# Implementing the SONCC coho salmon recovery plan: A roadmap to recovery of coho salmon in the Eel River

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West Coast Region

Julie Weeder, Northern California Recovery Coordinator
Water Conservation Workshop, 2/7/15

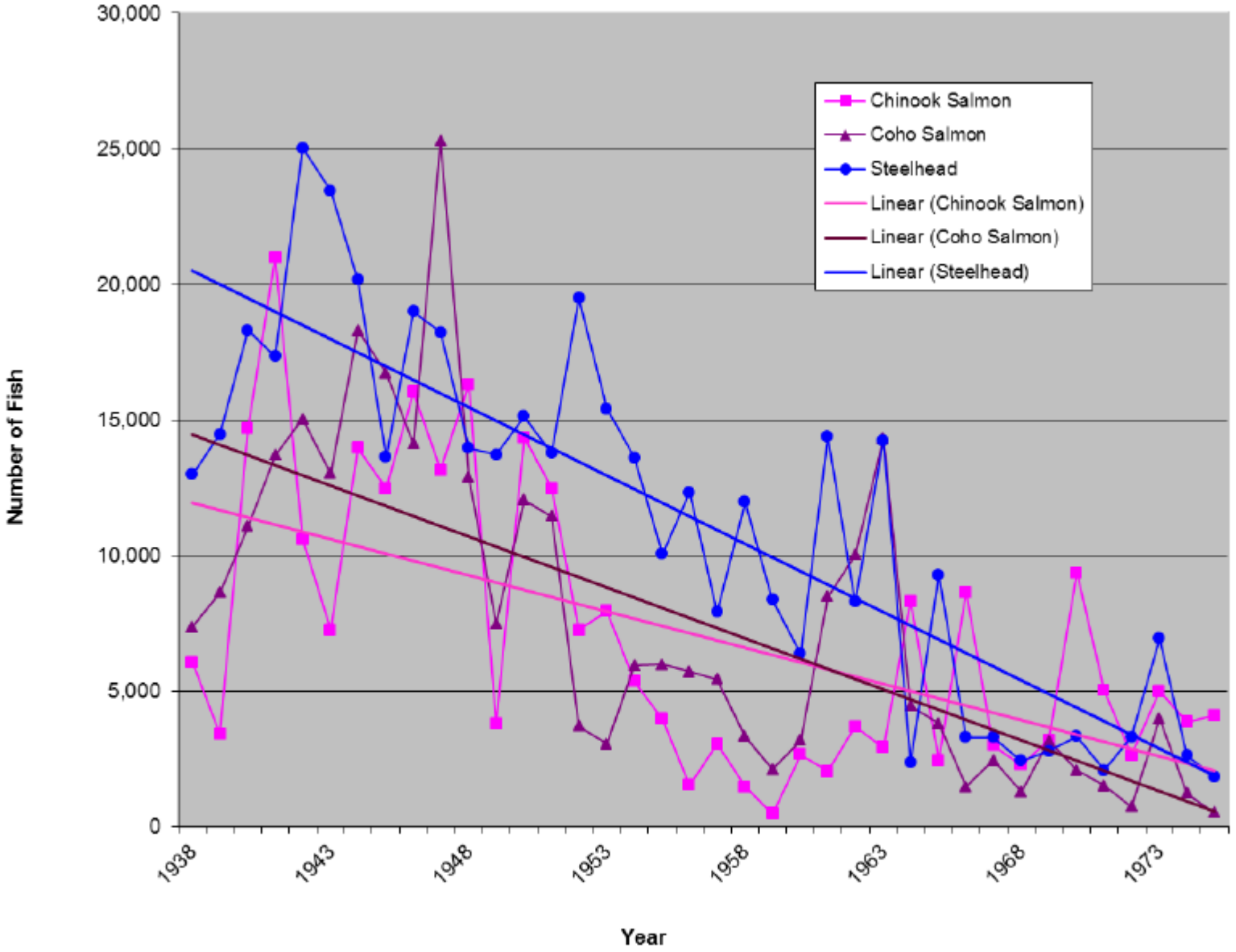
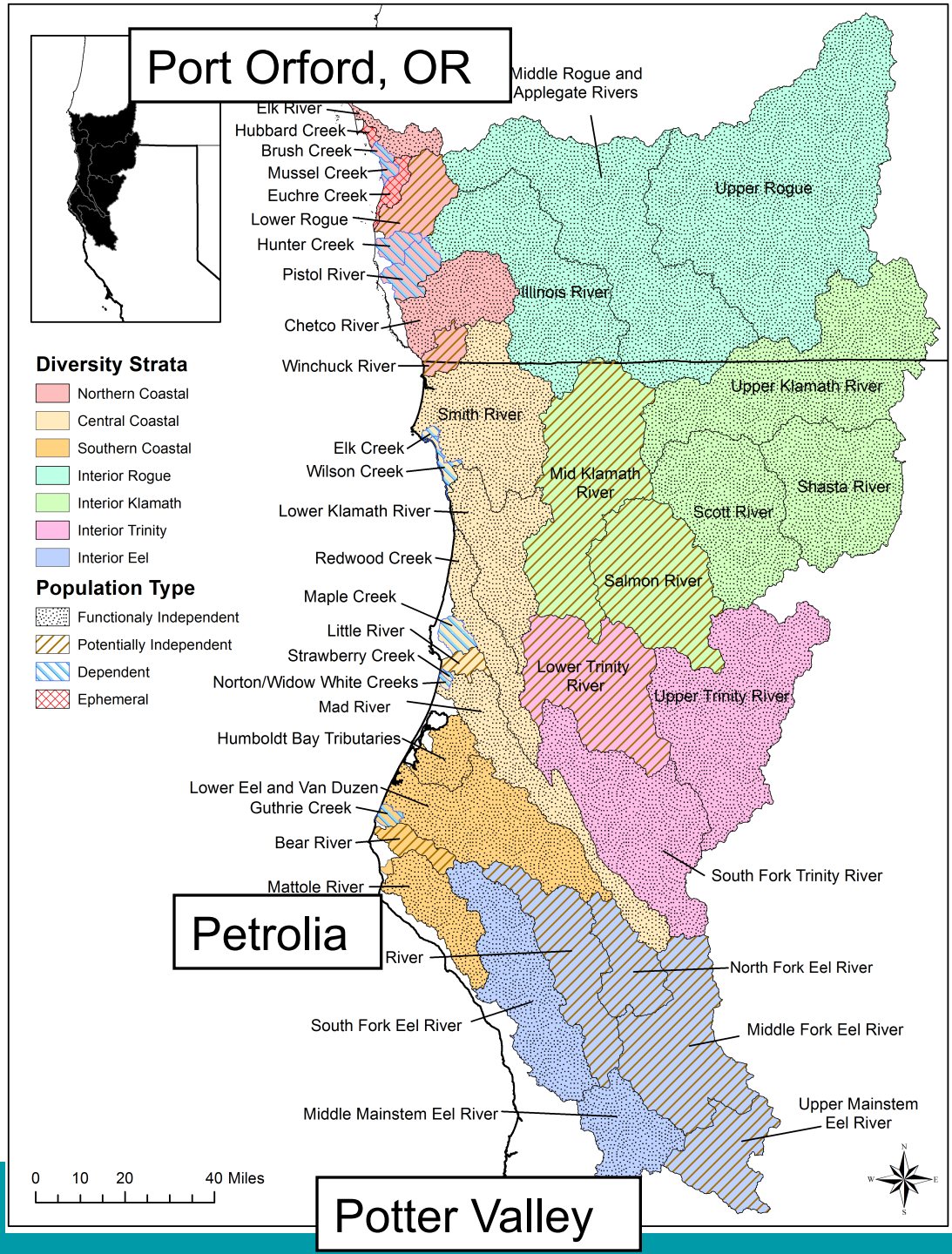



*Figure 45. Count of salmonids at Benbow Dam, SF Eel River, 1938-1976. Linear regression lines for all three species show declines over time.*

# Southern Oregon/ Northern California Coast Coho Salmon

- 40 “populations” over 13 million acres
- Klamath, Rogue, Eel



# What is a federal recovery plan?

- A plan that describes how to recover a species listed under the Endangered Species Act.
- A roadmap to recovery.
- A guidance document – non-regulatory.
- ESA envisions as the central organizing tool for guiding the recovery of the species.

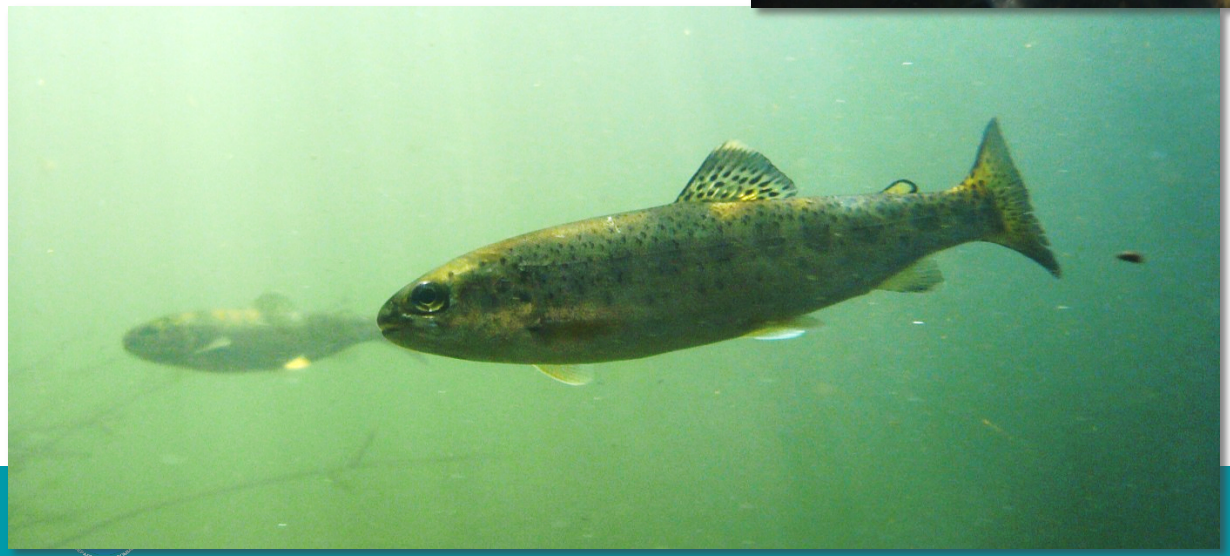
# Who implements a federal recovery plan?

- Everyone.
- Most habitat is on private land.
- Actions are voluntary.

# Benefits of recovery plan

- Best available science on what should be done to recover coho salmon.
- Identifies actions that will lead to recovery.
- Provides benchmarks to measure progress toward recovery.

