

Synthesis of Biology, Ecology and Status of Smelt in the SFE:

Where do we go from here?

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&

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ONE WORLD
One UC DAVIS



Synthesis

- □Delta Smelt is the most important fish not called salmon□□ . □Set up for conflict□- T. Sommer
- Both species have collapsed and are near monitoring detection limits.
- Existing protections for smelt clearly are not recovering the species
- □Dead, but don't know it yet□-B. Bennett

How did we get here?

- Failure to develop and implement a viable recovery plan
- An over-emphasis on Salvage
- □Death from a thousand cuts□
- Lack of scientific and political will to stay the course



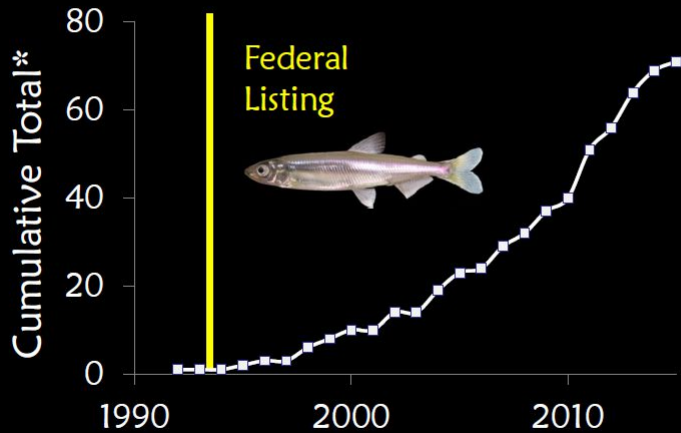
Feinstein Urges Obama to Rev Up Delta Pumps

Senator argues that, amid higher river flows after winter storms, limits on pumping are unnecessary to protect threatened fish.

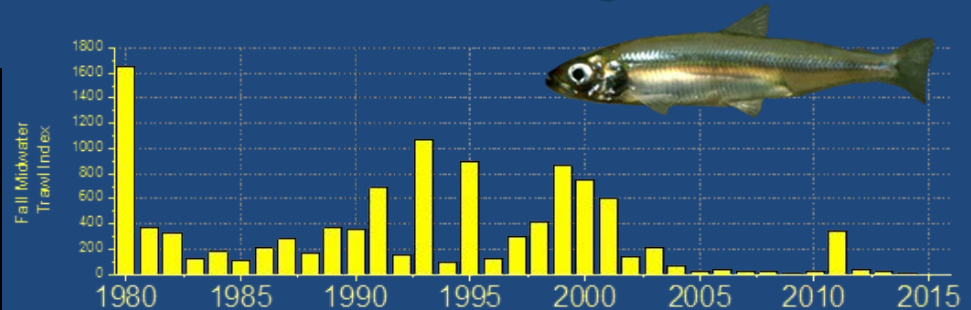
WW2.KQED.ORG

More Science ≠ More Fish

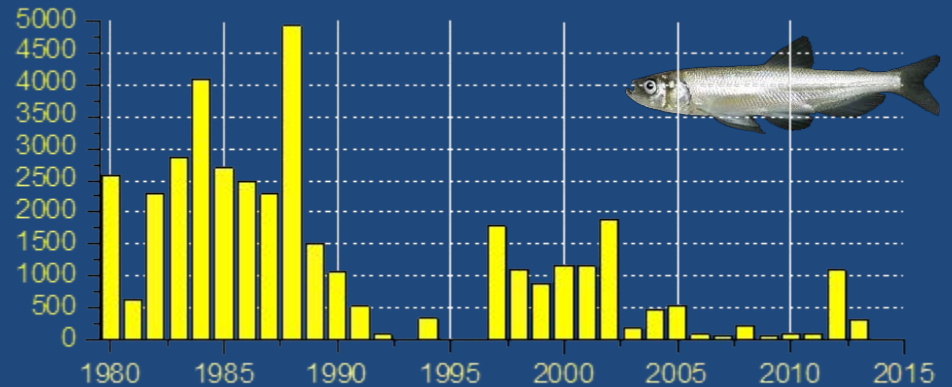
Trends in Delta Smelt Publications



State ESA-Endangered



State ESA-Threatened



Where do we go from here?

