

Oct 3 , 2014

Wild Rivers Coast Estuaries

“**Estuaries** are among the most productive biological areas we have on earth. The amount of nutrients; the constant change and flux from incoming fresh water and salt water; the dynamic, ever-changing tidal exchange -- these all make for incredible fertility and fecundity.”

Frank Burris OSU Watershed Extension Agent

“The key limiting factor for salmon productivity on the South Coast is our estuaries. There are numerous scientific studies that key in on estuaries as the critical component of salmon recovery. Our estuaries tend to be small and confined (compared to the rest of the Oregon Coast) -- so anthropogenic influences are magnified. Estuaries are critical rearing areas, especially for chinook (2-4 months residence time). The bigger, healthier these smolts are when they out-migrate from our estuaries, the better their chances are to return and spawn.”

Todd Confer, ODFW District biologist. Gold Beach.

“The quality and quantity of native salmonid habitat in lowland rivers, streams, and *estuaries* has been significantly reduced since EuroAmerican settlement Protection of intact, functional aquatic habitats should be the first priority for salmonid recovery efforts..... RECOMMENDATION: The Oregon Watershed Enhancement Board (OWEB) should develop strategic priorities for protection and restoration activities in western Oregon lowland streams, rivers, and *estuaries* to enhance salmon recovery.” (Italics added).

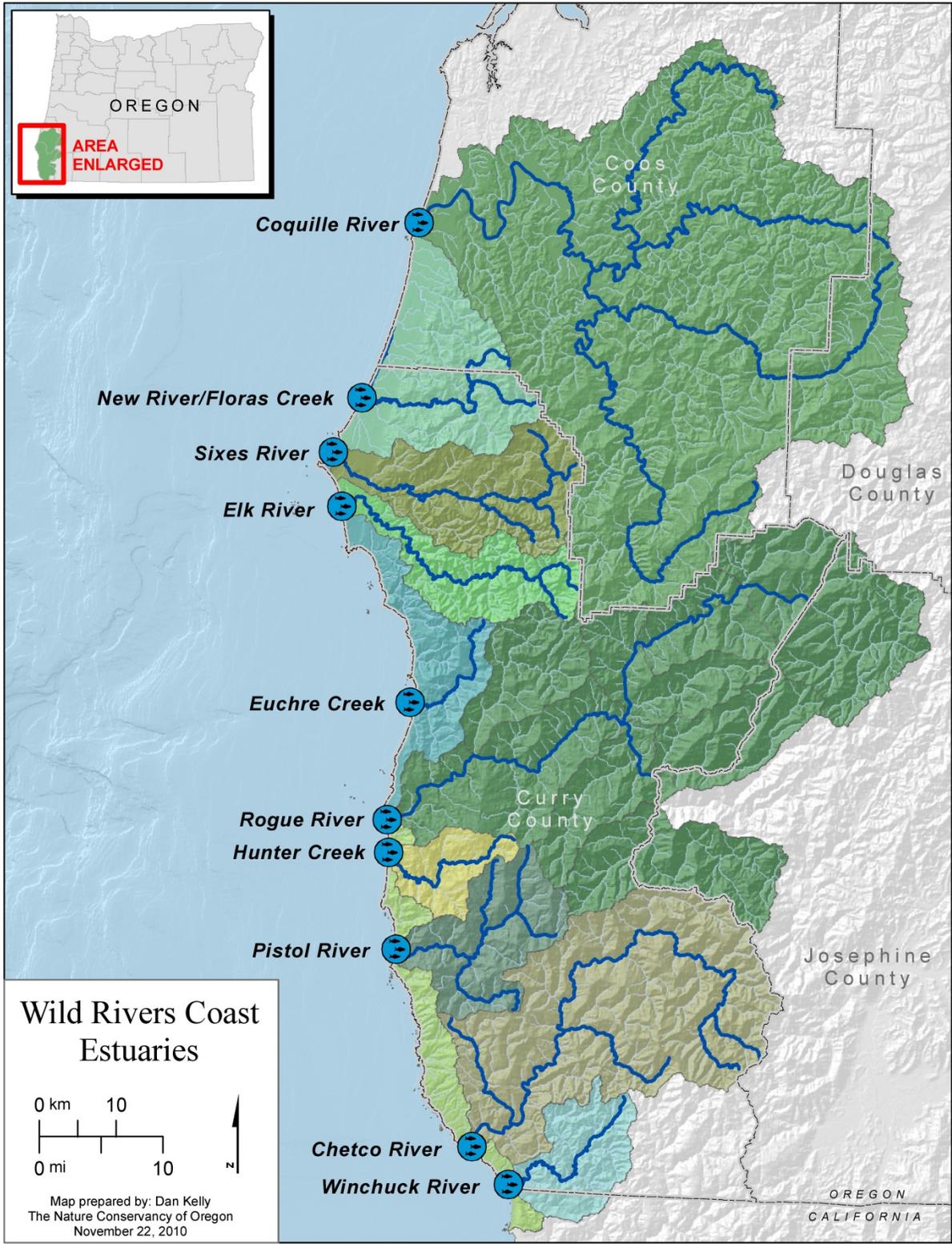
“*Recovery of Wild Salmonids in Western Oregon Lowlands.*” Technical Report 2002-1. Independent Multidisciplinary Science Team (IMST). pp 2-3.

