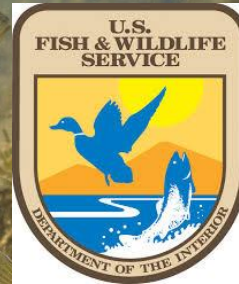


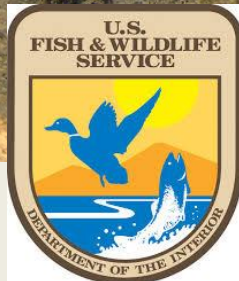
Oregon Chub (and those other off-channel habitat fish)



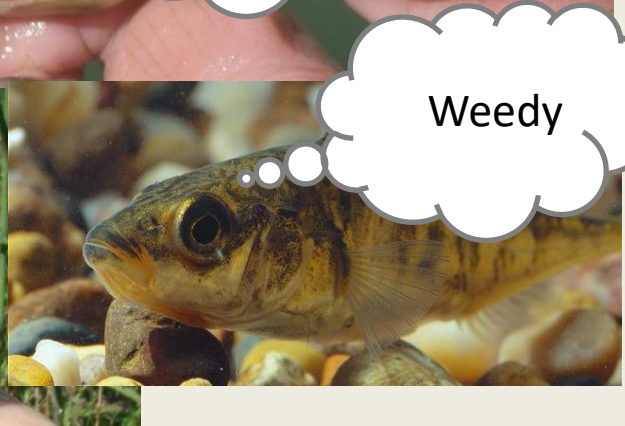
Oregon
Chub



**Beaver Management
SE OR ESA-listed fishes**
Borax Lake Chub,
Foskett Speckled Dace,
Hutton Tui Chub



Brian Bangs
Corvallis, Oregon



—69 fish species in the Willamette

- 36 native
- 33 nonnative

Oregon Chub: only fish endemic to the Willamette River basin





Film by Freshwaters Illustrated



Habitat Loss
(from Sedell &
Froggatt 1984)

~75% Reduction in
shoreline





Reasons for decline



Reasons for decline



- Half of the fish in the Willamette are non-native
- Largemouth bass, bluegill (and other sunfish)

ESA History

Snyder 1908

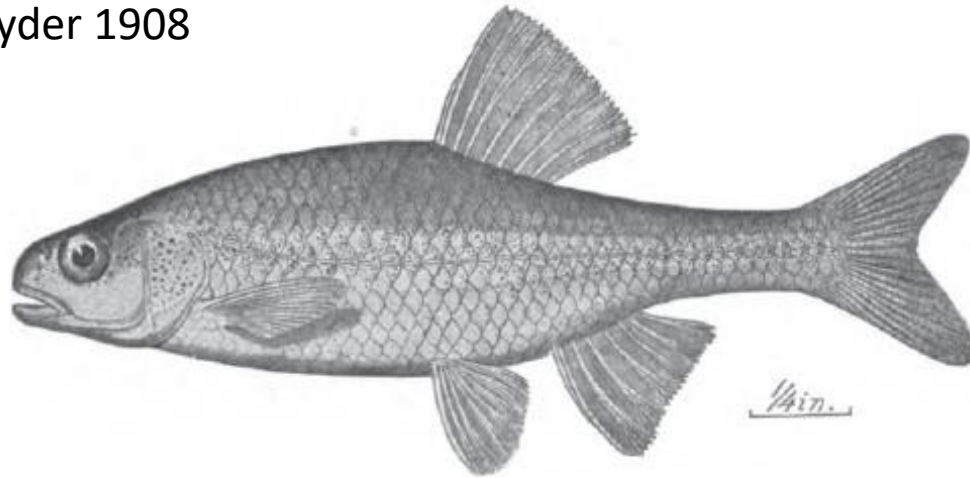


FIG. 5.—*Hybopsis crameri*, new species. Type.

- Petition to list: 1990
- Multi-agency Conservation Agreement: 1992
- Listed as Endangered: 1993
- Recovery Plan: 1998
- Downlisted to Threatened: 2010
- Delisted: 2015 **First fish recovered under ESA**

2010 Downlisting



US Army Corps Floodplain Study

Describe relationships between

- River flows,
- Habitat characteristics,
- Temperature regimes,
- Timing, frequency, duration, magnitude of connection, **and**
- Fish assemblage structure in off-channel habitats

Hydrologic Connectivity



What do we mean?