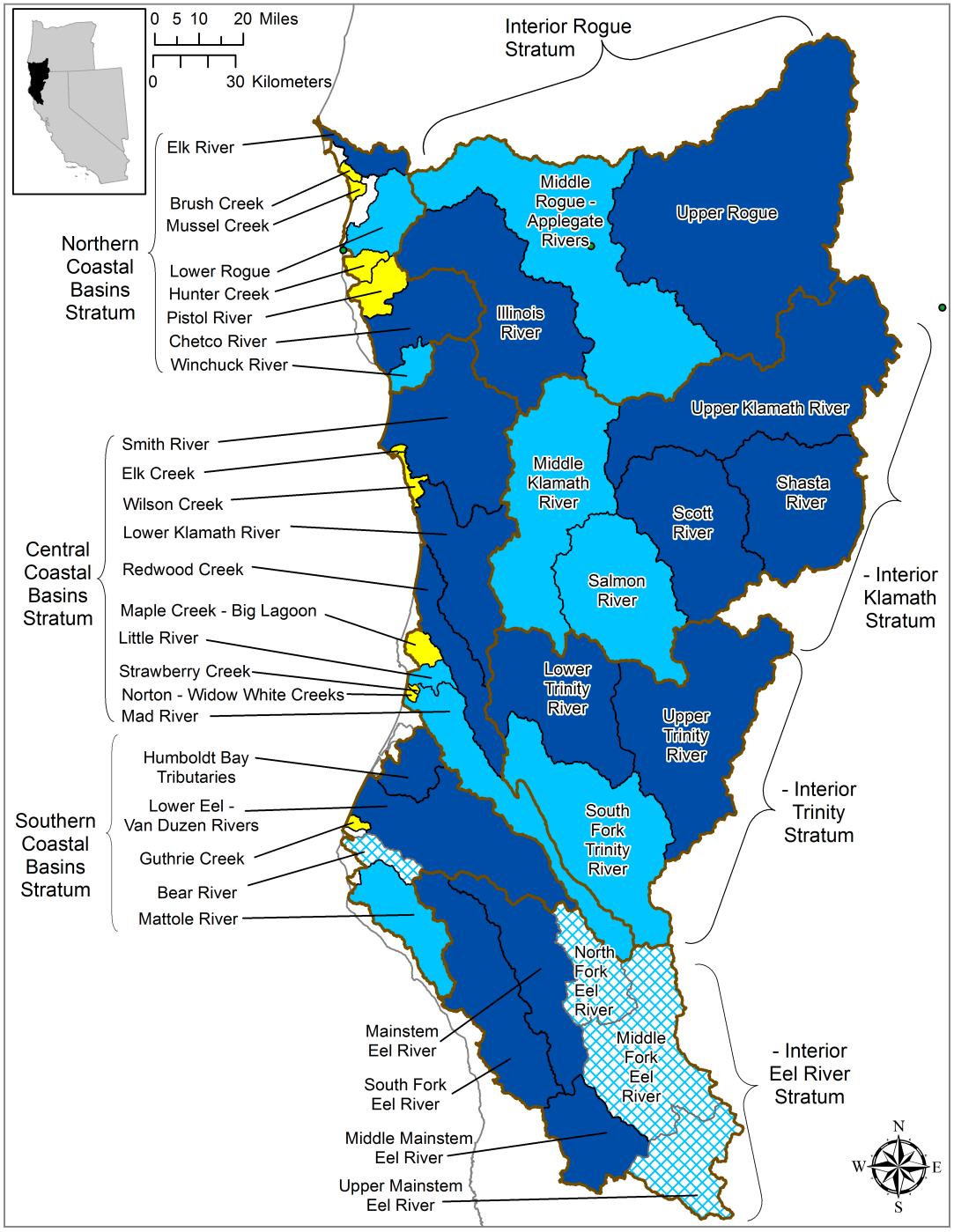
# CC Chinook and NC steelhead



Credit: Sonoma County water Agency

# Recovery Strategy

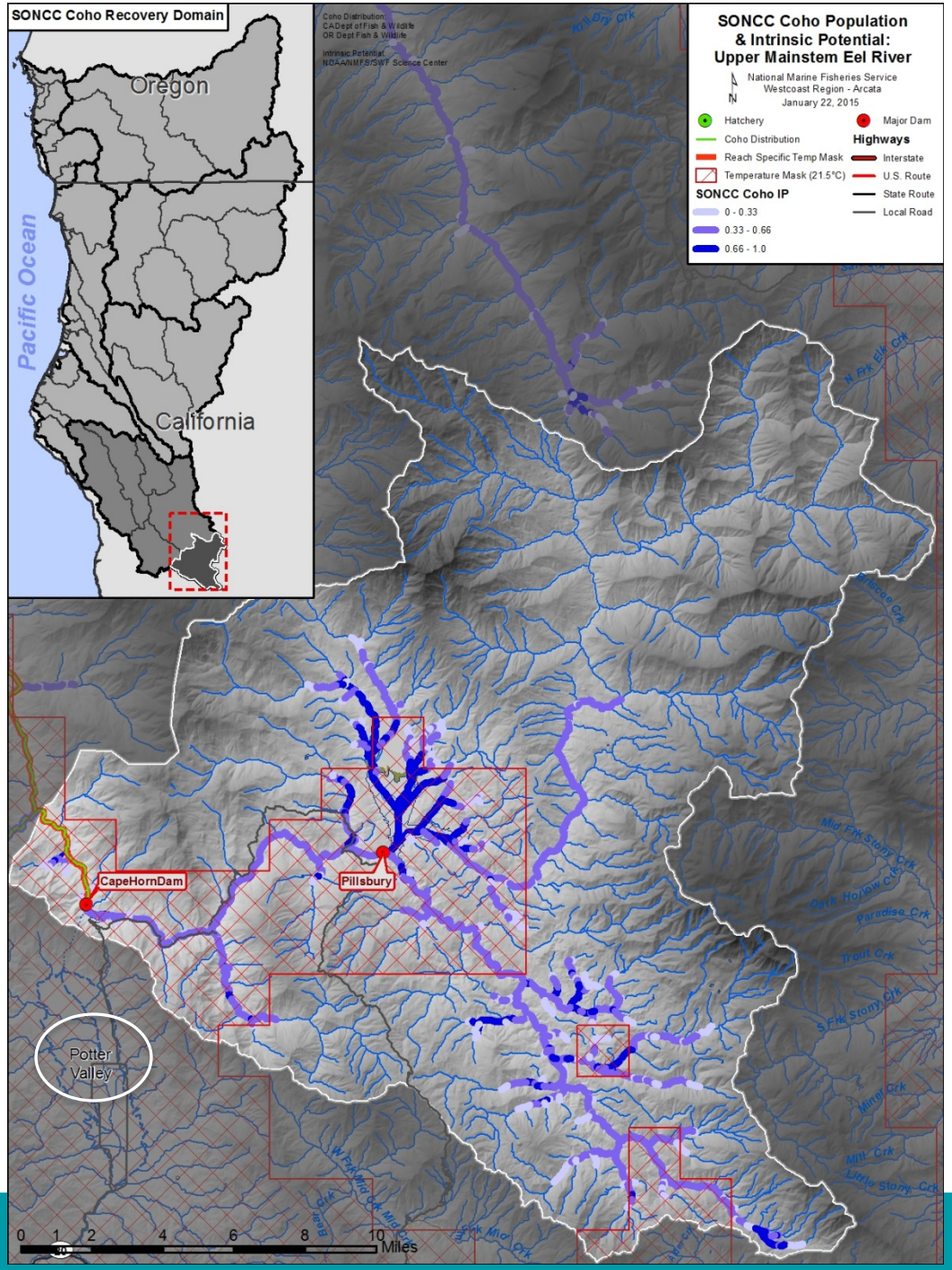
- Core: Play primary role in recovery. Target is low risk of extinction
- Supporting: Target is moderate risk of extinction
- Contributing: Target is juvenile occupancy following years of high marine survival



Credit: Friends of the Eel River

# Upper Mainstem Eel R

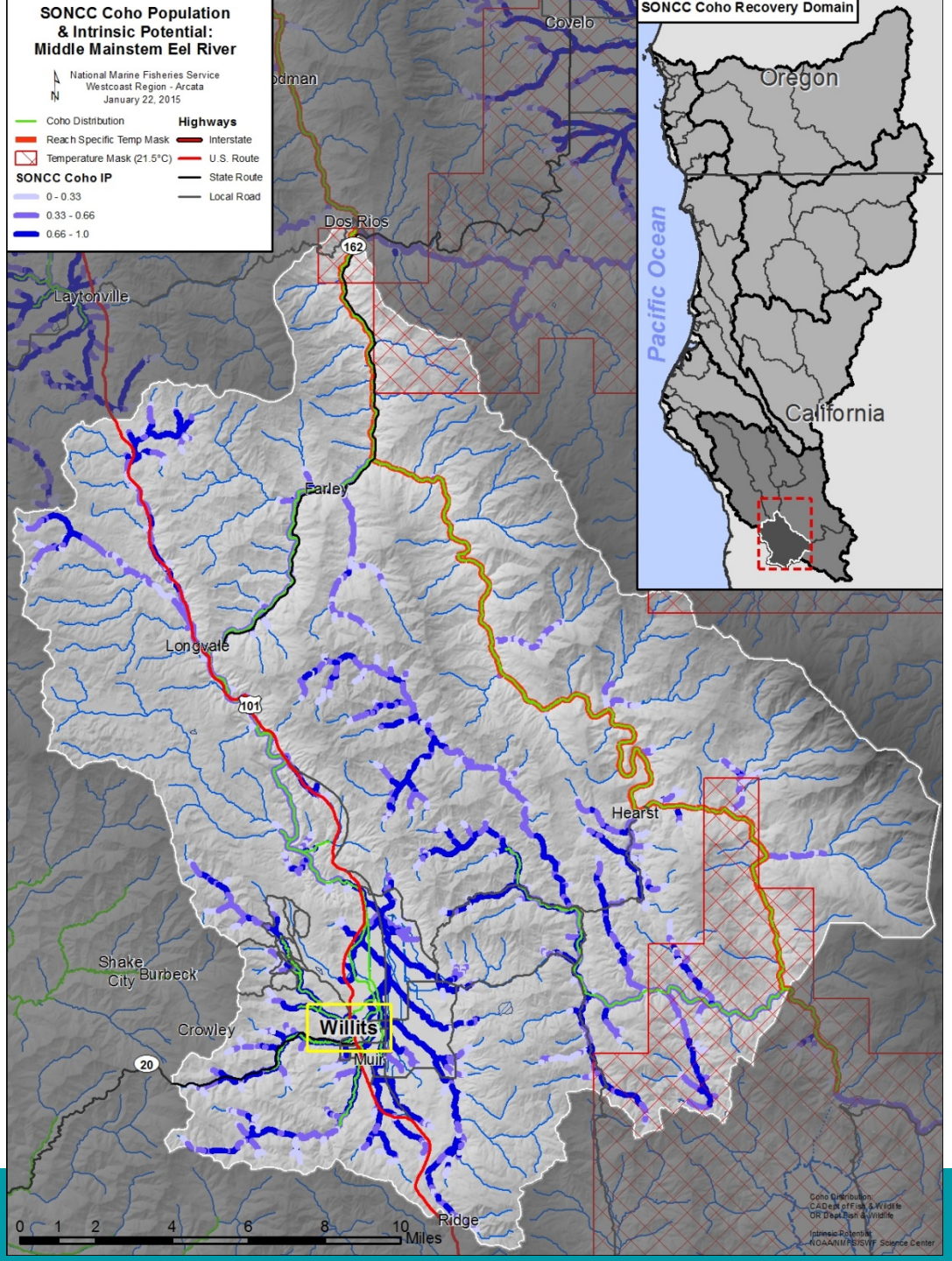
- Contributing
- Eel river upstream of confluence of Tomki Creek (non-inclusive)
- Summer temperature mask



Credit: Friends of the Eel River

# Middle Mainstem Eel R

- ❑Core
- ❑Confluence of Middle Fork Eel Upstream to Tomki Creek (inclusive), upstream in Outlet Creek and tributaries
- ❑Summer temperature mask

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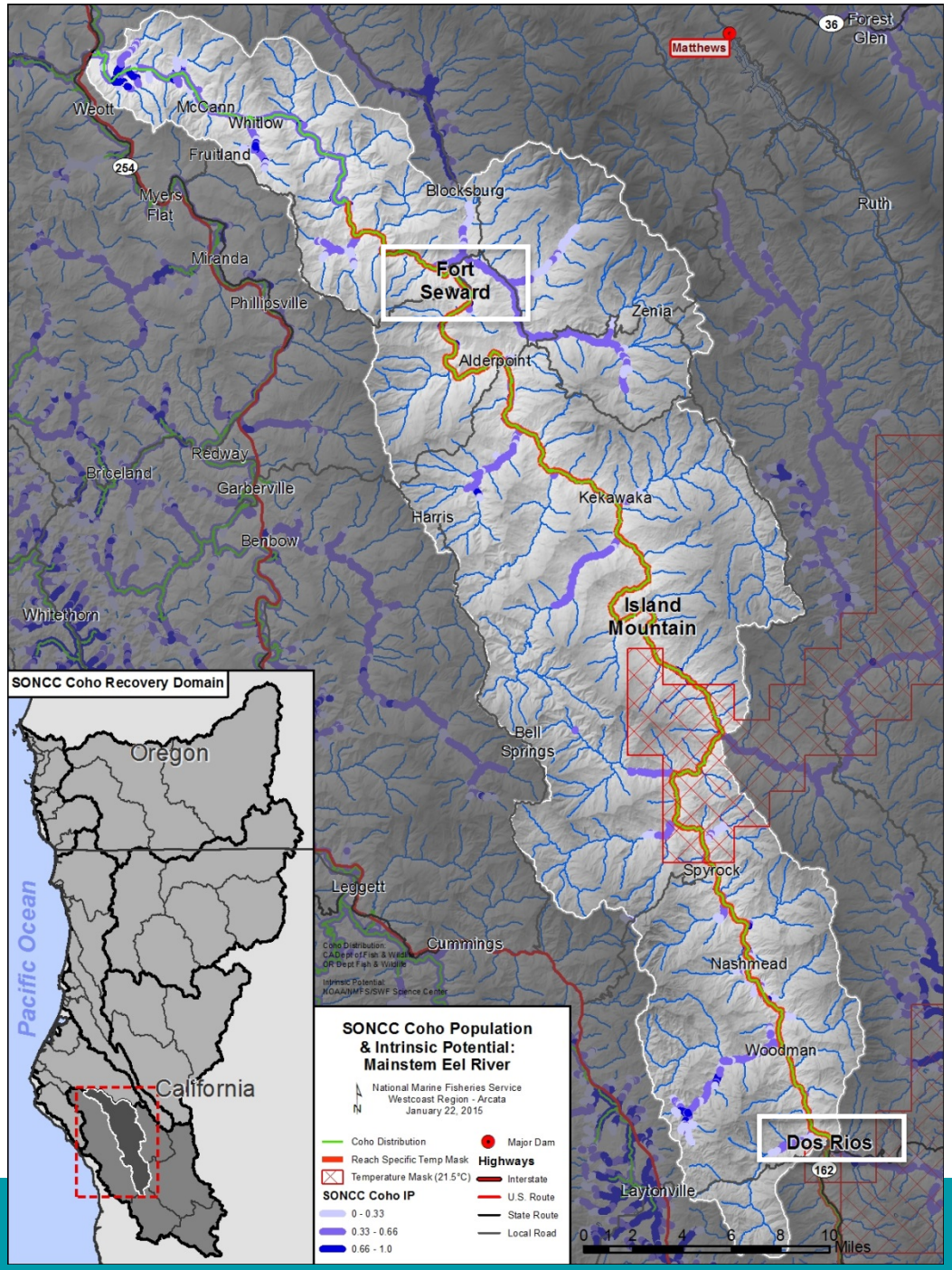
Credit: Friends of the Eel River