- Upper Colorado Native Fishes



Humpback Chub
Gila cypha



Bonytail
Gila elegans



Colorado Pikeminnow
Ptychocheilus lucius



Razorback Sucker
Xyrauchen texanus

- Pecos Bluntnose Shiner



- Oregon Chub

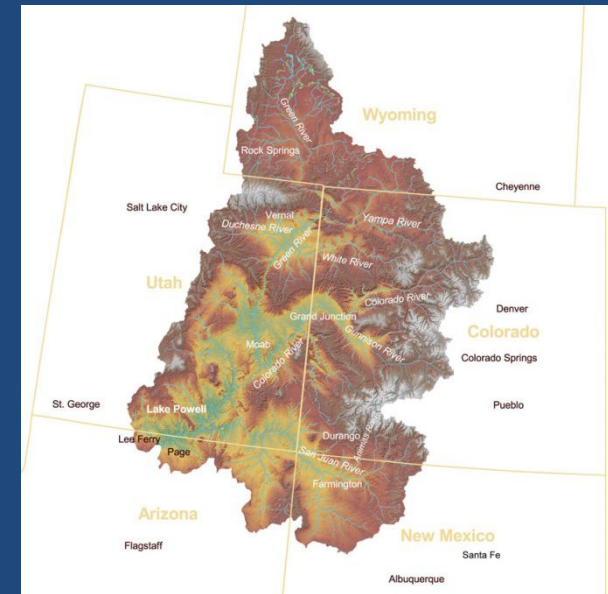




Upper Colorado River
Endangered Fish
Recovery Program

<http://www.coloradoriverrecovery.org>

- Instream flow Protections
- Habitat Restoration
- Nonnative Fish Management
- Propagation and Stocking
- Research & Monitoring
- Education and Outreach



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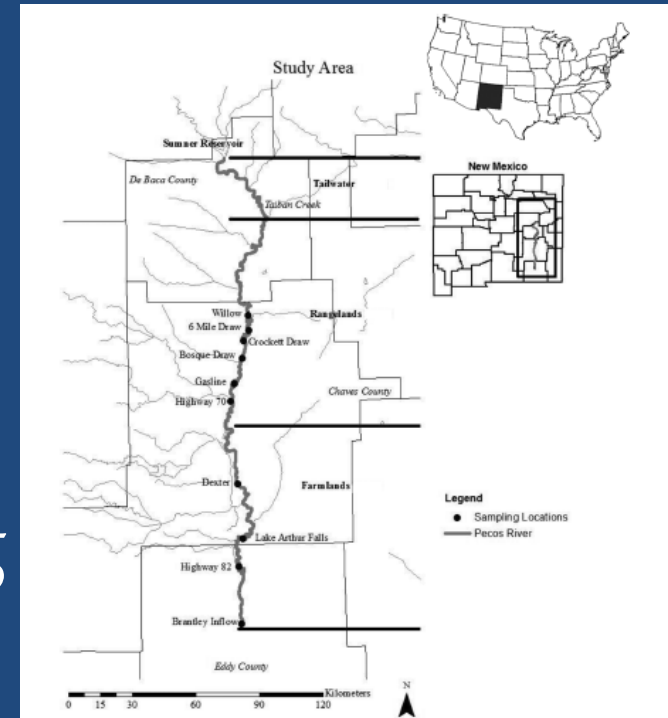
U.S. Fish & Wildlife Service

<https://ecos.fws.gov/#conservationPlans>

ECOS Environmental Conservation Online System

Conserving the Nature of America

- Research & Monitoring
 - Habitat Requirements
 - Reservoir Flows
 - Nonnative fish effects
- Propagation and Stocking
- Education and Outreach
- Enforce State and Federal laws





