

Biomass and grazing rates of two exotic bivalves, *Corbicula fluminea* and *Potamocorbula amurensis*, show surprising variability over 20-30 year sampling period.

What does it mean for future food webs?

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Heather Fuller², Rosa Anduaga¹

¹USGS Menlo Park, ²DWR, EMP Program

Thanks to DWR for collaboration on samples and to IEP/Bureau of Reclamation for funding this work

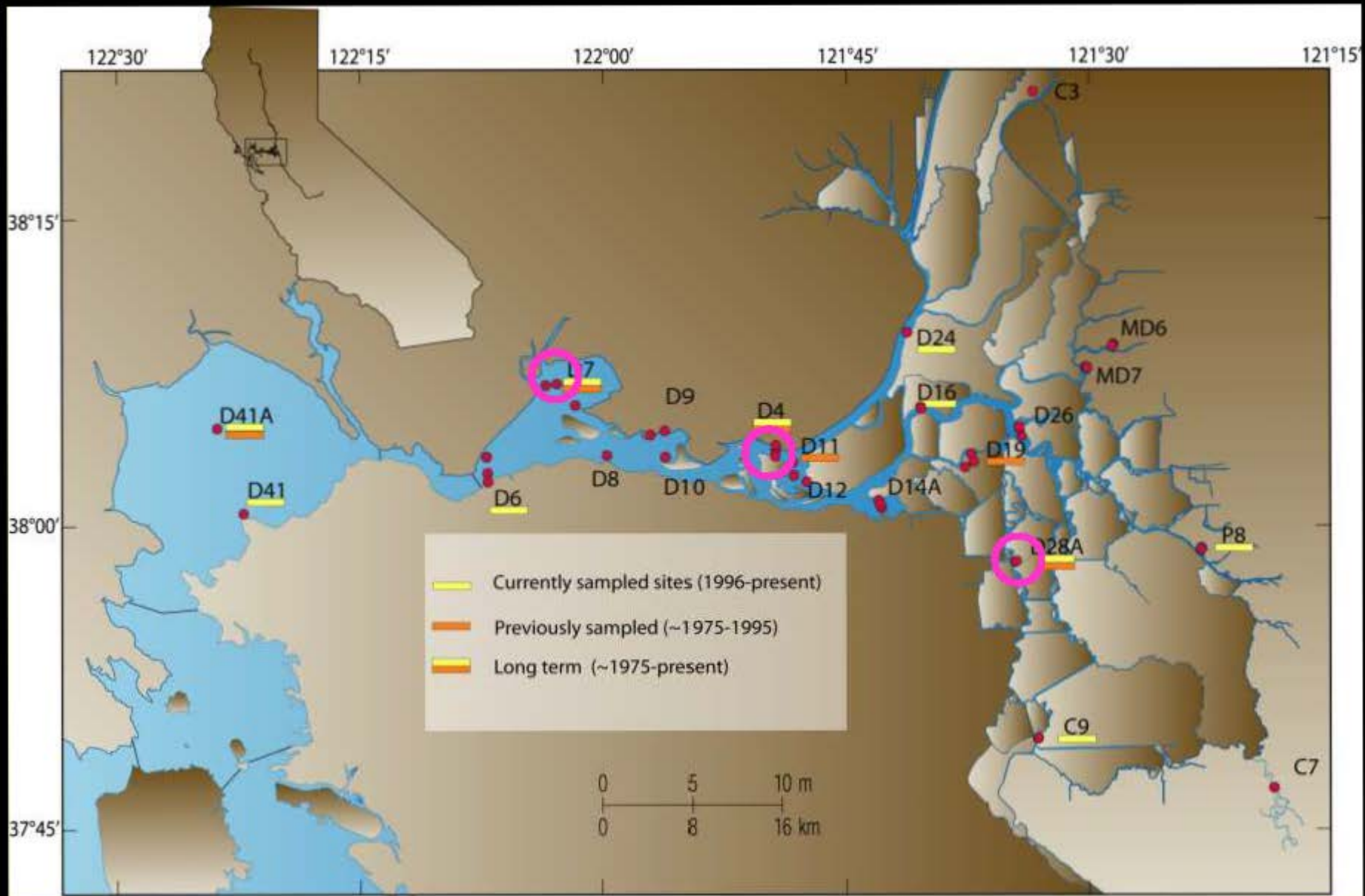
Do you have any idea how many clams were measured to get this data (1975 to present)?