# Mainstem Eel R

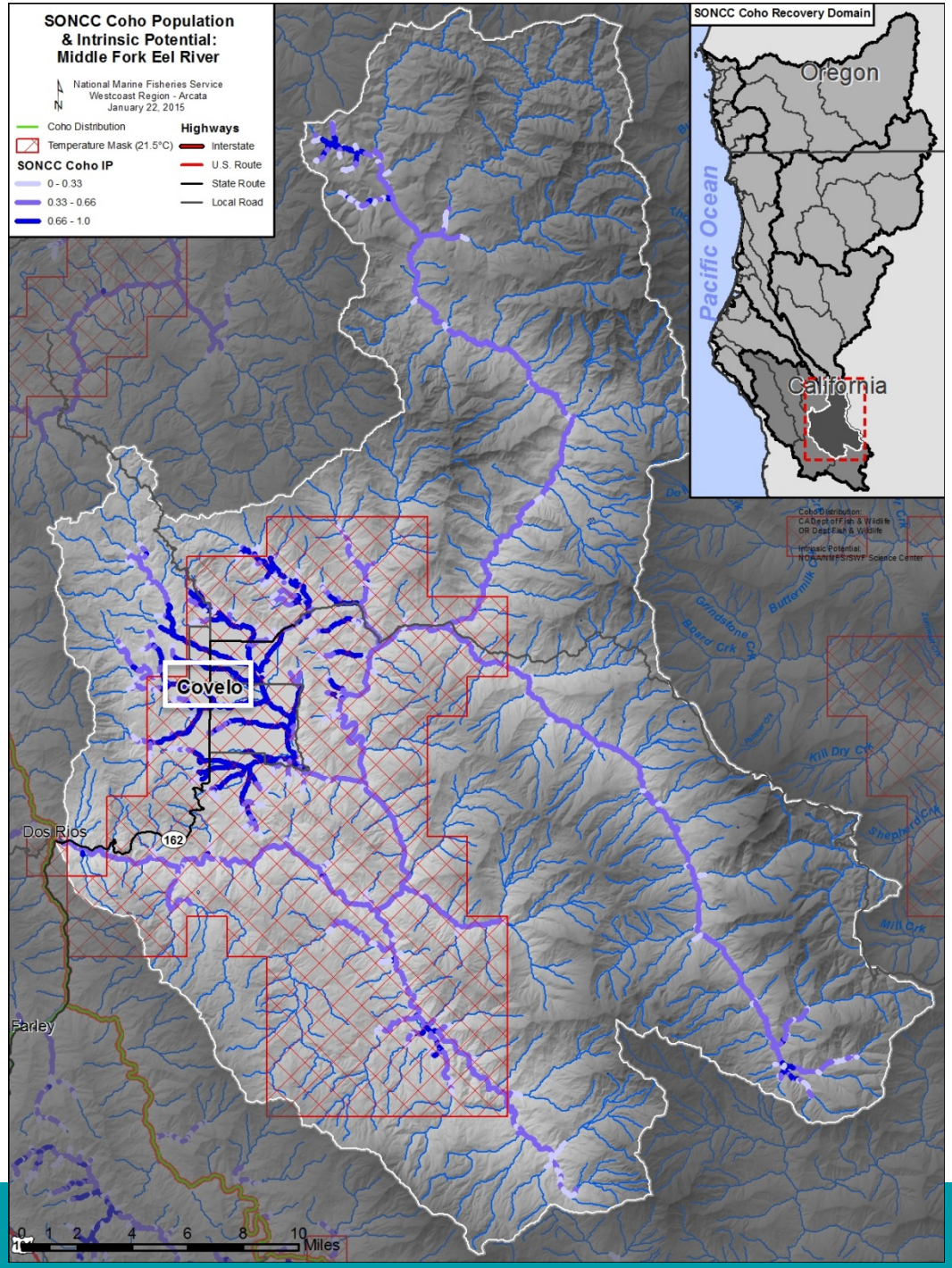
- From confluence of South Fork Eel River upstream to confluence of with Middle Fork Eel River
- Non-Core 2
- Reach-specific temperature mask



Credit: Friends of the Eel River

# Middle Fork Eel R

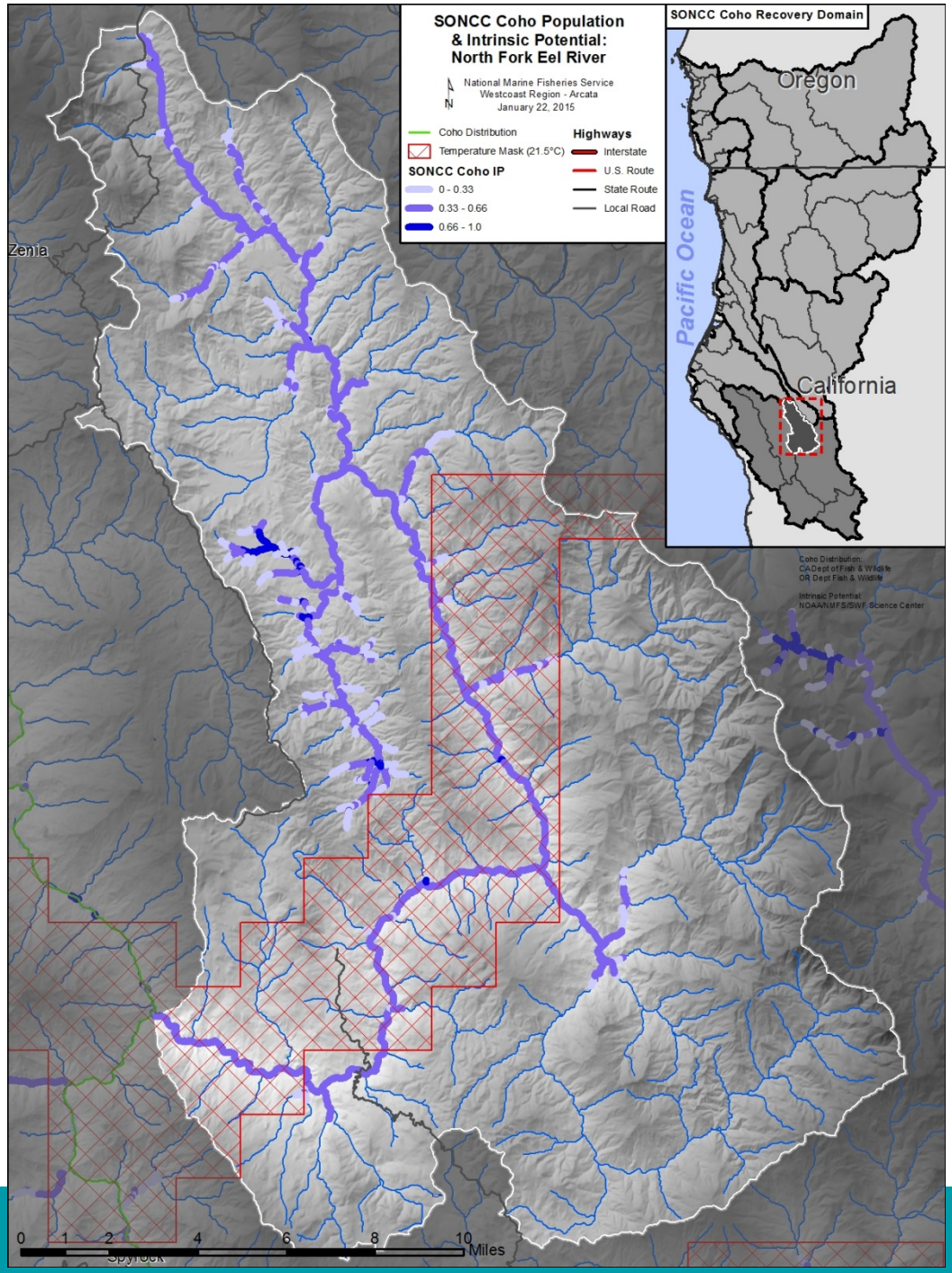
- Contributing
- Summer temperature mask



Credit: Friends of the Eel River

# North Fork Eel R

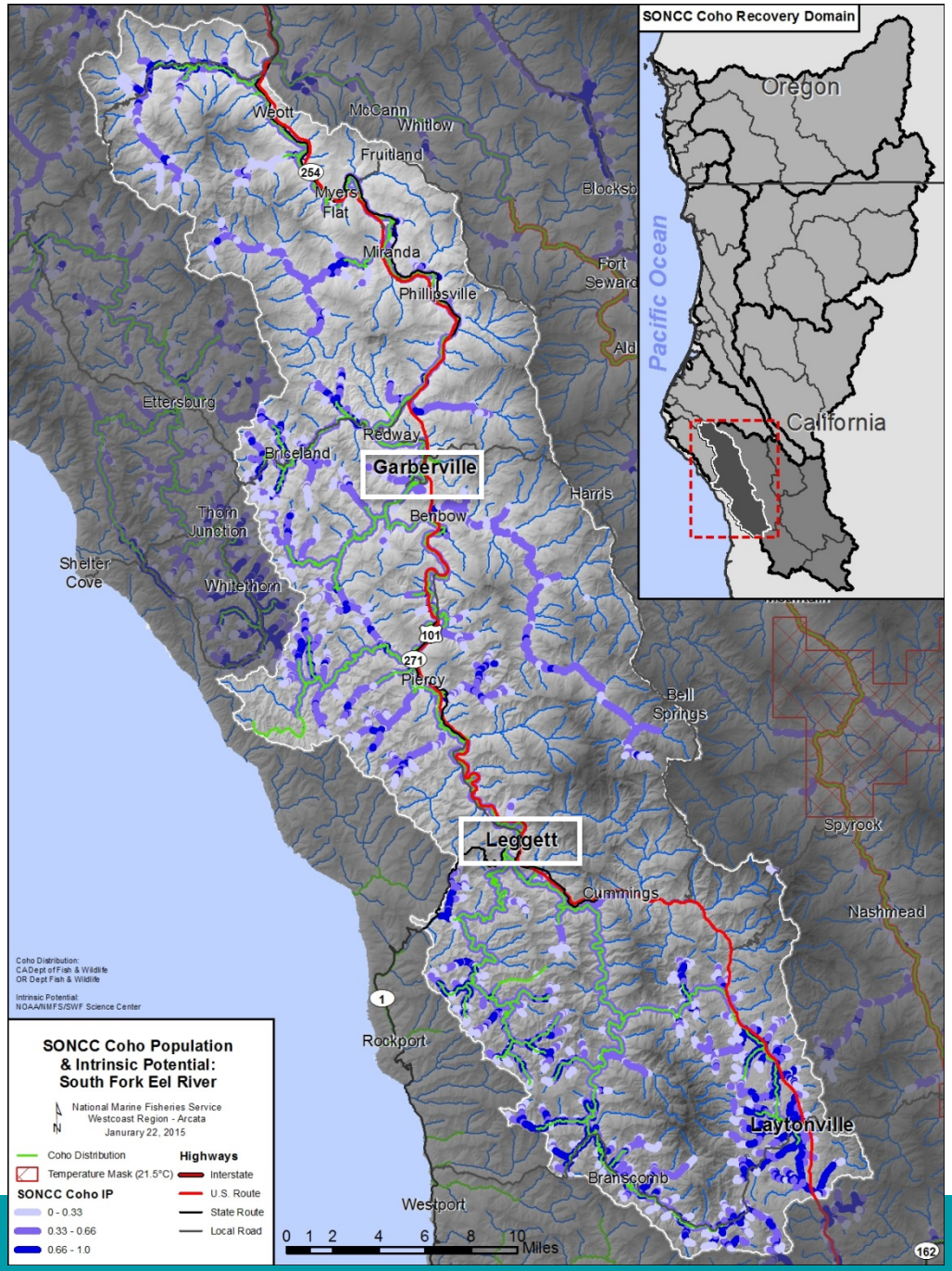
- Non-Core 2
- Williams temperature mask
- Split Rock