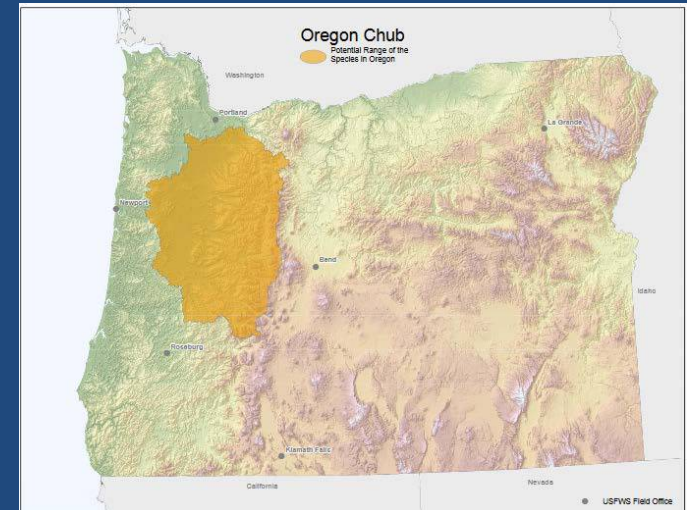
U.S. Fish & Wildlife Service

Oregon Fish and Wildlife Office

Working with you to conserve the natural resources of Oregon

<http://www.fws.gov/oregonfwo>

- Protect, Restore & Enhance
- Propagation and Stocking
- Research and Monitoring
- Education & Outreach
- February 18, 2015, the USFWS removed the Oregon chub from the list of Endangered and Threatened Species, the first fish ever to be delisted due to recovery.

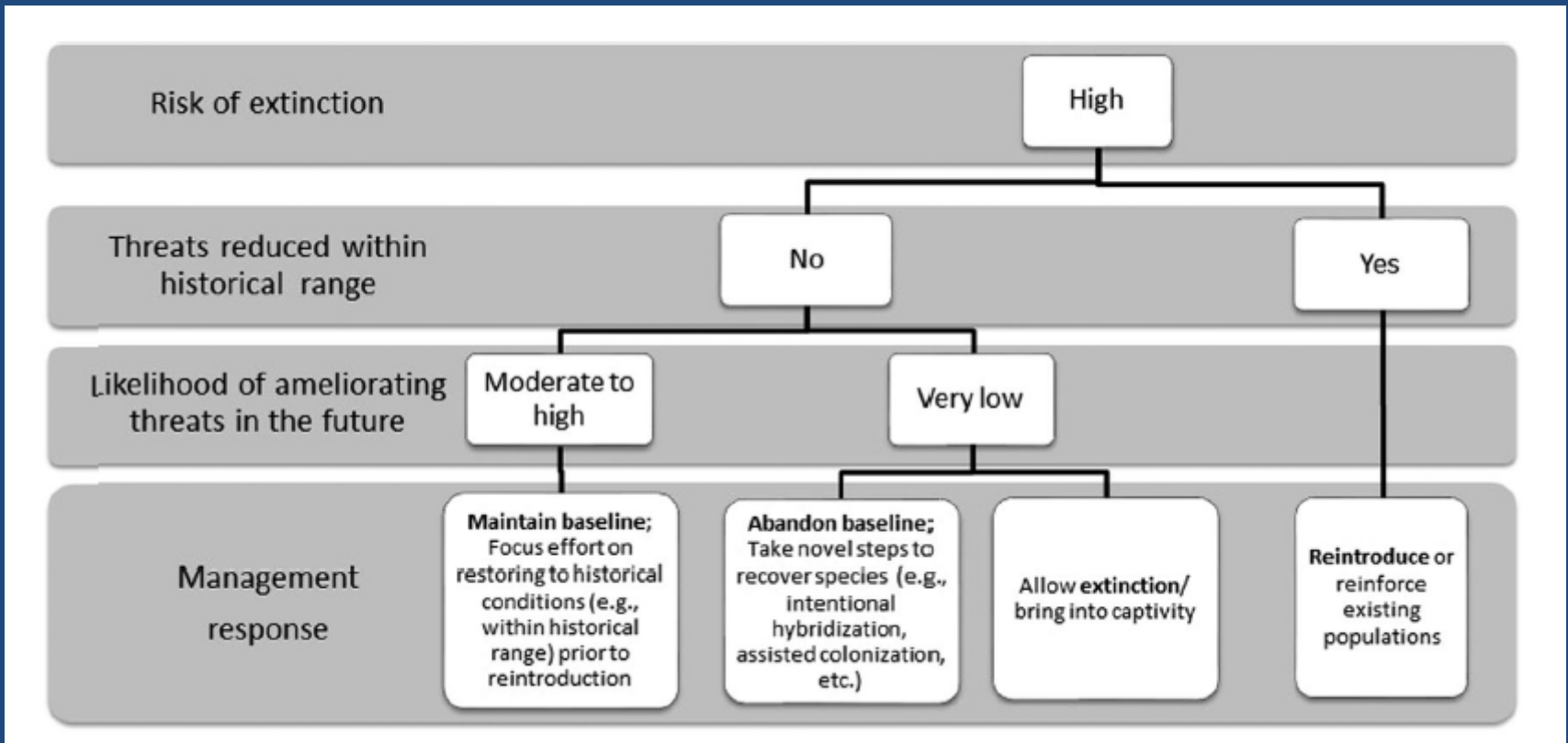


Fisheries, Dec 2015. Lessons learned from the greater sage grouse and Oregon Chub. Thomas Bigford AFS Policy Director.