- Open water, direct connection to surrounding waterbodies
- Sites connect in different ways
 - Sloughs: high water flows through the site
 - Alcoves: only connect downstream

Hydrologic Connectivity

- Initial analyses
 - Positive relationship between flow and Oregon Chub abundance
 - Increased habitat
 - Movement
 - Impacts to nonnative fish
 - Trade-off: increased nonnative movement, lower nonnative dominance in sites
 - Risk: nonnative vegetation

How does this information inform restoration practices?

Connectivity and flow greatly dictate what species occur in an off-channel habitat

1. Understand what species are at your site
2. What processes are occurring and what processes have been lost due to management constraints
3. How restoring or augmenting processes would create desired conditions

Hydrologic connectivity:

Lower terraces so the river can access a slough

- Will it have flow through the slough?
- What species will be impacted, what will benefit?
- Weighing risks vs. benefits (e.g., nonnative access vs. connectivity)



Jeremy Monroe © FI

Summer 2019: First Oregon Chub population documented in the mainstem Willamette River since 1967.



Photo: McKenzie River Trust

Nonnative Aquatic Plants



Freshwater Mussels

- Crudely grouped: western pearlshell, floater, western ridged
- People often unaware of what mussels exist at project areas or during site evaluations

Mussel-Friendly Restoration

A Guide to the Essential Steps for Protecting Freshwater Mussels in Aquatic and Riparian Restoration, Construction, and Land Management Projects and Activities

Emilie Blevins, Laura McMullen, Sarina Jepsen, Michele Blackburn,
Aimée Code, and Scott Hoffman Black



Conserving the Gems of Our Waters

Best Management Practices for Protecting Native Western Freshwater Mussels During Aquatic and Riparian Restoration, Construction, and Land Management Projects and Activities

Emilie Blevins, Laura McMullen, Sarina Jepsen, Michele Blackburn,
Aimée Code, and Scott Hoffman Black



Lamprey

BEST MANAGEMENT PRACTICES TO MINIMIZE ADVERSE EFFECTS TO PACIFIC LAMPREY (*Entosphenus tridentatus*)

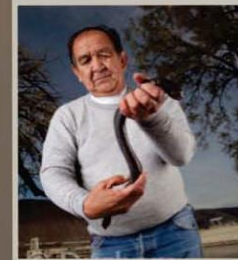


(Photo courtesy of U.S. Fish and Wildlife Service)

U.S. Fish and Wildlife Service
April 2010



Pacific Lamprey Habitat Restoration Guide




Pacific Lamprey Conservation Initiative

Website: fws.gov/pacificlamprey



About The Initiative

What the PLCI is, why it is, history, how it came together, etc.

[Discover more...](#) 

Assessment

Agreement

Plans

FEATURES



Best Management Practices to Minimize Adverse Effects to Pacific Lamprey

BEST MANAGEMENT PRACTICES
TO
MINIMIZE ADVERSE EFFECTS TO
PACIFIC LAMPREY

This document provides Best Practices that can be incorporated into any stream disturbing activity on



PACIFIC LAMPREY MAPS!



DATA CLEARINGHOUSE



LAMPREY FACT SHEETS

ODFW has a companion draft conservation plan, should be published in 2020.

Beaver

Beaver ponds and dams benefit Oregon's native fish and other wildlife: control flooding and provide stable summer flow, recharge groundwater and raise water table

They can also be a pain to live and work around

Many nonlethal options for managing beaver:

- Beaver deceivers (culverts)
- Pond levelling devices (flooding)
- Translocation of problem beaver

BMPs for enhancing habitat for beaver

The Beaver Restoration Guidebook

Working with Beaver to Restore Streams, Wetlands, and Floodplains

Version 2.01, April 10, 2018



Photo credit: Worth A Dam Foundation (martinezbeavers.org)

Prepared by

US Fish and Wildlife Service
National Oceanic and Atmospheric Administration
University of Saskatchewan
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Woodruff

Janine Castro
Michael Pollock and Chris Jordan
Gregory Lewallen
Kent

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Version 2.01. Get the latest version at: <https://www.fws.gov/oregon/fo/promo.cfm?id=177175812>