to data. The attempt at quantification through subjective 'expert opinion' compounds these fatal weaknesses, especially the model's inability to confront and improve with confrontation of data."

As a member of the Willamette/Lower Columbia region's technical recovery team, NOAA Fisheries' McElhany has had previous first hand experience with EDT, which was used extensively in the analyses of Lower Columbia stocks and habitat. EDT estimates of potential fish numbers were judged to be somewhat optimistic and were only adopted to represent the high end of planning ranges. Because of EDT's inherent uncertainty, The Dec. 2004 report said its value was not to come up with specific goals, but to estimate general magnitudes of populations between historic and current conditions, and to determine different impacts to fish throughout their lives and "the degree to which recovery measures at particular life stages will improve the potential for population persistence."

McElhany and his fellow reviewers mentioned the lack of EDT peer review in a November 2005 [peer review](#) of a pilot project on instream flows posted on the Shared Strategy's website. McElhany, along with University of Washington research professor Derek Booth, and consultant Bill Trush, said EDT "has many innovative attributes but also many questionable assumptions, of which almost none have been subjected to careful, unbiased scrutiny. Until that has occurred, it will be easy (and appropriate) to cast doubt on any management actions that have been guided by EDT results."

They said the report on instream flows made a "noble effort" to apply EDT to the two watersheds, but it really showed "that this approach should not be used as the template for region-wide planning."

EDT developers Lars Mobrand and several of his staffers responded with [a vigorous defense](#) of their model. They said the charge that EDT did not "pass even the lowest standards for a scientifically-reviewed framework" was "...nonsense. We submit that EDT is the most documented, the most thoroughly reviewed and the most commonly understood tool used in salmon recovery in the Pacific Northwest." They said the results of EDT had been validated by "hundreds" of biologists throughout the Northwest. But in their [final response](#), McElhany et al pointed to the quotation above, noting that the EDT supporters "did not cite a single review of the model," noting that "users" of a model cannot

provide an independent peer review of it.

Furthermore, they said "Shared Strategy should be credited with conducting at least an *application* of EDT, even if not of the model itself; the present discussion serves (if nothing else) just how unusual such reviews have been." They strongly recommended against further applications of the EDT model until a peer review was completed, noting that the sensitivity analysis underway at NMFS, although useful, did not constitute a true peer review.

The consultants who developed EDT reported in August 2005 that several sensitivity analyses and validations of the tool were underway by NOAA Fisheries, WDFW, the Bureau of Reclamation and themselves, but did not respond by press time to enquiries about any results from these various exercises.

Puget Sound's final recovery plan doesn't mention the dustup over EDT, but in the NOAA Fisheries supplement to it, the feds said the Shared Strategy's plan was based on the "best, available science except for those specific issues where NMFS determines, through a critical assessment of all available scientific information, that alternative scientific conclusions are warranted." They weren't any more specific than that, but committed to work with local planning groups to improve implementation efforts.

The feds' own creation of parameters for viable salmon populations has had limited peer review itself, and such tools have been rarely used in recovery plans throughout the country. But the viability parameters (abundance, productivity, spatial structure and diversity) will be the yardsticks by which improvements to the listed chinook populations will be judged.

For the ESU as a whole to be delisted, the feds want two to four chinook populations in each of the Sound's five biological regions to achieve viability, and the viability of least one population from each major genetic and life history group historically present in each of the five regions.

They also call for Sound-wide tributaries not listed as primary habitat for any of the 22 chinook populations functioning enough to support an ESU-wide recovery scenario. The feds also want chinook production from these waters to occur in a "manner consistent with recovery," while populations that do not meet viability for all VSP parameters be sustained "to provide ecological functions and preserve options for ESU recovery."

The Sound's technical team said all 22 chinook populations in the Sound are currently at high risk, but not all have to achieve viability for the ESU to eventually reach a low-risk status, as long as they improve somewhat.

According to NMFS' own data, the sound's chinook population has ranged between 17,000 and 62,000 since the early 1980s, about evenly split between wild and hatchery fish. Other WDFW data from the late 1960s estimated Puget Sound wild chinook spawners at 32,000 back then (several thousand less than the 2003 return), with about twice as many fish returning to hatcheries. In those days, harvest rates were high, with Canadian sports and commercial fishermen estimated to catch more than 300,000 Puget Sound chinook a year, about twice the number caught by US sports, commercial and tribal fishers. **-B. R.**

The following links were mentioned in this story:

[Puget Sound Chinook ESA Salmon Recovery Plan](#)

Ecosystem Diagnosis & Treatment

Salmon Recovery Science Review Panel Meeting Report,
December 4-6, 2000

Peer Review Of "Final Report - Instream Flow Assessment Pilot
Project" (Draft Of 9/9/05)

Comments on the "Peer Review of "Final Report- Instream Flow
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Response to Blair et al.

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