Special thanks to Jeff Crauder, Rosa Anduaga, Heather Fuller and a plethora of students who kept measuring until it was done.

Are today's populations the "norm"?

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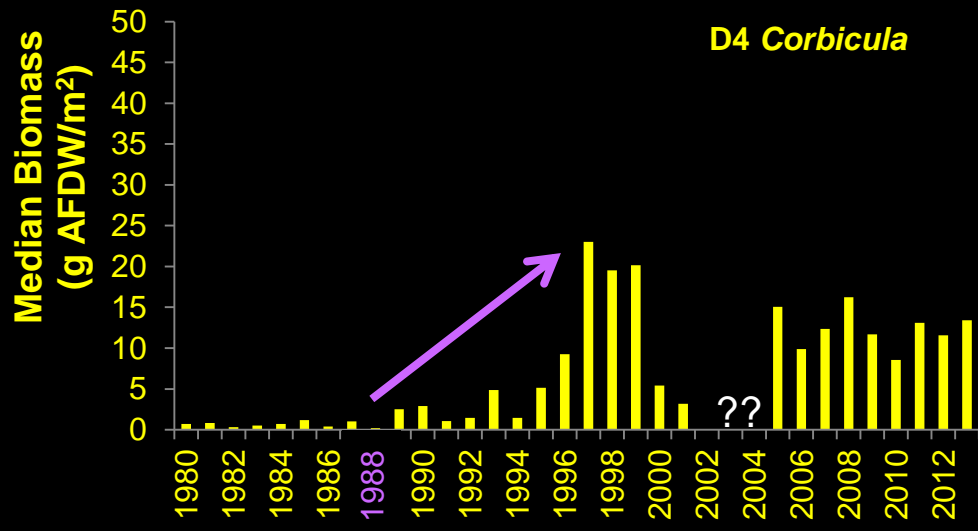
What will populations do in restored habitat?