“An estuary is the basin where the tide plays.” *T.J. Walker -- scientist and author.*

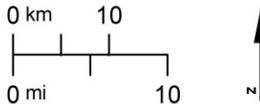
PRIORITY DESCRIPTION:

On Oregon’s south coast, 10 rivers collectively form a block of salmon habitat unlike anywhere else in the lower 48 states. This area includes ¼ of the Oregon Coast -- unspoiled , unconstrained estuaries & bays; open beaches; *willing landowners*; & the opportunity to preserve and protect this area for the next 100 years.

These ten rivers all have intact runs of *native* salmonids (chinook, coho, steelhead, and cutthroat trout). **There are no dams.** Five of these rivers are nationally-designated Wild and Scenic Rivers. Since a small percentage of salmon do stray, these populations do interact and enrich each other. Since California salmon populations are now considered “remnant’ runs, the fish in our area are at the southern edge of viable North American, trans-Pacific salmon habitat. Our fish already “know” in their genetic make-up how to live in a slightly warmer world. See map (next page).



Wild Rivers Coast Estuaries



Map prepared by: Dan Kelly
The Nature Conservancy of Oregon
November 22, 2010

OREGON
CALIFORNIA

We envision 10 functional estuaries on Oregon's Wild Rivers Coast -- improving in water quality over time (measurable), and providing demonstrably healthier salmon habitat. A robust monitoring component would track our progress.

Ecological Outcomes: (10 year time-frame)

- Improved water quality in 7 of 10 estuaries, using DEQ protocols and multiple parameters.
- 200 to 400 large wood structures added to selected estuarine and lowland areas to provide cover, shelter, hydrological complexity, and macro-invertebrate substrate.
- Noxious weed removal (beach grass, gorse, Japanese knotweed) on at least 40 acres. All areas re-planted with native wetland, shrub and tree species.
- 20,000 native trees planted in estuarine areas (both hardwoods and conifers). Many of these lower estuaries were spruce bottomlands when EuroAmerican settlers first came to our area in the mid- 1800's. Where feasible, we will re-create these salmon-friendly conditions and processes. *We have landowners willing to do this.*
- 6 tide gates replaced on the lower Coquille River to access up to 10-15 miles of previously inaccessible coho habitat, including restored tidal connection to 200 acres of wetlands.
- 10 bioswales/constructed wetlands in estuarine areas to capture and sequester pollutants.
- At least 40 off-channel alcoves / salmon refugia restored in S. Coast estuaries.

(See below for *Social Outcomes*)

SIGNIFICANCE TO THE STATE: The Oregon Coast has 22 "main" estuaries, according to the OR Division of State Lands (this does not include "minor" estuaries.) Our Wild Rivers proposal restores 10 (both major and minor) estuaries. Several of these are classified as natural : Elk River, Sixes River, Pistol River, Floras Creek, Euchre Creek, and Hunter Creek --- one is classified conservation (Winchuck River) ---- and three are classified as shallow draft development (Coquille, Rogue and Chetco). **All** have value and serve as important nurseries for salmonids. (IMST Technical Report 2002-1. p.8).