Smelt Recovery Plan

- Cont. Manage Freshwater Flows
 - Cont. Minimize Salvage
 - Cont. Research and Monitoring
 - Habitat Restoration *in progress*
 - Nonnative species???
 - Propagation and Stocking???
- } Tunnels?

Where do we go from here?

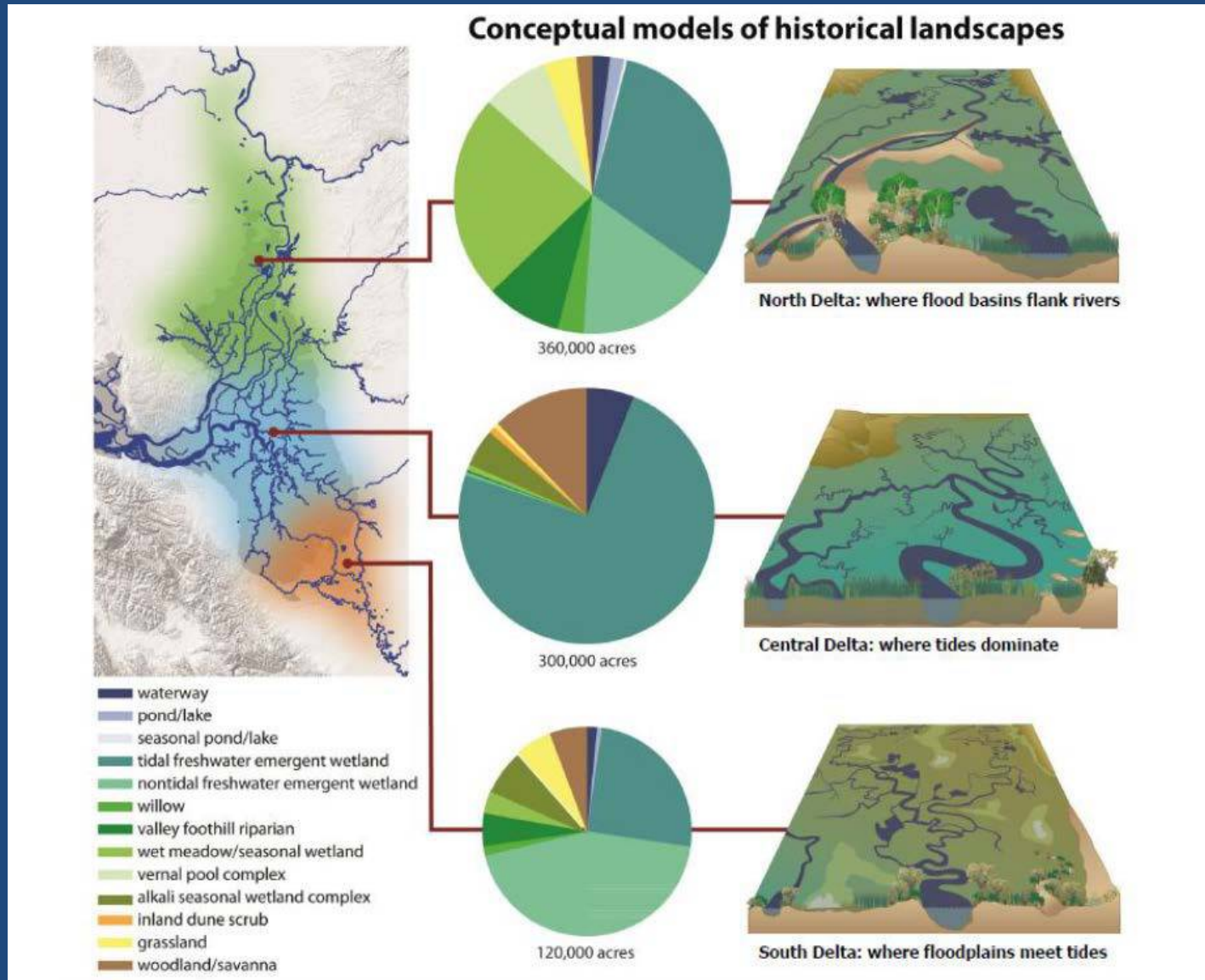


Jachowski et al. 2015; The Journal of Wildlife Management

“Artificial” Propagation

- Both species currently in culture at the Fish Conservation and Culture Lab.
- Both can complete lifecycle in FW.
- Both are sensitive to summer temps
- BUT many issues to contend with to do this