Credit: Friends of the Eel River

# South Fork Eel R

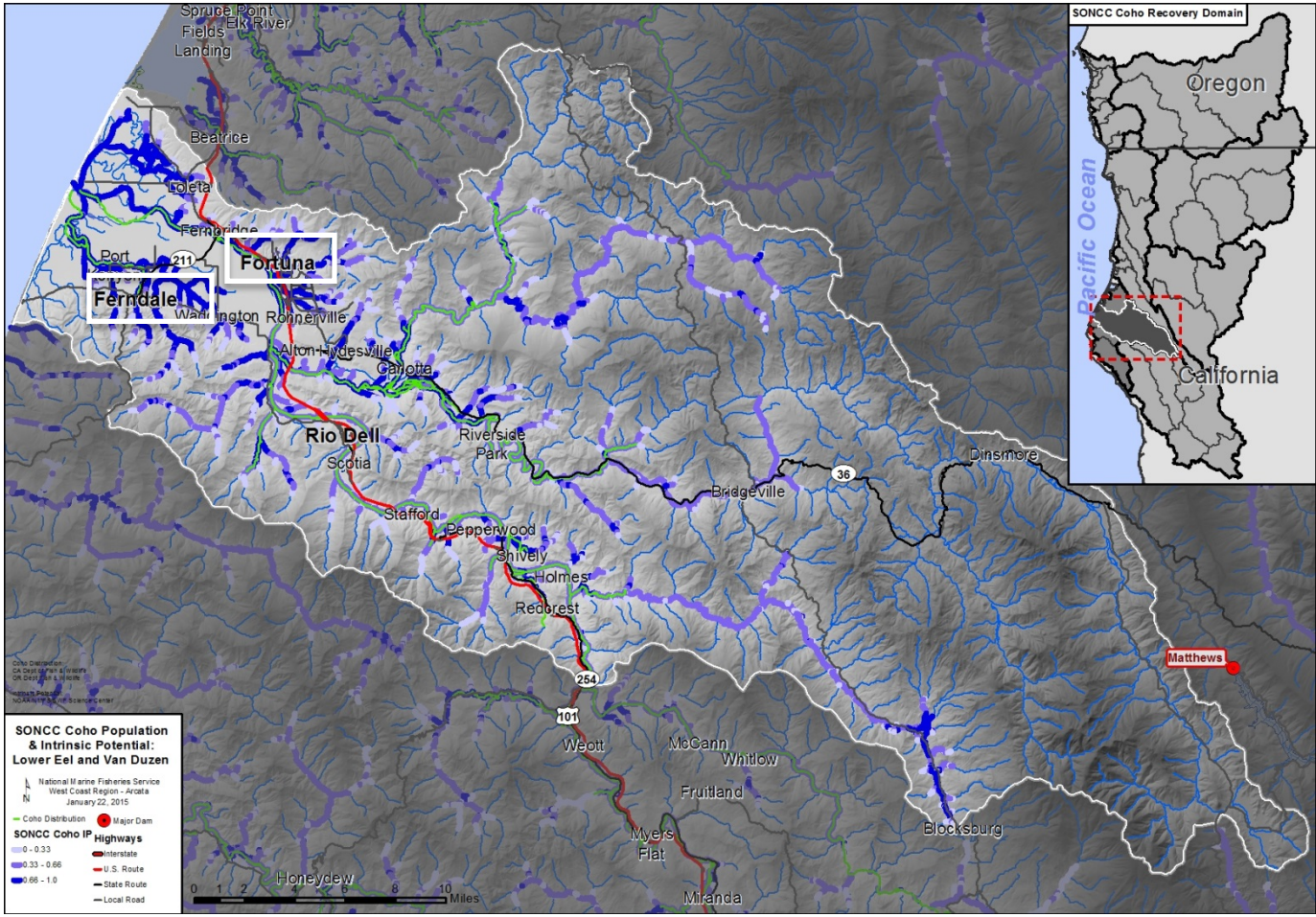
- Core
- Best current coho salmon numbers and distribution



