

Chum Salmon recovery in Oregon tributaries to the lower Columbia River



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Chum Reintroduction Coordinator



History of decline

- Chum have broadest distribution
- Historic runs in Columbia River estimated at over a million
 - Commercial landings 700,000 in 1928
- Precipitous decline in the 1930's
 - Loss of spawning habitat
 - Loss of access to spawning habitat
 - Changes to estuary ecology
 - Altered hydrology
 - Predation/ harvest
 - Other causes?

Chum life cycle

- Fall chum return in October
- Spawn in lowest reaches of tributaries and mainstem
- Fry emerge and outmigrate in early spring
- Brief estuary residence
- Return to spawn at age 3-5 (age 4 is most common)



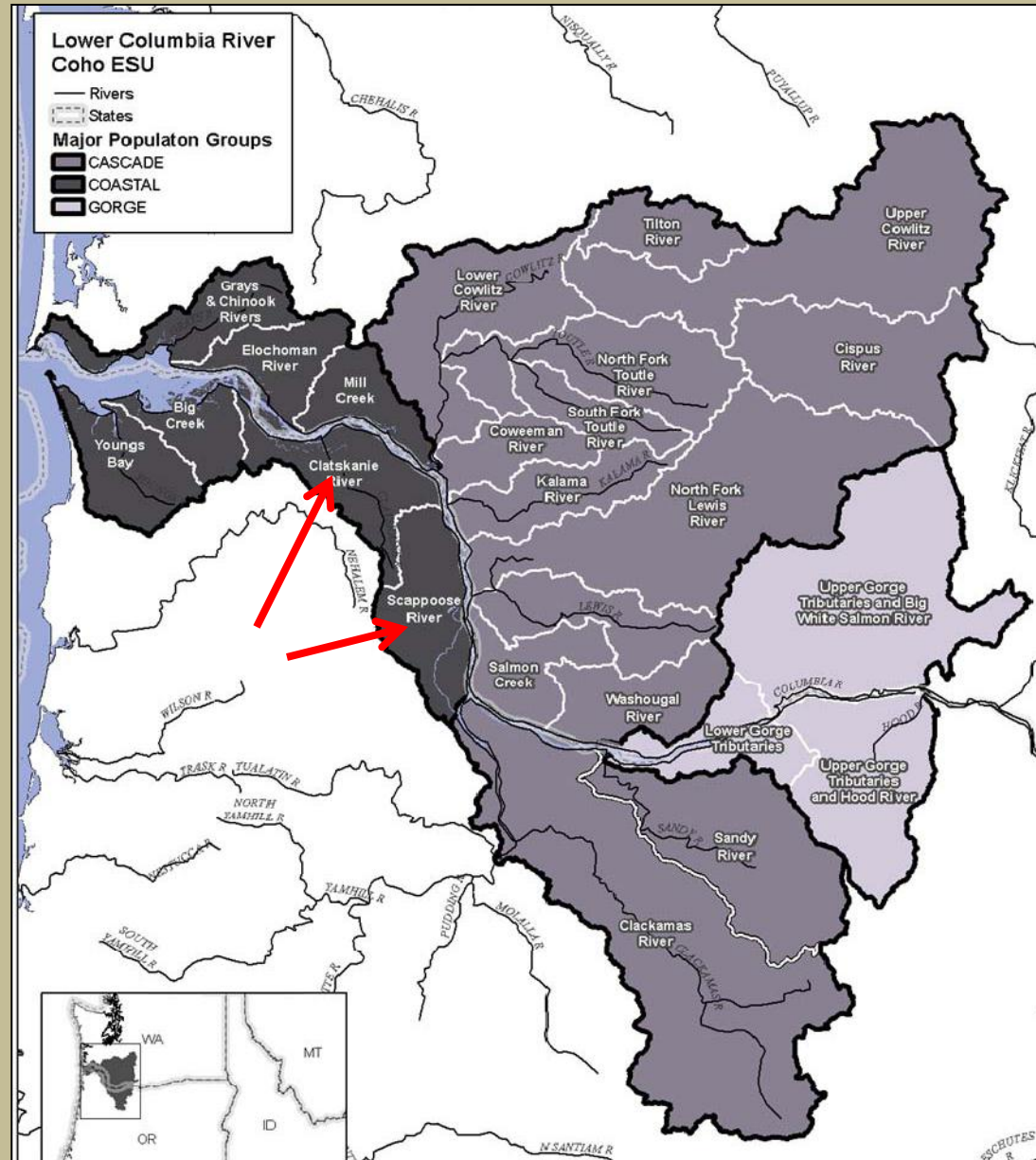
Photo by nicomeklhatchery.com

Listing and Status

- Currently, hundreds to thousands of chum return
 - 16 historic populations in Columbia River (90% of which are extirpated)
 - Limited current distribution (mostly in Washington)
 - Grays River, Hardy/Hamilton/Ives Island, mainstem Columbia River at Multnomah Falls and Horsetail Falls, I-205 spawning aggregates
- Listed as threatened under Endangered Species Act in 1999