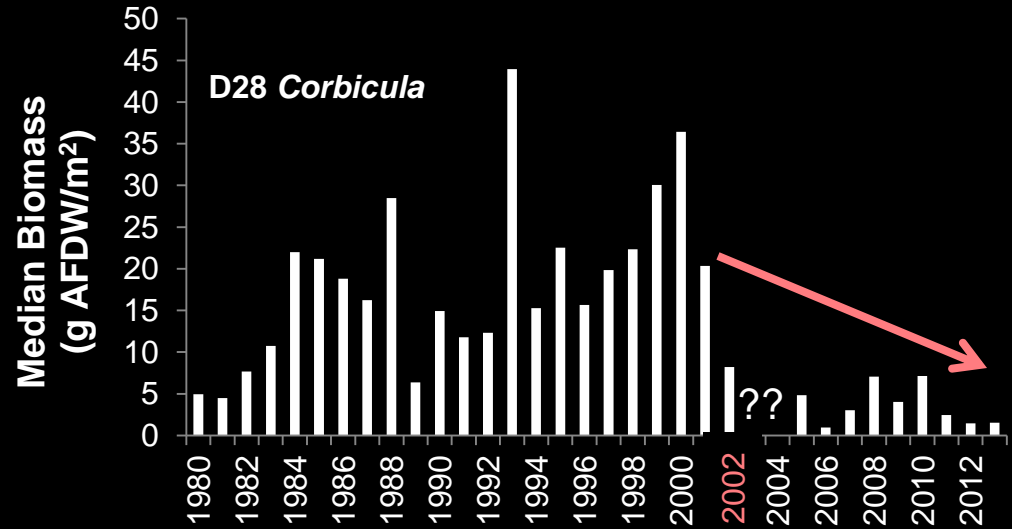
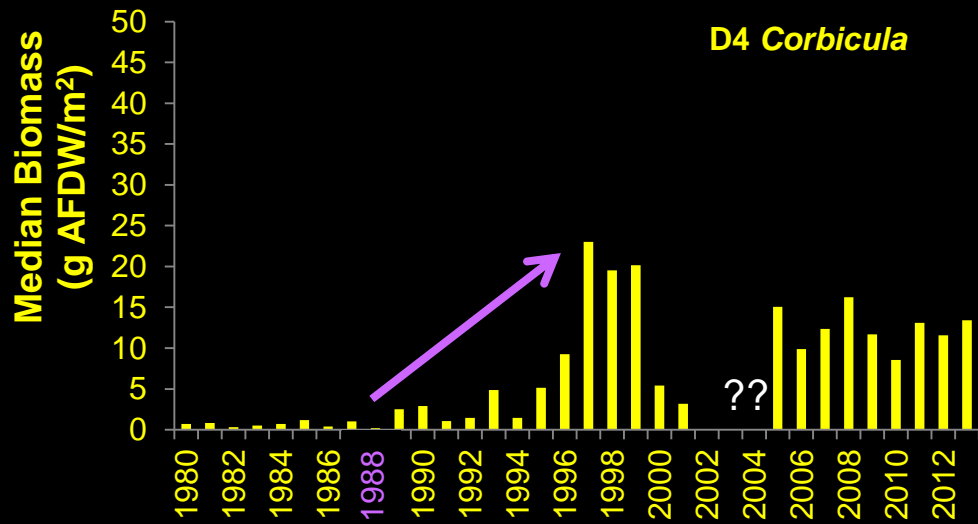