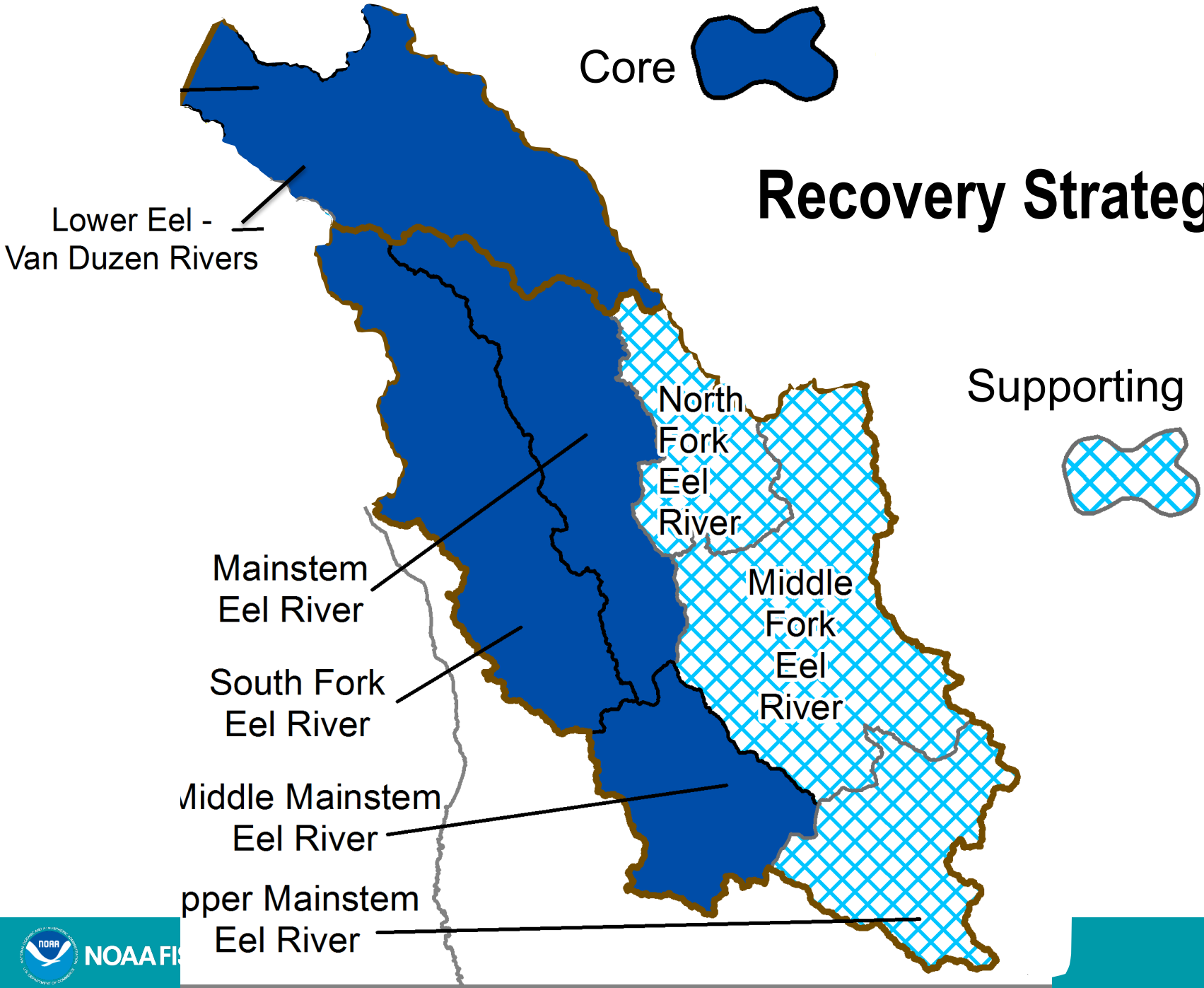
Credit: Friends of the Eel River

# Lower Eel and Van Duzen Rivers

- Core
- Up to confluence with South Fork Eel



# Recovery Strategy

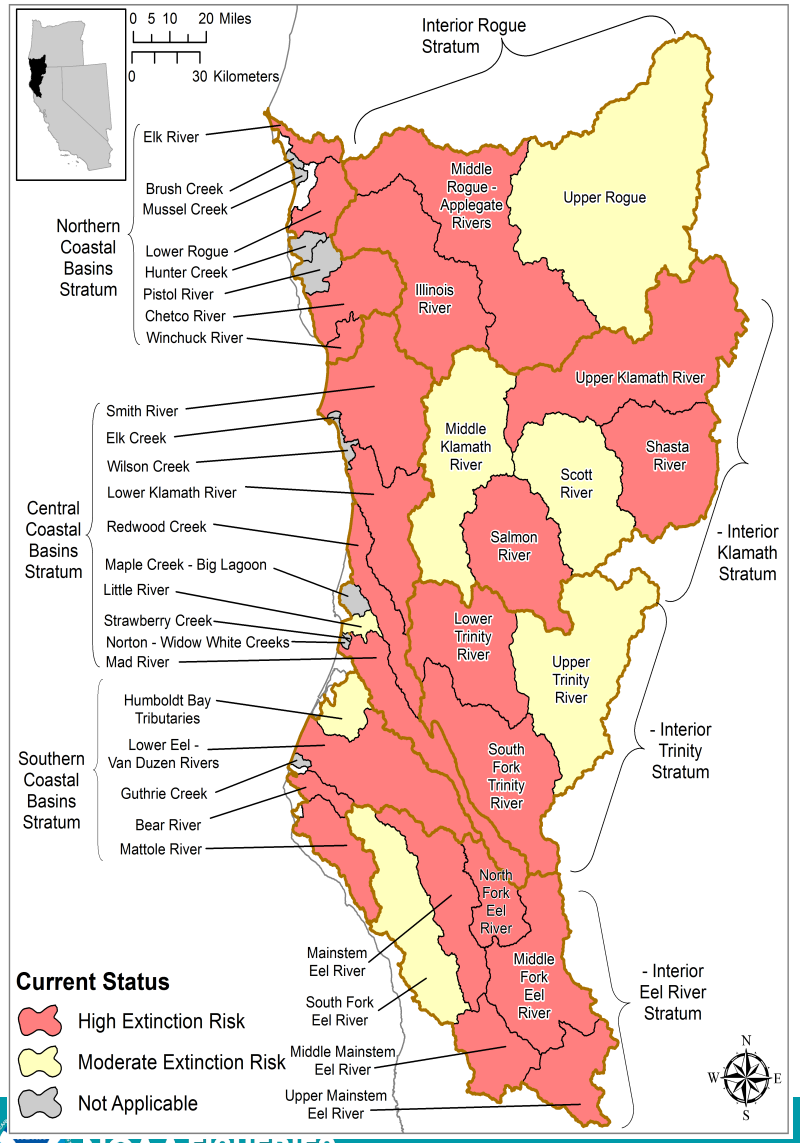


# Current Conditions

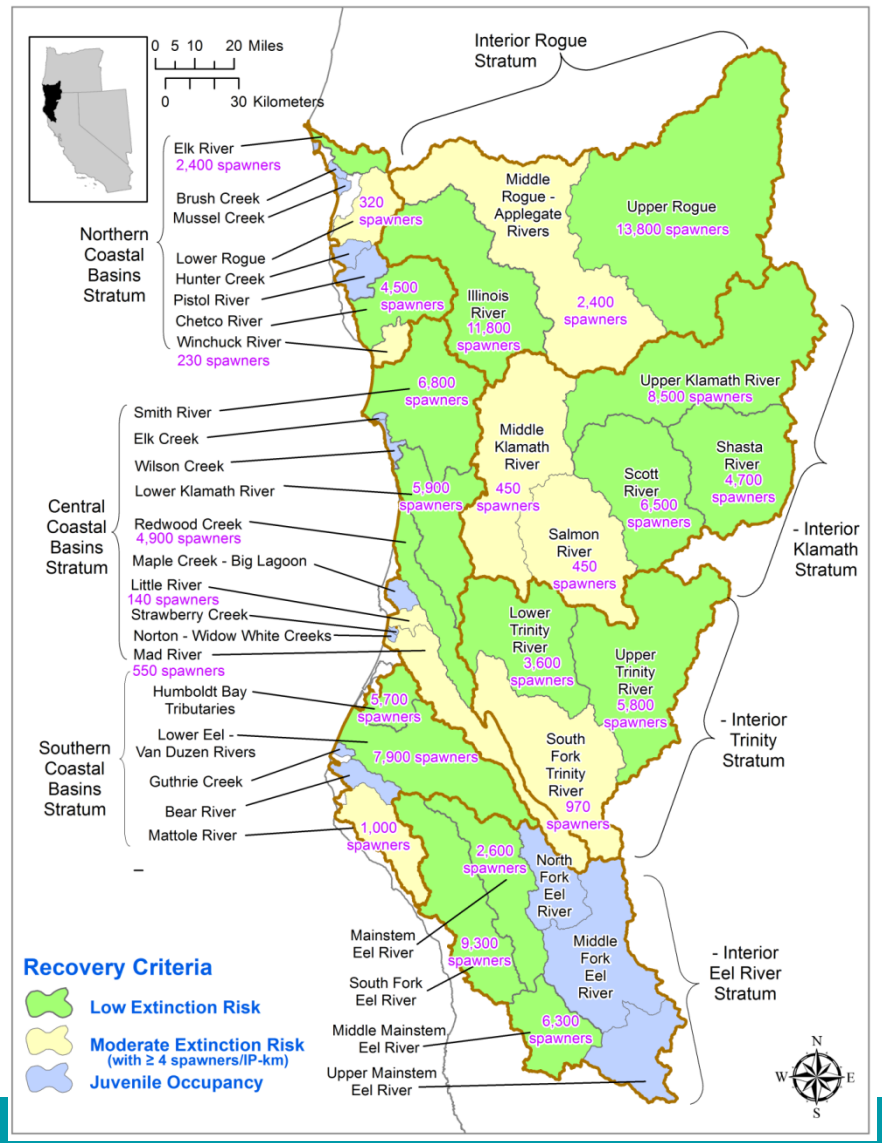
# Extinction Risk

Not all green

## Existing




## Recovered

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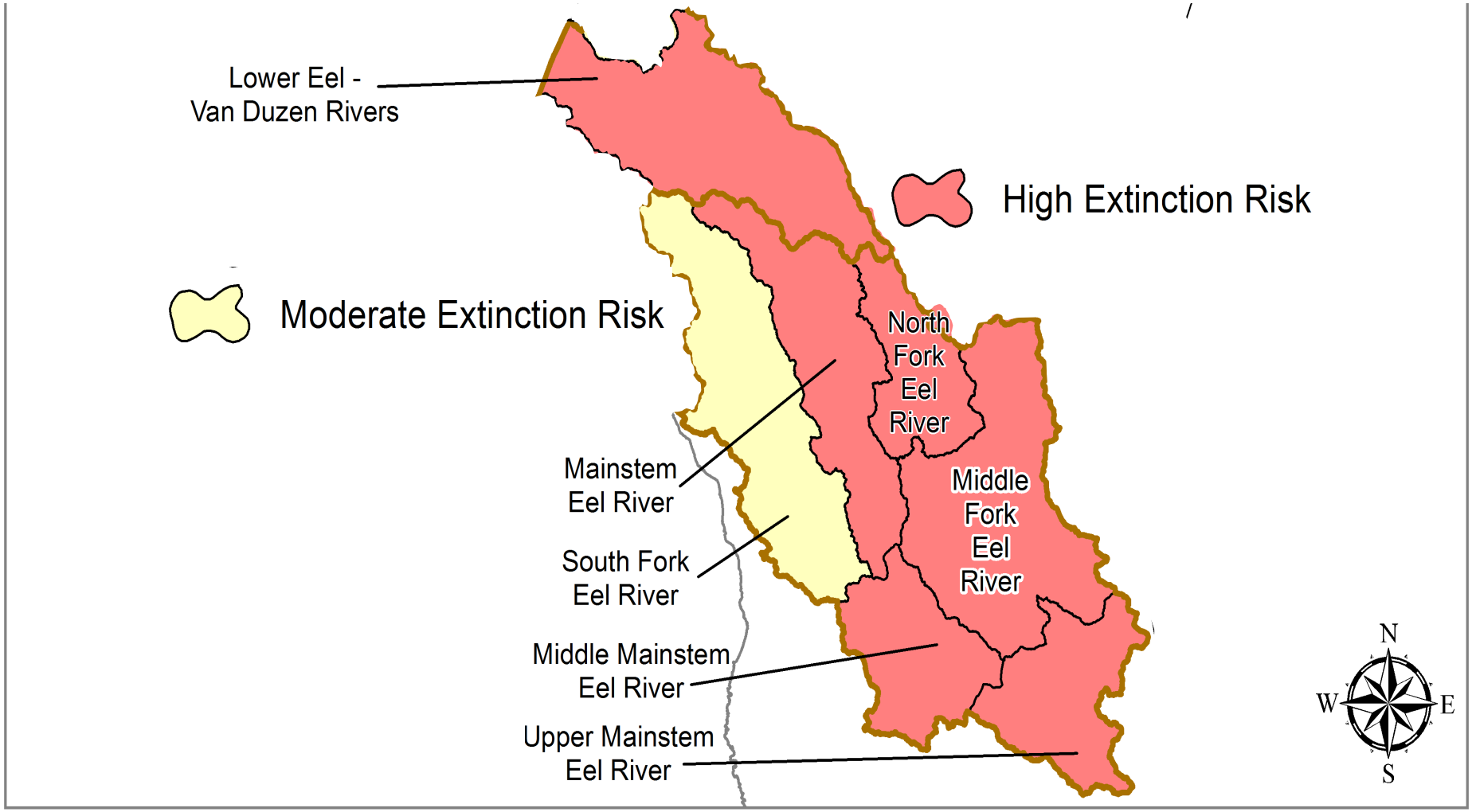
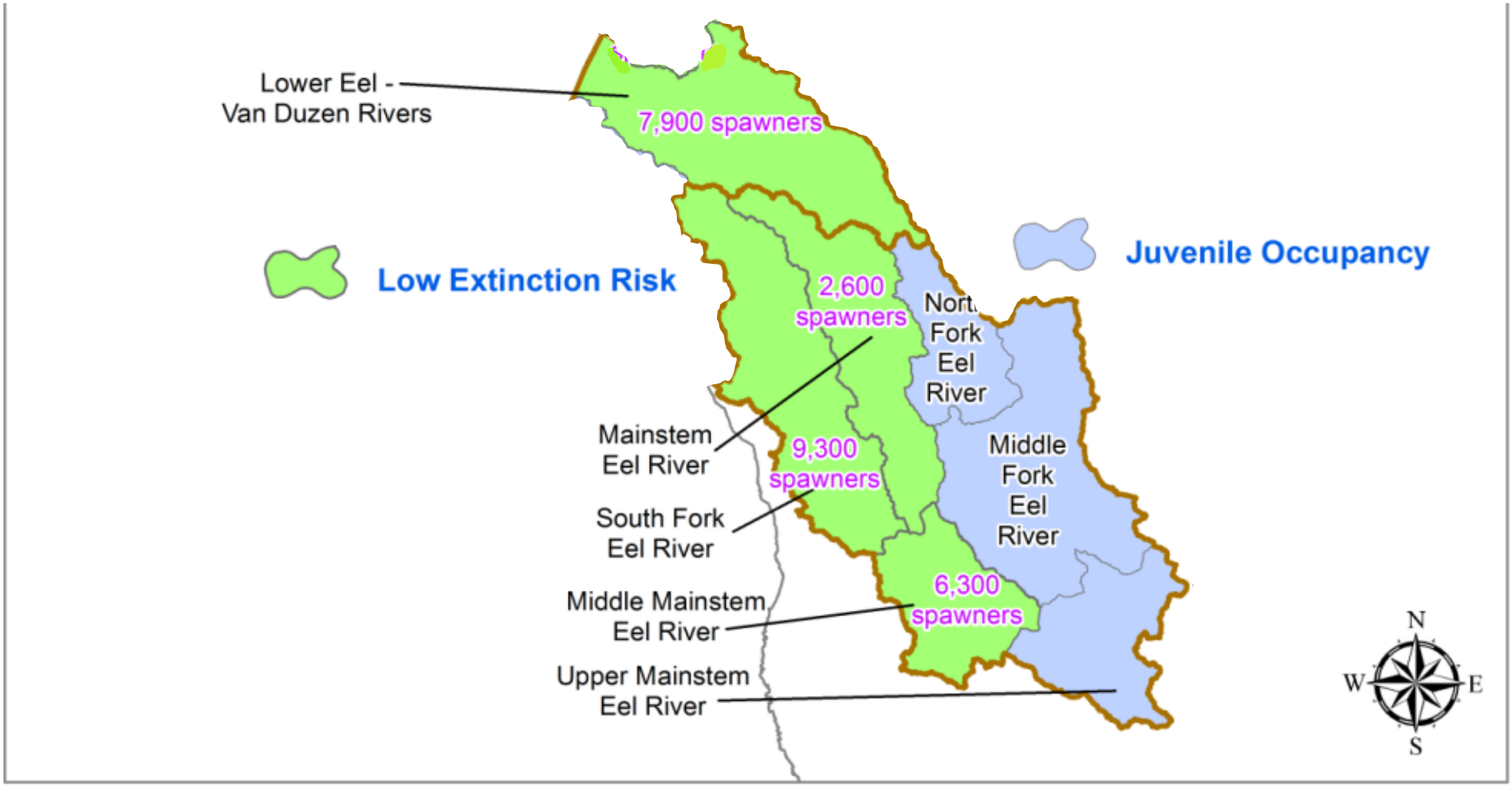
# Extinction Risk

## Existing



# Extinction Risk

## Recovered

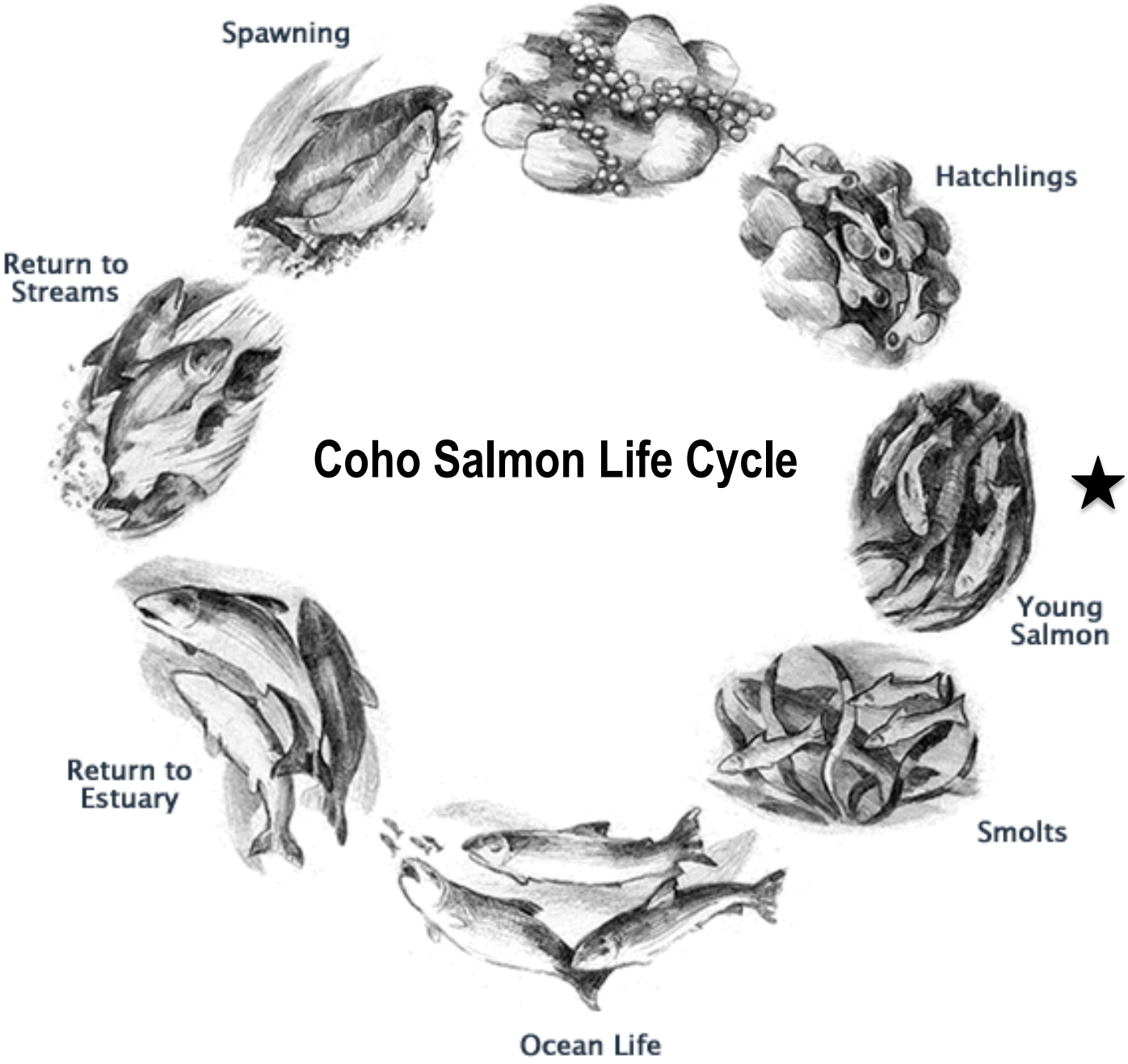


# Current Conditions

Table 41-2. Severity of stresses affecting each life stage of coho salmon in the South Fork Eel River. Stress rank categories, assessment methods, and data used to assess stresses are described in Appendix B.