Another benefit to the state is that this area includes two ESU's: a portion of the Oregon Coast ESU; and also the Southern Oregon / Northern California ESU (known as SONC). This region is described geologically and botanically as the Klamath / Siskiyou ecoregion. It is botanically unique (dozens of plant and tree species grow here but nowhere else in the world); and our forests are considered part of the last intact temperate coniferous rain forest. **For SONC coho in particular, this region is primed for recovery, and has been identified as such by NOAA. " Significant action is needed to prevent the extinction of SONC coho salmon..... Recovery..... may be accomplished by improving habitat conditions through restoration." ***

(Sources : Kalmiopsis /Siskiyou Wild; Dominick Della Salla "*Temperate and Boreal Rain Forests of the World;*" * NOAA Fisheries 2014 Final Recovery Plan for SONC Coho ESU; Sept., 2014



Hunter Creek Estuary

How our proposal fits with regional and local priorities: The Oregon Conservation Strategy identifies our eco-regions (Klamath Mountains and Oregon Coast Range) as valuable, important, and in many ways – intact. One of the basic tenets of Conservation Biology is: “Protect the Best; Restore the Rest.” Please see below under “Recovery Plans” for an abbreviated list of our science documents.

LIMITING FACTORS: The limiting factors for estuary (and salmonid) production include the following (summarized from multiple sources):

- Lack of off-channel, slow-water rearing areas (refugia) and over-wintering habitat (coho).
- Loss of connectivity with the floodplain.
- Highly productive lowlands (for salmonids) converted to agriculture and pastureland.
- Loss of large wood, complexity, and diverse riparian forest cover in estuaries.
- Since our estuaries tend to be small (with the exception of the Coquille) --- any anthropogenic influences are magnified. In addition, several of our estuaries (Hunter, Pistol, Euchre, Winchuck, Elk) often become “bar-bound “ in the late summer. (Strong, persistent north winds build up sand at the mouth -- effectively sealing off the river and its connection to the ocean.) This closed system concentrates any pollutants (fertilizers, chemicals, etc) that do enter the estuary from the terrestrial environment, because there is no connection to the ocean, and no salt water exchange.

- Water quality concerns -- for example: low levels of dissolved oxygen in Sixes River; extensive algal mats and low oxygen levels in Hunter Creek; undersize smolts in Rogue River, etc).
- Tide gates inhibiting or blocking fish passage; inaccessible floodplain wetlands (Coquille River).

Recovery Plans: Here are some of the scientific documents identifying this area as important state-wide:

ODFW plans:

- Oregon Coast Coho Conservation Plan for the State of Oregon (2007)
- Coastal Multi-Species Conservation and Management Plan (CMP - 2014)
- OR Coastal Coho Implementation Plan –Yearly Report on Activities and Priorities (Dan Avery)
- Conservation Plan for Fall Chinook Salmon in the Rogue Management Unit (2013)
- Rogue Spring Chinook Conservation Plan (2007)

Additional Plans (multiple sources)

- Oregon Conservation Strategy.
- The Nature Conservancy’s “Conservation Action Plan” for the Cape Blanco Area
- Wetland Site Prioritization Lower Elk & Sixes Rivers; Curry County, Oregon (Laura Brophy)
- Coquille Sub-Basin Plan by the Coquille Indian Tribe for NOAA Fisheries
- The Oregon Plan for Salmon and Watersheds – continually updated
- S. Coast Assessments/Action Plans updated 2007 (on OWEB’s web-site; done to OWEB specs)
- Final Recovery Plan for the SONC Evolutionarily Significant Unit (ESU) of Coho Salmon (NOAA Fisheries) September, 2014
- IMST Guide to Western Lowlands ---Technical Report 2002-1
- US Forest Service: Elk and Sixes River Action Plans
- Chris Massingill -- Guide To Coastal Riparian Silviculture
- Chetco River Water Quality Management Plan
- Rogue River Estuary Assessment and Action Plan (funded by EPA -- in press)
- A Review of Stream Restoration Techniques & Strategy for Prioritizing Restoration . Phil Roni , et al --- NMFS Science Center ---Seattle, WA)

We acknowledge that working on estuaries alone will not solve all watershed problems, and that there are multiple concerns and issues upstream. We intend to address these issues with other federal, state, and foundation grants. Our focus on estuaries recognizes their critical importance for salmonids, migrating waterfowl on the Pacific flyway, and other species - is congruent with the literature on recovery, and takes into account that estuaries are where a lot of our people live and work. A good part of this FIP effort would be engaging citizens in caring for, and tending to , our estuaries.