Recovery planning

- Chum Recovery Strategy
 - Identifying and addressing limiting factors
 - Re-establish chum populations
 - Monitor effectiveness
- Prioritize efforts by geographic strata
 - Initial efforts in coastal stratum
 - Clatskanie and Scappoose



Chum Reintroduction Project

- Habitat restoration
- Recolonization
- Reintroduction
- Monitoring
- Baseline data



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Reintroduction

- Brood stock source
- Brood stock development
- Selecting reintroduction sites
- Selecting and testing potential outplanting strategies
- Evaluating effectiveness of strategies
- Monitoring population demographics

Reintroduction: brood stock source

- Donor population size, genetic similarity, and proximity to recipient populations

Source: Grays River

Oregon hatchery: Big Creek

Plan: 5 years egg collection at Grays River



Reintroduction: brood stock development

- 12 years of hatchery releases from Big Creek
 - 107,000 fry released in April 2011
 - 110,090 fry released in April 2012
 - All fry have thermal mark on otolith and blank coded wire tag
- Most chum should return at age 4, but some may return at age 3 (fall 2013) or 5
- Excess returns will be used for outplanting into selected systems

Reintroduction: site selection

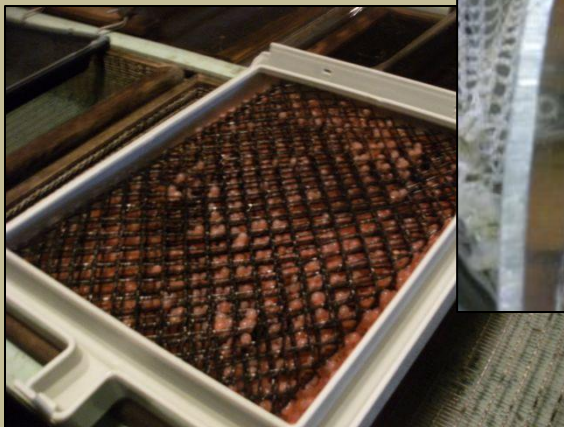
Considerations include:

- Quality and abundance of spawning habitat
- Presence of predators/ proximity to hatchery releases
- Limiting factors addressed



Reintroduction: outplanting strategies

- Timing and location of release
- Stage (egg, fry, adult) to be released
 - Multiple strategies under consideration
- Requires addressing critical uncertainties in habitat use, life history, and stream characteristics



Baseline data: 2012

- Distribution and abundance of fry
- Availability and quality of spawning habitat
- Distribution and abundance of spawners