| | Habitat conditions | Egg | Fry | Juvenile[1] | Smolt | Adult | Overall Stress Rank |
|---|---|---|---|---|---|---|---|
| 1 | Lack of Floodplain and Channel Structure[1] | High | Very High | Very High[1] | Very High | Very High | Very High |
| 2 | Altered Sediment Supply | Very High | Very High | Very High | High | Very High | Very High |
| 3 | Altered Hydrologic Function[1] | Medium | High | Very High[1] | High | Medium | High |
| 4 | Degraded Riparian Forest Conditions | - | High | High | High | Medium | High |
| 5 | Impaired Water Quality | Medium | High | High | High | Medium | High |
| 6 | Barriers | - | High | High | Medium | High | High |
| 7 | Increased Disease/Predation/Competition | Low | High | High | High | Low | High |
| 8 | Impaired Estuary/Mainstem Function | - | Low | High | High | Medium | High |
| 9 | Adverse Fishery- and Collection-Related Effects | - | - | Low | Low | Medium | Low |
| 10 | Adverse Hatchery-Related Effects | Low | Low | Low | Low | Low | Low |

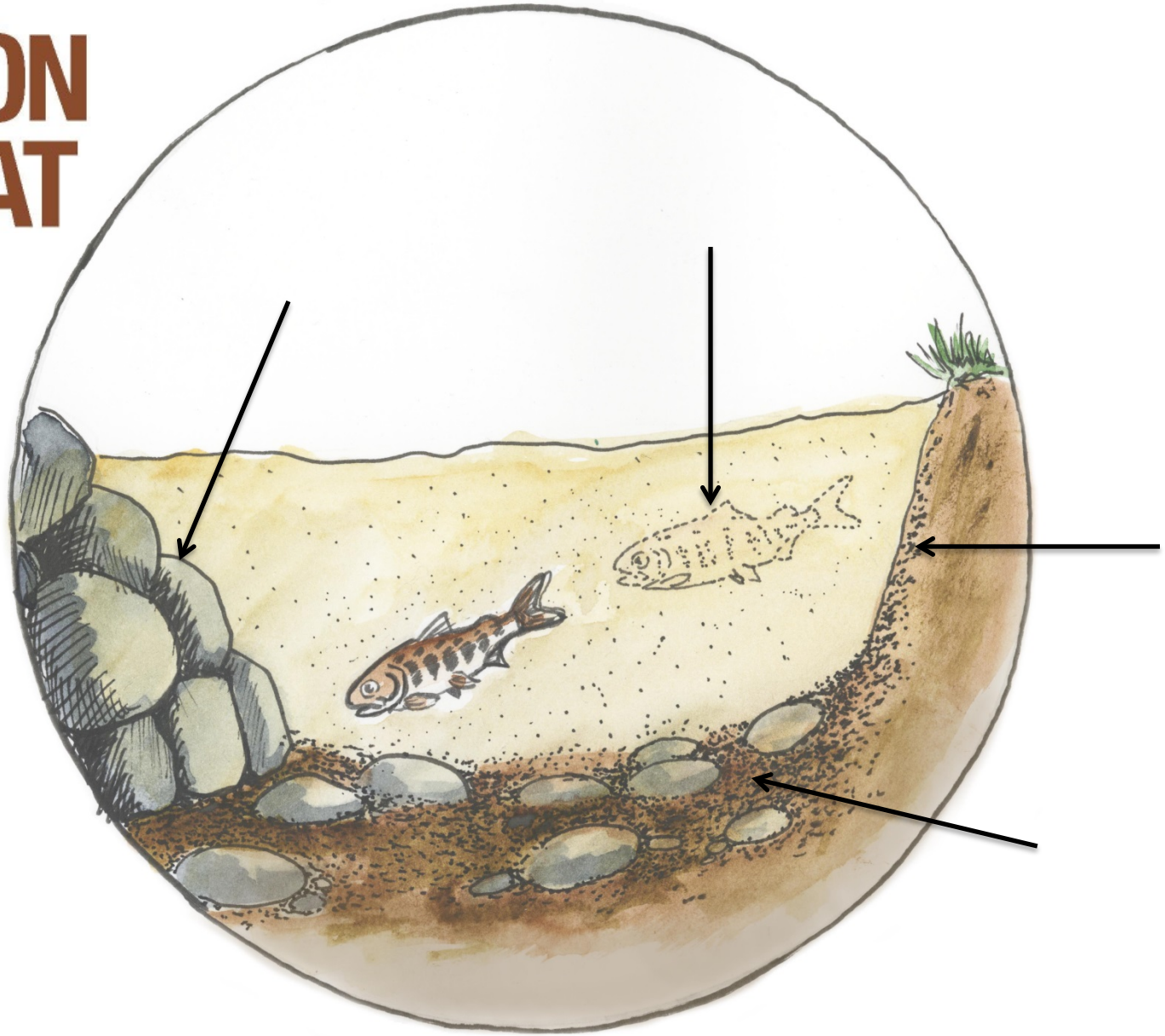
[1] Key limiting stresses and limited life stage


Spawning
Hatchlings
Return to Streams
Coho Salmon Life Cycle
Young Salmon
Return to Estuary
Smolts
Ocean Life

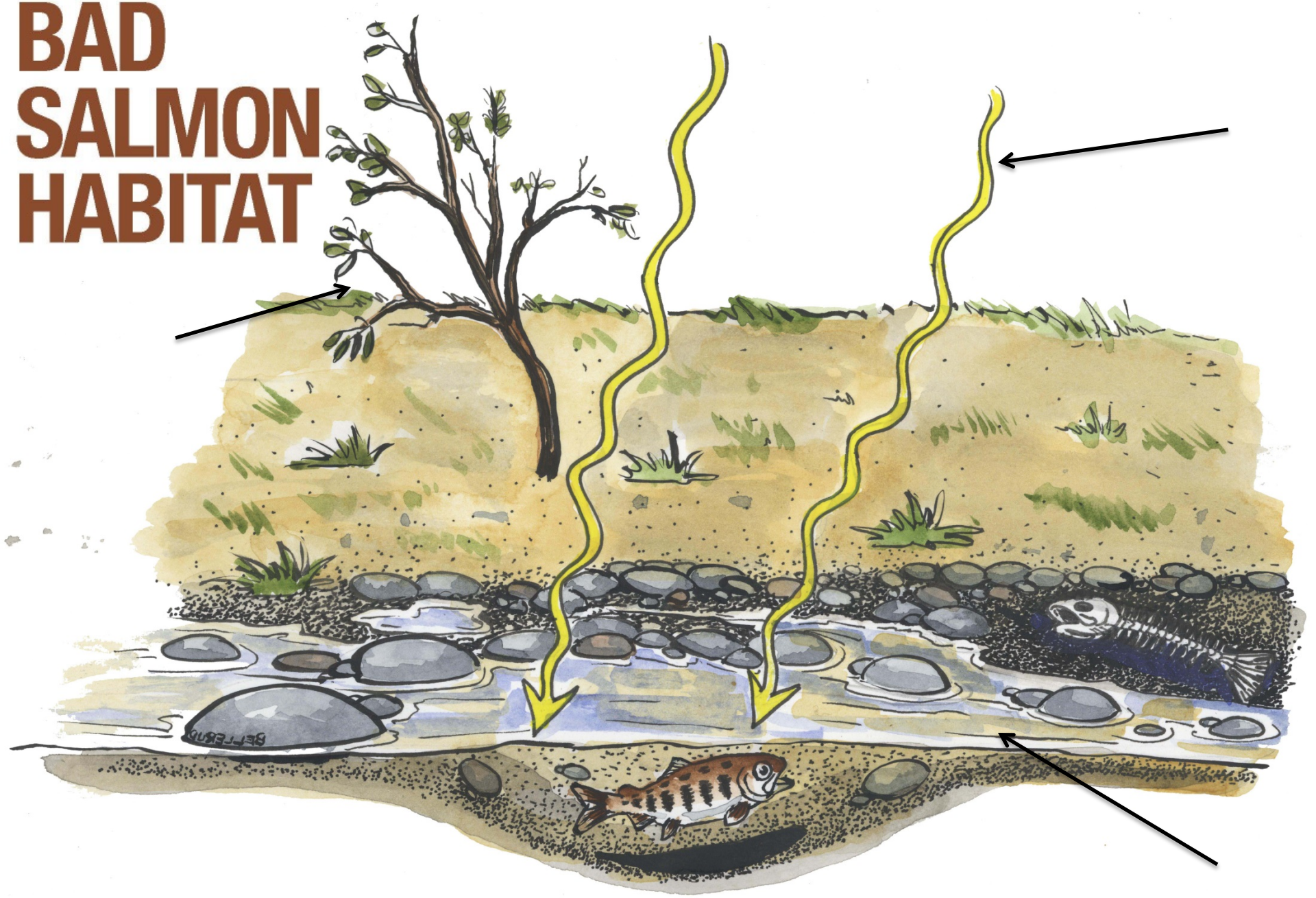
# Anderson Creek, trib. of Indian Creek, South Fork Eel River