THREATS AND BENEFITS:

Threats: The NOAA Fisheries 2014 Final Recovery Plan for SONC Coho ESU says it straight out: For our independent and dependent populations (Elk, Rogue, Pistol, Chetco and Winchuck rivers) --- the risk

of extinction of coho salmon in these rivers is High. Things look a little better north of Cape Blanco, with the Sixes, Floras/New River complex, and Coquille systems having better survival, better habitat, and a better prognosis for coho recovery long-term. Please also see above **“Limiting Factors.”**

Benefits: Imagine 10 rivers with improving salmon and steelhead runs. Envision this area as **“America’s Wild Rivers Coast”** --- an attractive, welcoming, clean destination for tourists and visitors. Picture thriving businesses of river guides, restaurants, motels, RV parks, outdoor stores. Join informed and committed citizens who understand their estuaries, work to protect them, and institute Best Management Practices (BMP’s) in all their economic initiatives. Celebrate the flowering of the Oregon Plan for Salmon and Watersheds. We are on our way to this vision now. Already our business community is promoting our region nationally as the “Wild Rivers Coast.” FIP = Fuel .

Cost Estimate: Our proposal will probably be \$2 million per biennium for 3 biennia. That would give us enough time to prove up on promises and deploy some adaptive management. Although each estuary has its own “prescription” that will vary with the local conditions -- this works out to roughly \$200,000 per estuary (over two years) -- a reasonable figure with high “bang for the buck.”

ECOLOGICAL OPPORTUNITIES: The IMST (Technical Report 2002-1) collected the best available science to apply to Oregon’s visionary salmon recovery efforts.

The Technical Report, at the beginning, asks the big question: **“Question 1:** How important are western Oregon lowlands and *estuaries* to the production and recovery of salmonids ?” In a word: Highly important. For example (all quotes are from this IMST Technical Report): “ Unconstrained, low elevation reaches often have the greatest abundance of salmonids, probably because of the great habitat diversity.....Unconstrained reaches provide essential habitat for rearing and migration..... The largest number of juvenile coho salmon is thought to have over-wintered in lower reaches of coastal basins.....”

The IMST chose to illustrate its points for all Oregon estuaries and lowlands with two seminal studies -- both from our area: “Unconstrained reaches in the **Elk River** (Oregon) contained about 15% of the total available habitat, but accounted for 30% of the estimated juvenile anadromous salmonids.” Gordie Reeves, 1998; Kelly Burnett 2001. And:

“Paul Reimers (1973) described five life history types (for chinook) in the **Sixes River**, Oregon that migrated to the estuary, resided in the estuary, and migrated to the ocean at different times of the year..... The life history type that grew rapidly in the estuary during the summer and migrated to the ocean in the autumn had the highest survival and adult returns among the five life history types. “

The IMST goes on to say in several ways that both the health and size of salmon as they rear in our estuaries are directly correlated to their ability to survive years in the ocean and return to our streams to spawn. Our prescription for restoring each estuary has some similarities, but is also site-specific, as the needs, landowners, opportunities, and size of each estuary varies.

Measures of Success and Time Frame: Please see “*Ecological Outcomes*” above, and **Social Opportunities** (below). On the Coquille, for example, a recent study estimated that the coho response to a restoration effort on 300 acres of tidal wetlands in the estuary would result in 11-17 additional returning coho salmon per acre of restoration.

SOCIAL OPPORTUNITIES: We have a strong partnership that has been working together for 20 years --since the inception of the Oregon Plan for Salmon & Watersheds. Our core members are the Curry Soil & Water Conservation District, the Lower Rogue Watershed Council, and the S. Coast Watershed Council (umbrella group for 7 S. Coast councils). Together we have successfully implemented over 1200 watershed restoration projects. Our team received the Governor’s “Spirit of the Oregon Plan Award” in 2000. The S. Coast Council received the OSU Extension Service State-Wide “Cooperator of the Year Award” in 2001. The Curry SWCD was recognized as the District of the Year in 2013. And locally, the South Coast / Lower Rogue Council was recognized by the Gold Beach Chamber of Commerce in 2005 as the “Non-Profit Organization of the Year.” We believe our coalition of partners is strong enough, & has a high enough level of trust - to successfully implement a high-quality FIP. Our track record is strong, and our trust level in the community is high. References available on request.

Our partners represent a broad range of citizens (including Ports, youth, Chambers of Commerce, etc.). The key partnership and support of the Wild Rivers Coast Alliance (Bandon Dunes Golf Resort) provides additional funding for this initiative; their service area for conservation and investment (Bandon to Brookings) is the same as ours.

Although it is hard to measure something like “an active& engaged sense of stewardship for one’s place” - this is one of our key goals (in addition to far-reaching ecological changes on the landscape). It is only through engaging citizens to be vigilant and caring about our land and water that we will achieve lasting success. A robust outreach component for community-based restoration is central to our plan.