Historic Landscape Had Ponds



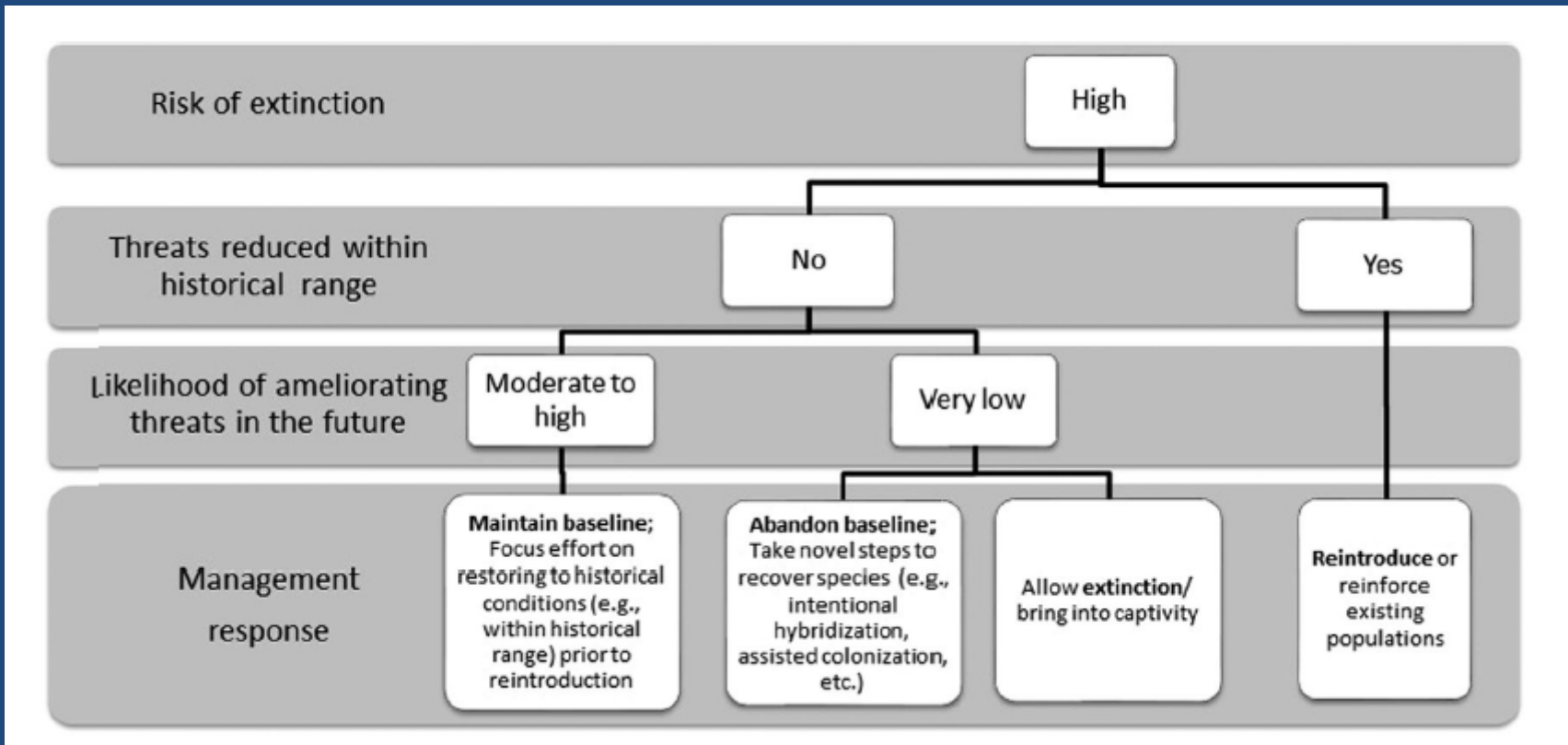
Twitchell Island ?



Yolo Bypass ?



Where do we go from here?



Jachowski et al. 2015; The Journal of Wildlife Management