Credit: CDFW

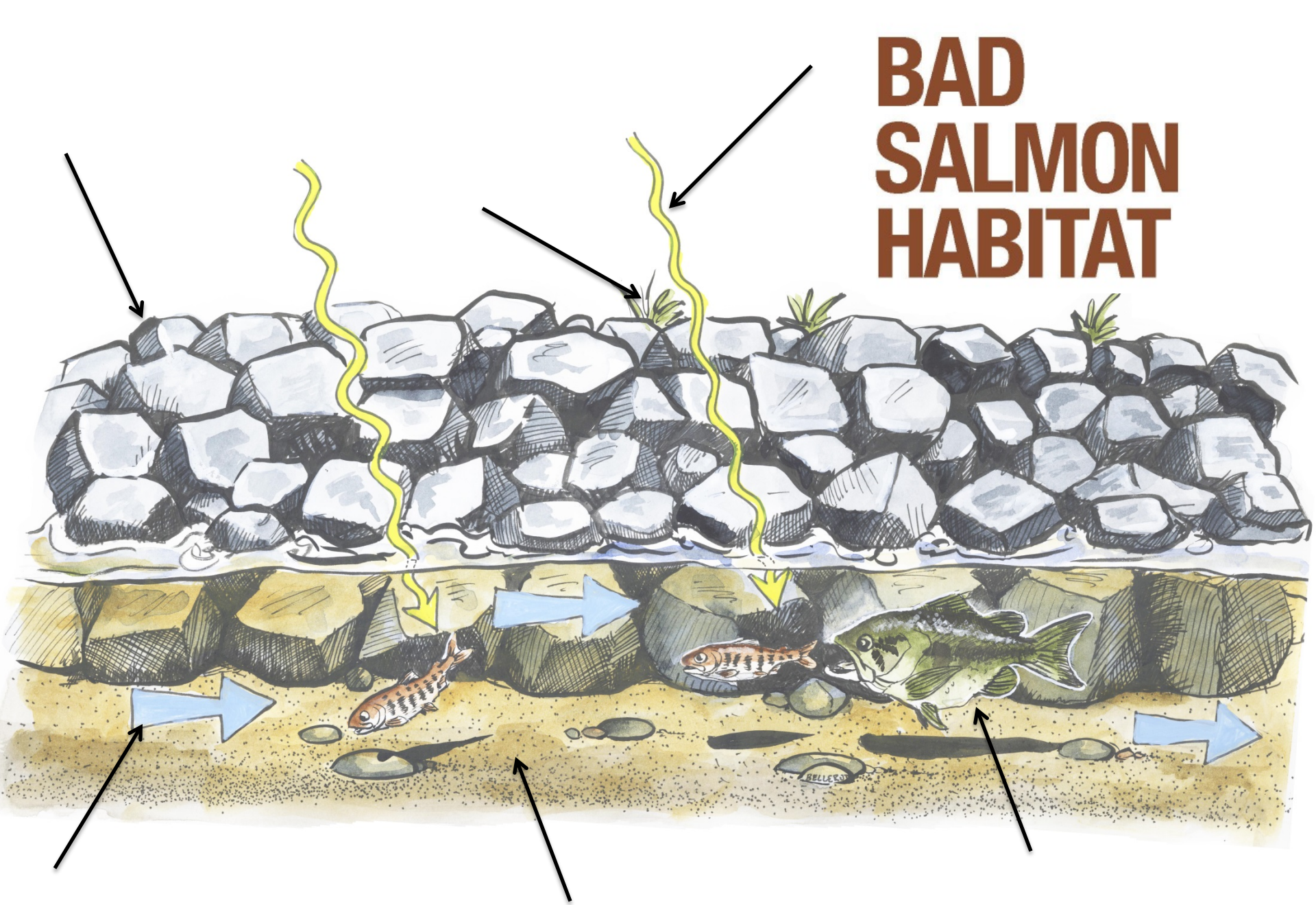
# BAD SALMON HABITAT



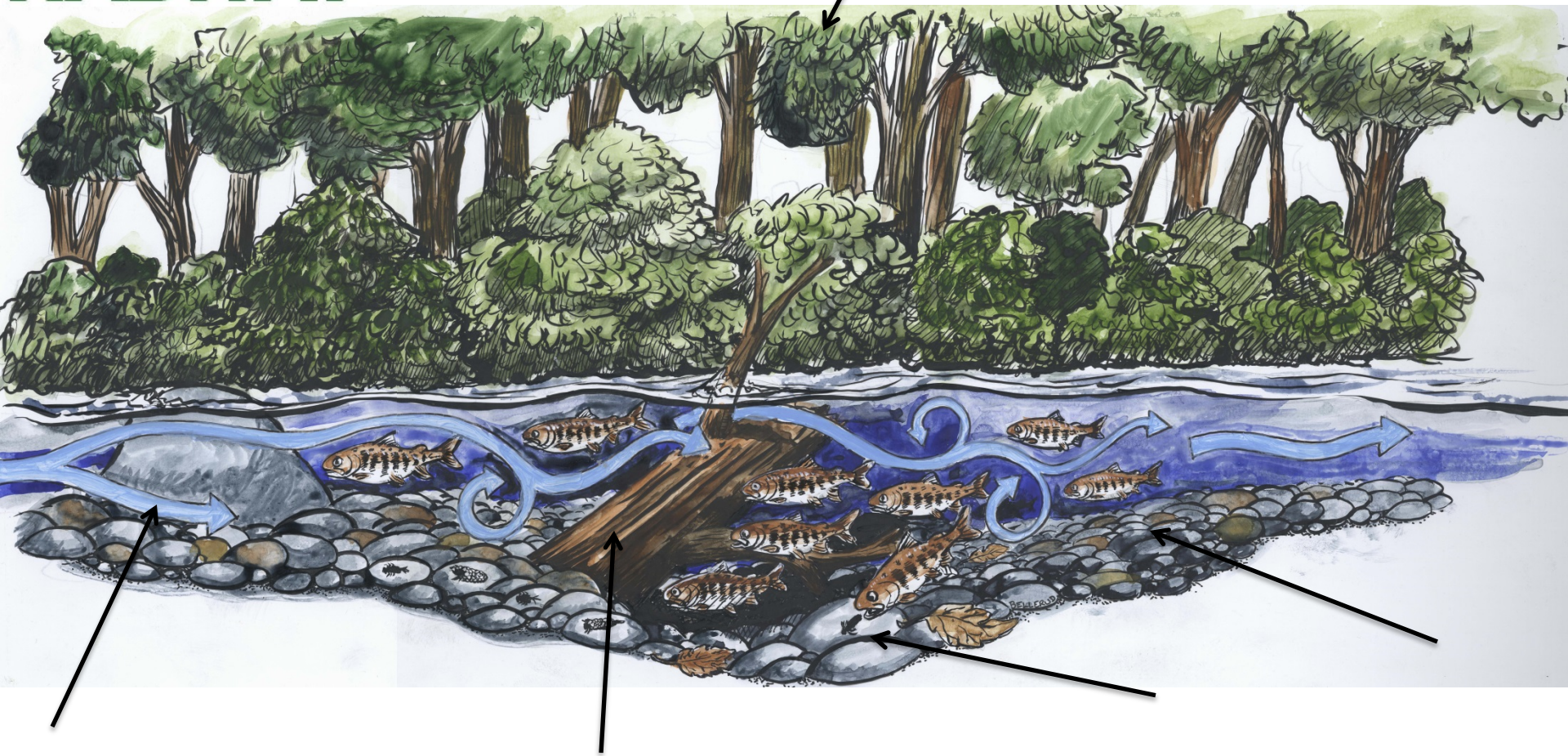
# BAD SALMON HABITAT



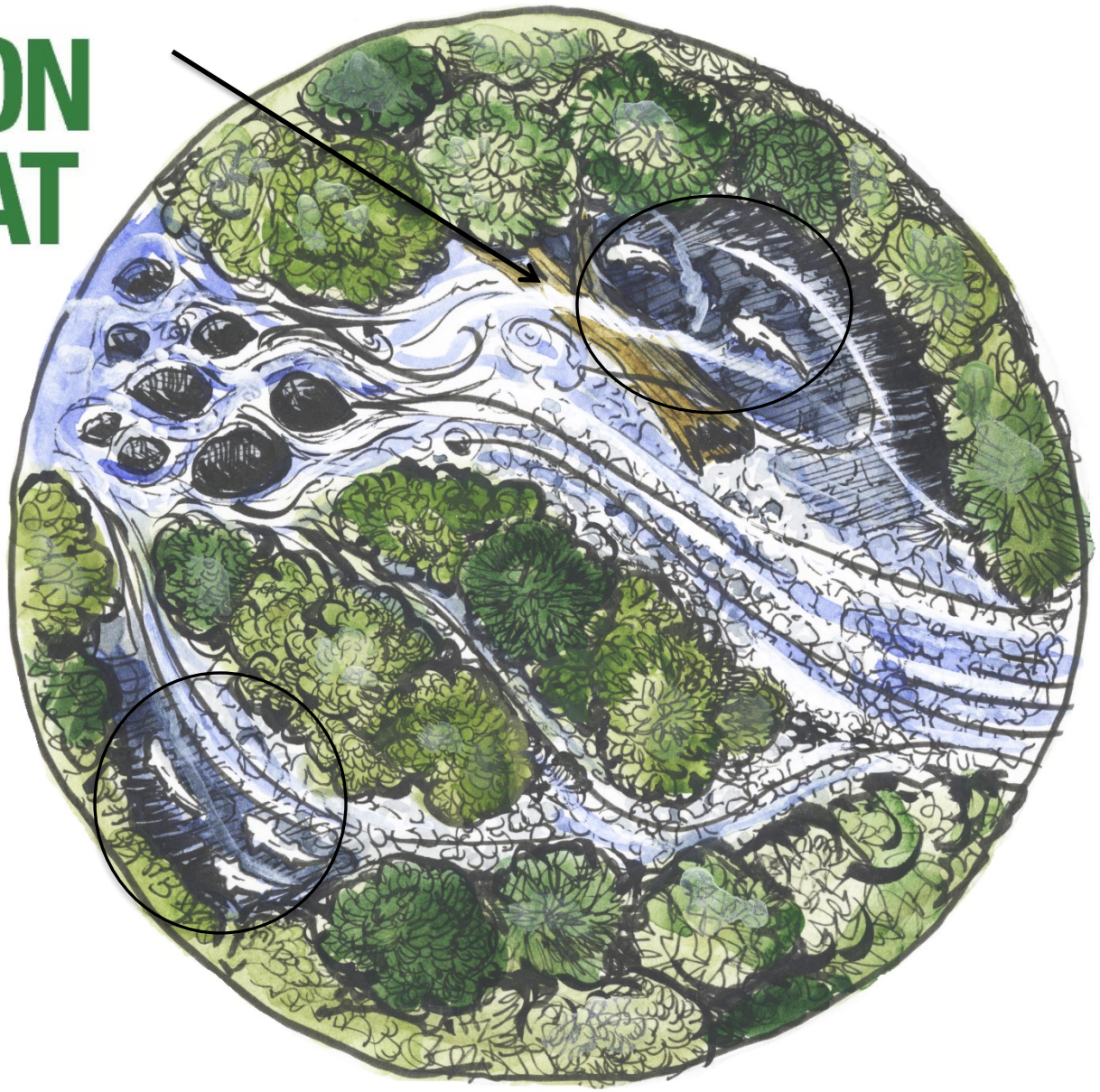
# BAD SALMON HABITAT



# GOOD SALMON HABITAT

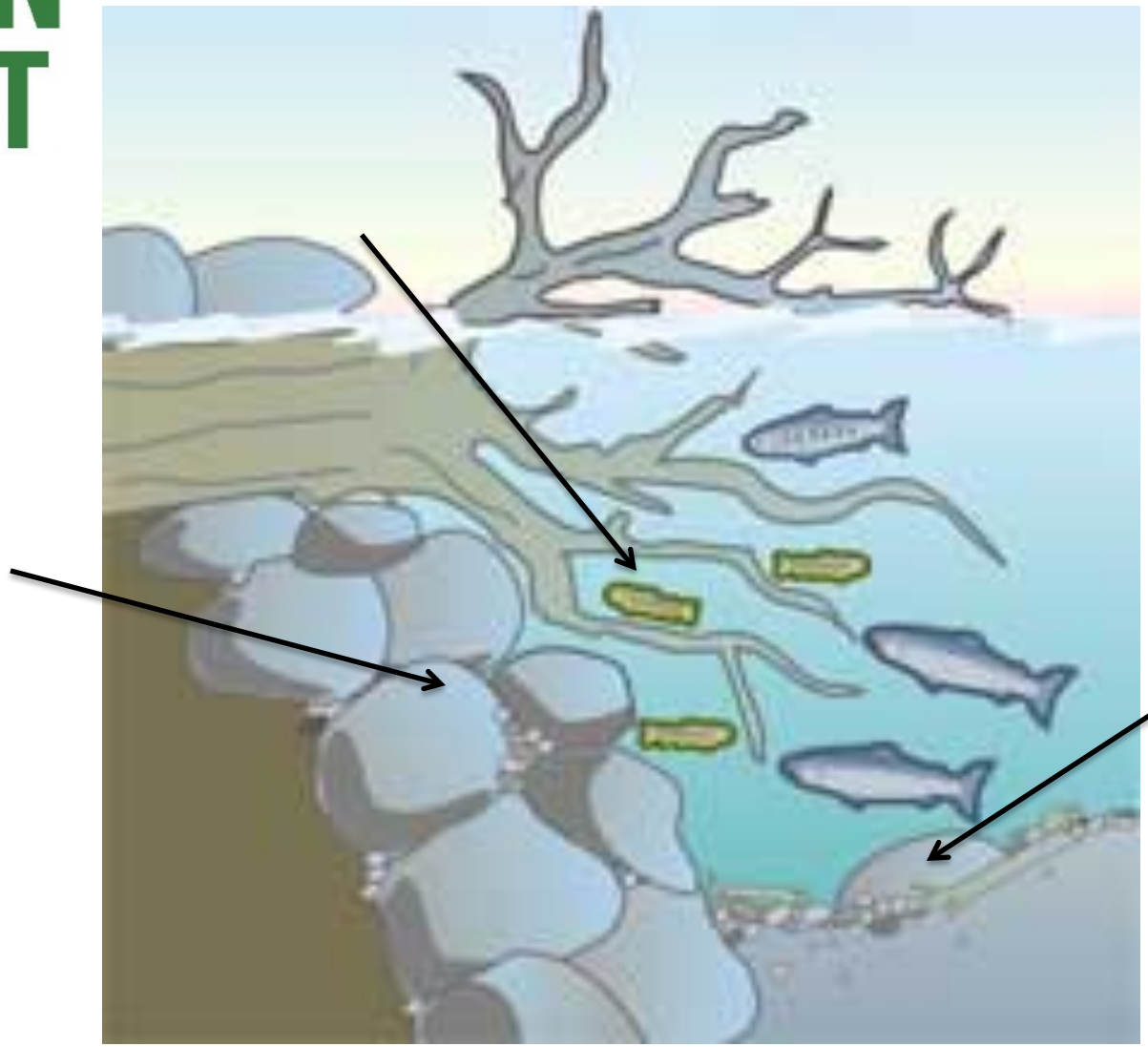


# GOOD SALMON HABITAT



# GOOD SALMON HABITAT

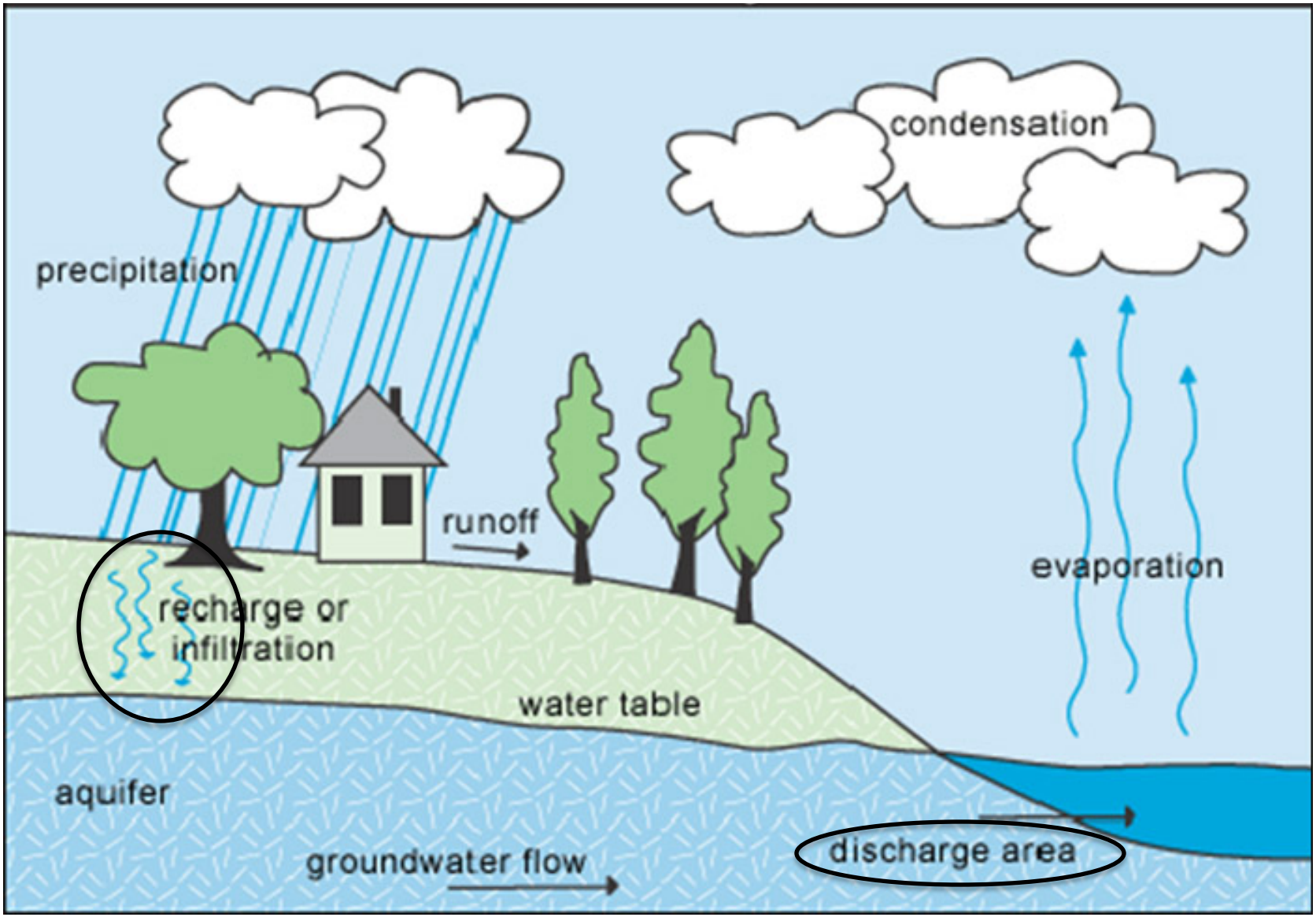
Credit: King County Shoreline Master Program



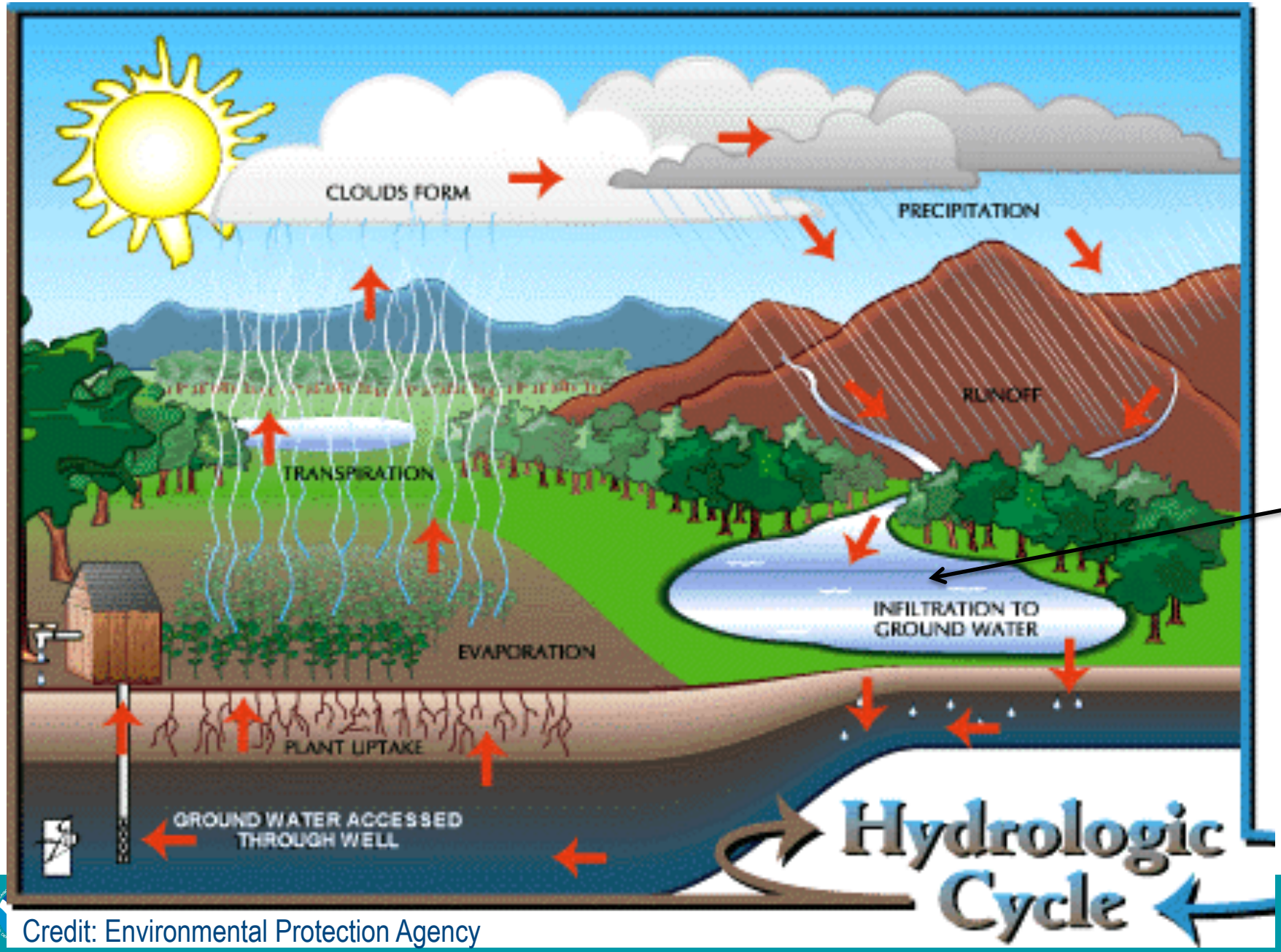
# Recovery actions

- Actions that, collectively, lead to recovery
- Linked to identified poor habitat conditions and damaging land use practices
- Recovery plan describes over 3,000 watershed scale actions

# Ensure Sufficient Water in Stream



# Ensuring Sufficient Water: Groundwater Recharge




Credit: Environmental Protection Agency

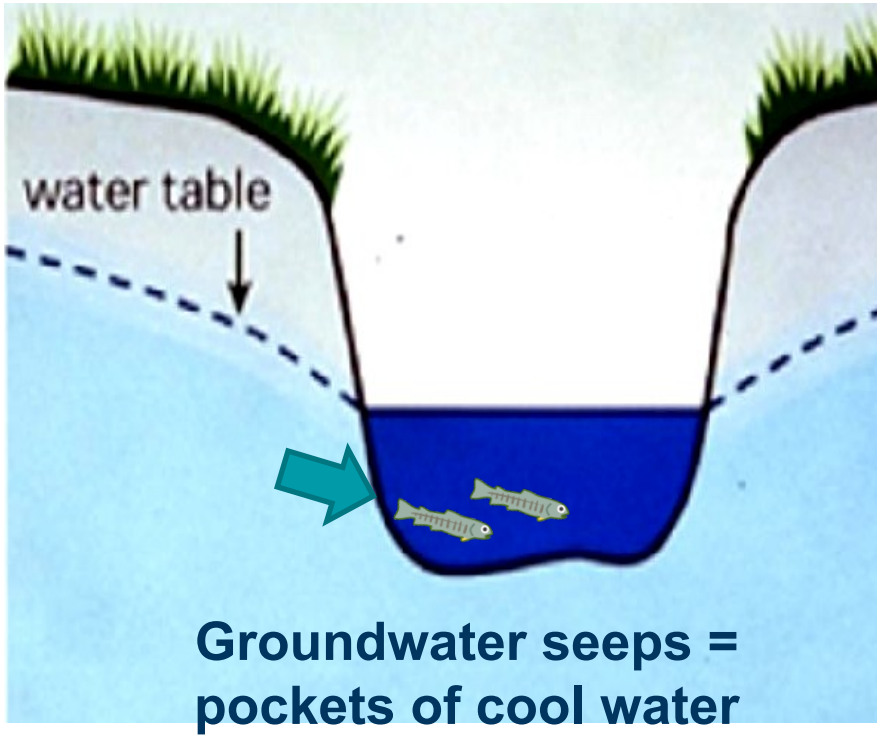
# Beaver Dams Help Groundwater Recharge

Credit: Wildlife Conservation Society

Credit: am980, ZMEscience.com

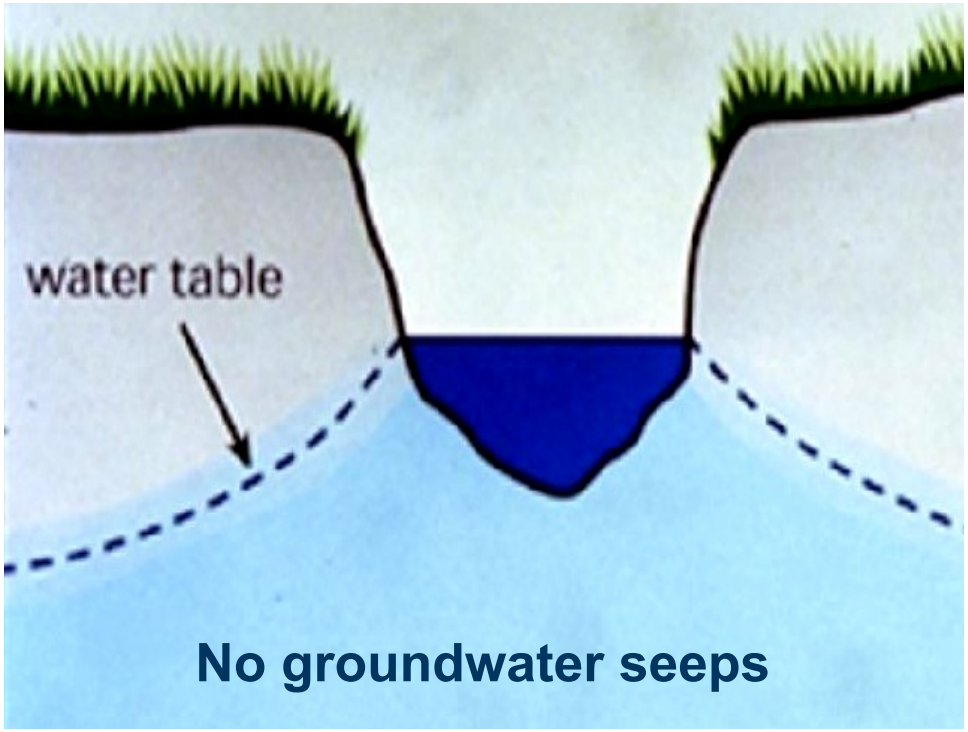
# Effects of Groundwater Pumping

## "Gaining Stream"
## (groundwater to stream flow)
## Increasing streamflow




**Groundwater seeps = pockets of cool water (thermal refugia)**

## "Losing Stream"
## (stream flow to groundwater)
## Decreasing streamflow




**No groundwater seeps**

Adapted from: *Stream Corridor Restoration: Principles, Processes, and Practices* (Federal Interagency Stream Restoration Working Group 1998)

# Pump During Winter, Store Water

Credit: Sanctuary Forest

# Add Structure to Streams

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Credit: Stillaguamish Tribe

# Join Us!

- The most limiting resource for salmon and steelhead recovery in the Eel River basin is landowner partners.

# Join Us!

- Nearly all of the habitat coho salmon need to survive and recover is privately owned.

# Join Us!

- Local efforts are underway to carry out recovery actions on the ground.

# Join Us!

- Funding is often available for actions that will benefit salmon and steelhead. Many of these actions (e.g., those taken to increase water security or stabilize banks) help people, too.

# Questions?