ECONOMIC BENEFITS:

Clean, healthy rivers are, of course, priceless. Can we really quantify the value of having clean drinking water flow easily every time we turn on our taps? Or the amount of carbon captured or sediment held by our riparian forests? Or the total dollars spent by people chasing fish in Coos and Curry counties in any given year? Let’s try anyway. Here are three examples:

ODFW & Travel Oregon in 2008 commissioned a study that showed in Curry County, in 2008, expenditures for saltwater fishing were \$ 4.9 million; for freshwater fishing \$ 4.4 million, and for wildlife viewing: \$ 10 million.

In 2009, **EcoNorthwest** was charged with establishing “*The Economic Value of Rogue River Salmon.*” After an extensive analysis, they came up with these numbers for three “values” inherent in the river: Commercial fishing: \$ 1.4 million annually. Sports Fishing: \$16 million annually. “Non-Use” Values: \$ 1.5 billion annually (includes aesthetics, appreciation, willingness to pay to save salmon, and more.)



Rogue River Estuary

In another example **Ecotrust** conducted an economic study on the Coquille River that investigated the value of salmon to the local economies, as well as the value of the restoration economy. They determined that a restoration project on a 300-acre tidal wetland would generate \$ 2.6 - \$ 3.4 million in direct economic output and 18-25 local jobs. Additionally, the increased fishing opportunity from that restoration project would generate an additional \$ 1.1- \$ 3.2 million in recreational value.

In partnership with the Wild Rivers Coast Alliance, and the Freshwater Trust, we are seeking to refine and expand these recent analyses, with a new, updated "*Salmon Calculator.*" This method will allow us to get close to determining the actual value, in dollars, of restoring salmon and the associated recreational benefit in our Wild Rivers Coast watersheds. We expect this calculator to begin generating real numbers some time in 2015, and we envision it being applicable to the rest of Oregon.

Another lens to look at salmon recovery is through the direct jobs this industry creates for rural Oregon via the "Restoration Economy." According to the Institute for a Sustainable Environment (U. of Oregon study) --- from 2001 to 2010, restoration investments on the South Coast totaled at least \$ 57.6 million. "These investments have supported a diversity of restoration planning and activities, including extensive

road construction and maintenance projects, as well as fish and wildlife projects to restore in- stream and upland ecosystems.” They involved at least 40 local contractors who did this work.

On a smaller scale, year in & year out, our team brings in about \$ 1 million per year in “new money” to a severely depressed rural county. This money pays local contractors to do restoration work (build fences; place large instream wood; install off-stream water systems; etc). We have 10 people on staff - and hire a half-dozen additional seasonal field staff. A successful FIP would continue this employment record; we would probably have to hire a few additional people -- who in turn could write grants, bring in money, and put projects on the ground. Jobs that bring multiple benefits to an area are good.

One other point of interest: The Oregon Hatchery Research Center (in Alsea) is poised to invest close to \$ 1 million during the next biennium in the Elk River – making it a pilot project for research on salmon straying, domestication, genetics, fitness, and more.

Sources for Economics:

- “The Economic Value of Rogue River Salmon”: Eco Northwest; January 2009.
- “Salmon Calculator”: Jim Seeley; Wild Rivers Coast Alliance; Cam Parry – Parry& Associates,
- EcoSystem Workforce: The Economic Impacts of Oregon’s South Coast Restoration Industry. Working Paper # 34; Fall, 2011. Emily Jane Davis
- Analysis of the Economic Benefit of Salmon Restoration Efforts on the Lower Coquille River and Associated Impacts: Ecotrust, 2012



SUPPORTING PARTNERS Key (Lead) Partners:

- South Coast and Lower Rogue Watershed Councils
- Curry Soil & Water Conservation District
- Wild Rivers Coast Alliance*;
- The Nature Conservancy

*The Wild Rivers Coast Alliance, the philanthropic arm of Bandon Dunes Golf Resort, has committed the profits from their newest golf course, Bandon Preserve, to conservation programs from Bandon to Brookings. We can count on them for significant match, resources, and support.

Additional Partners:

- Wild Rivers Land Trust
- OSU Extension Service
- ODFW; Oregon Dept. of Agriculture
- Dozens of landowners
- 4 Coastal Ports; 4 Chambers of Commerce; 6 South Coast school districts
- US Fish and Wildlife Service; BLM (New River ACEC)
- Jerry's Jet Boats (Rogue); Coquille Tribe

Wild Rivers Coast Estuaries Evaluation