Baseline data: distribution and abundance of fry

Conyer's Creek



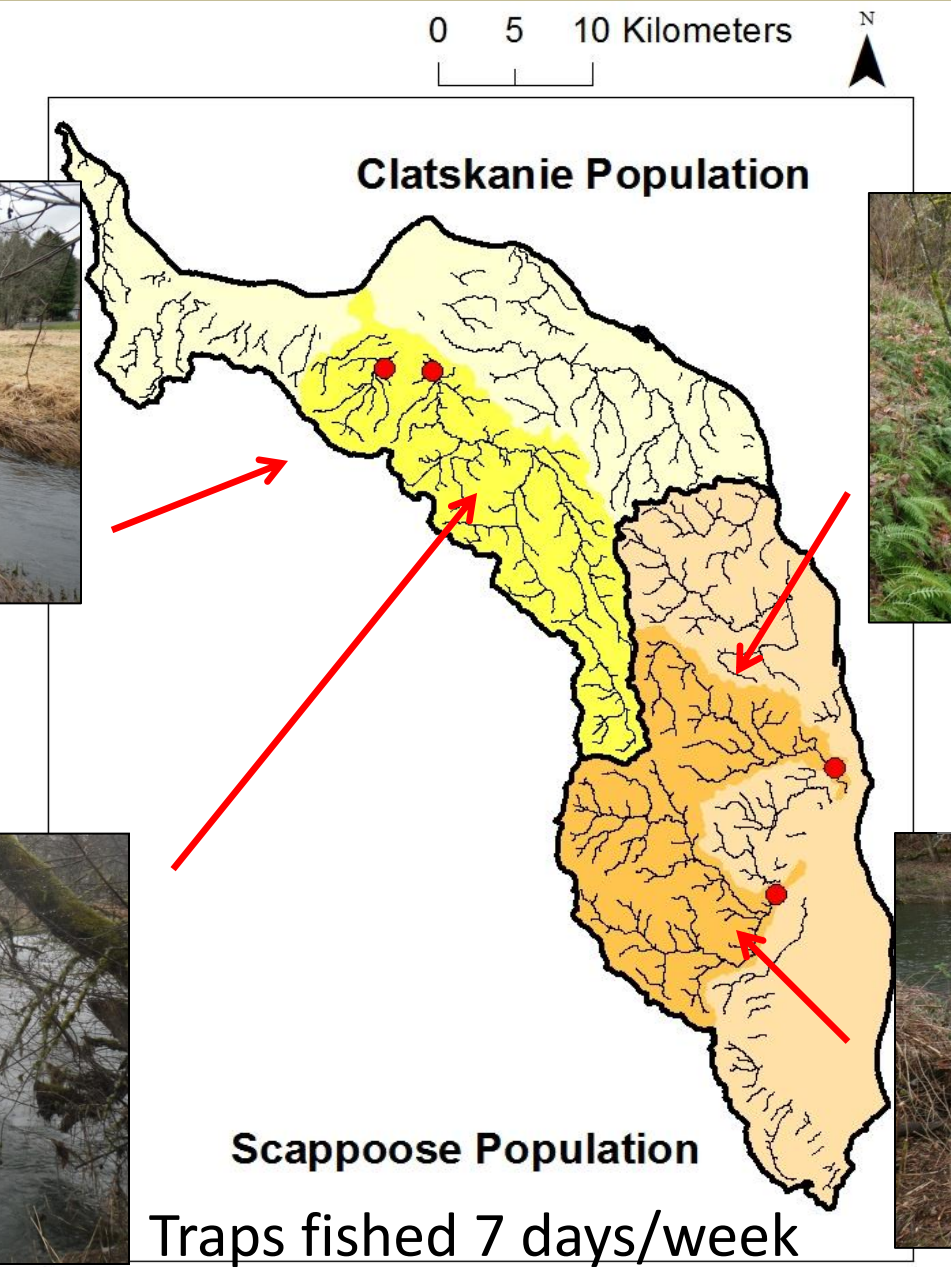
Clatskanie River



Milton Creek



Scappoose Creek



Clatskanie Population

Scappoose Population

Traps fished 7 days/week

SCREW TRAP DATA

	Coho smolt/ fry	Chinook smolt/ fry	Cutthroat smolt	Steelhead smolt	Chum fry	Lamprey	Peamouth
Scappoose	308/ 31	0/ 0	107	38	0	185	8
Clatskanie	1503/ 2182	0/ 249	99	133	0	275	0
Conyers	383/ 428	0/ 3	225	138	0	194	0
Milton	1623/ 108	0/ 1	273	117	0	197	4475

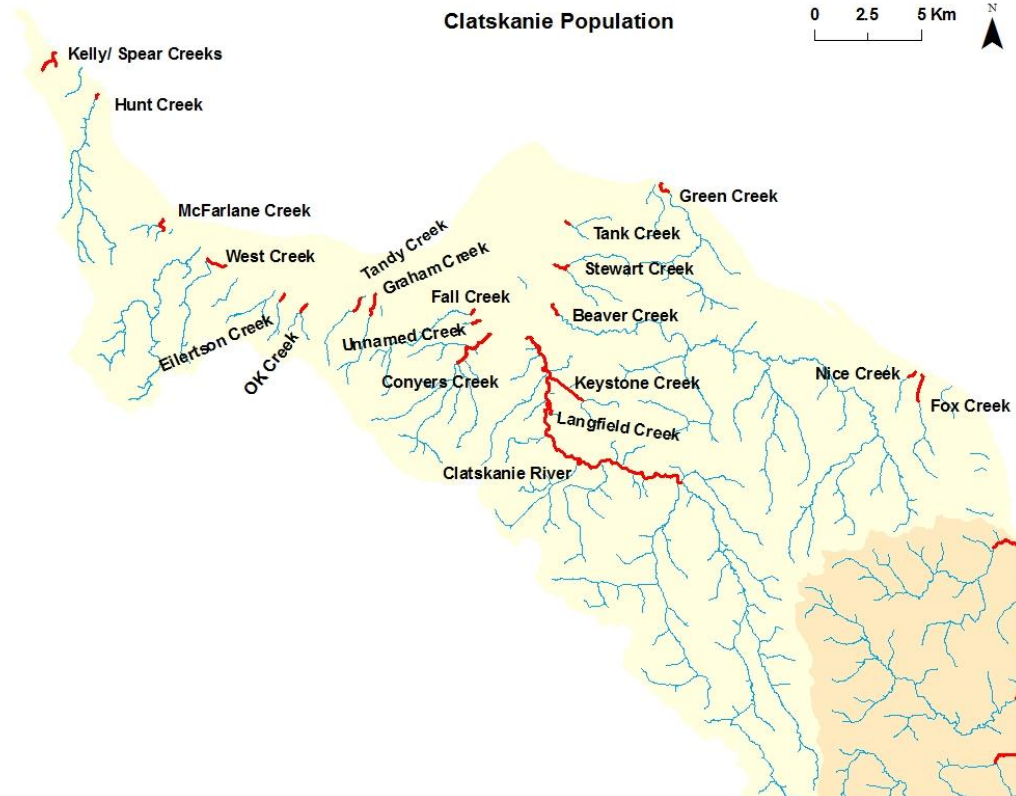
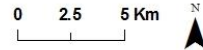
*Data are not corrected for trap efficiency and are preliminary

Other species include dace, sculpin, stickleback, walleye, sucker spp., and pikeminnow

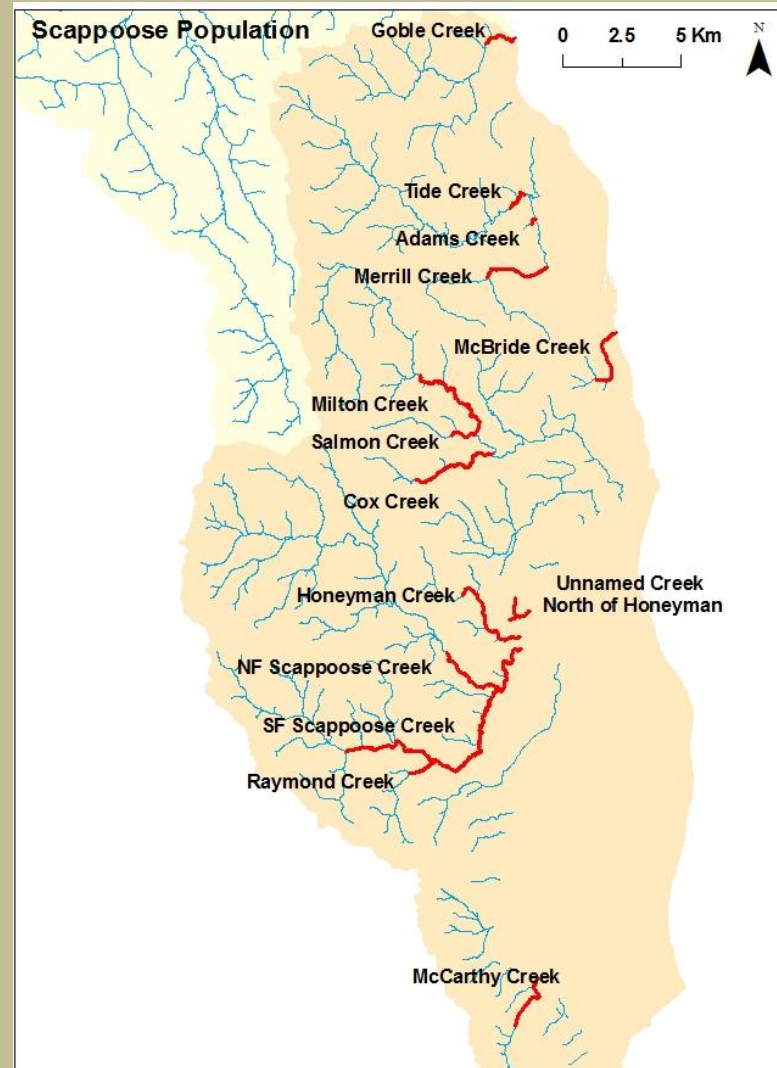
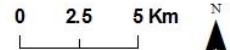
Baseline data: availability and quality of spawning habitat

- Conduct new habitat surveys/ resurvey with additional habitat metrics
- Build structural equation model to describe high quality habitat

Clatskanie Population



Scappoose Population



Baseline data: distribution and abundance of spawners

- Adult trap on Clatskanie River
- Spawning surveys in Clatskanie and Scappoose populations
- Potential trapping, seining, or snorkeling at additional sites



Questions



Contact Kris Homel kristen.m.homel@state.or.us with questions or to get involved in the chum project

Photo by WDFW