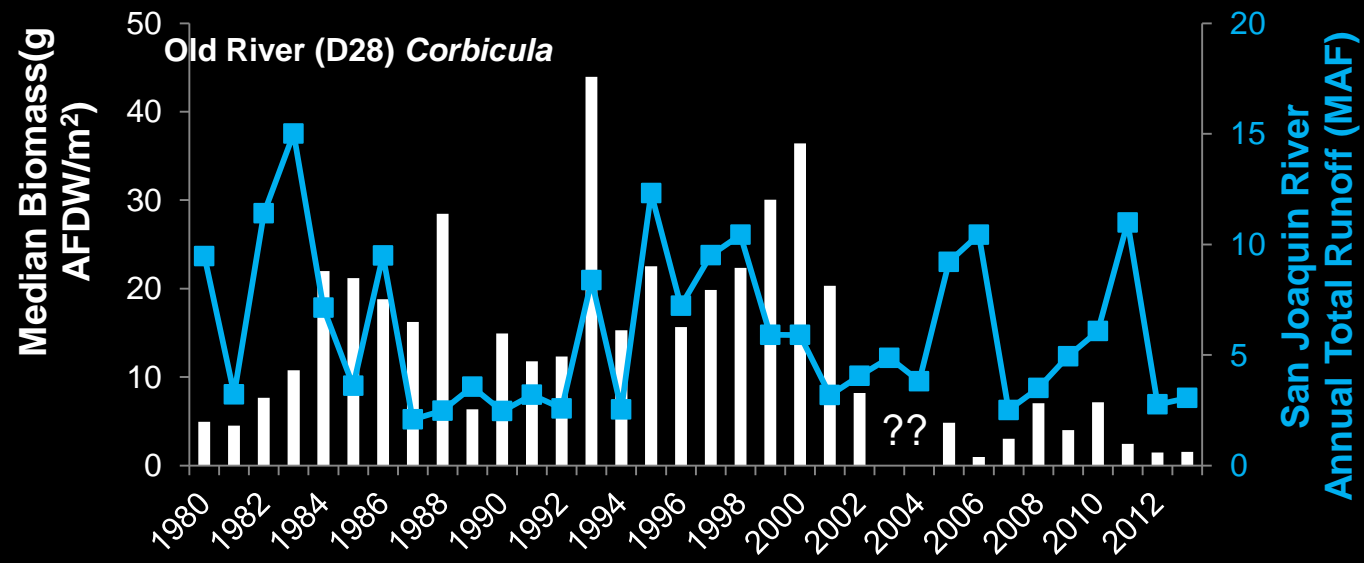
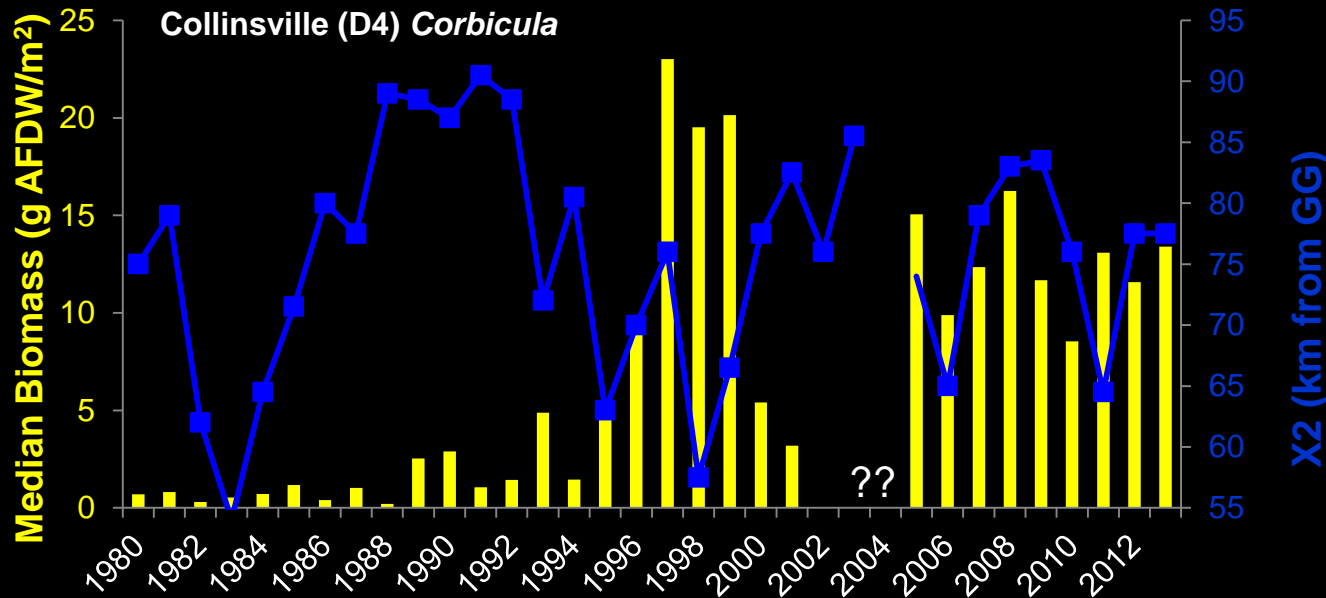
H_0 : *Corbicula* today = *Corbicula* past=
Corbicula in restored habitat (1940-present)

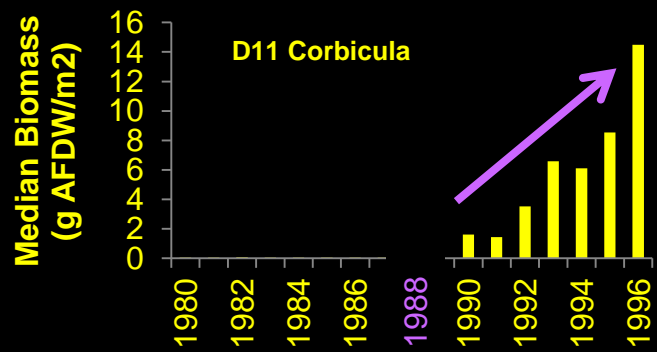
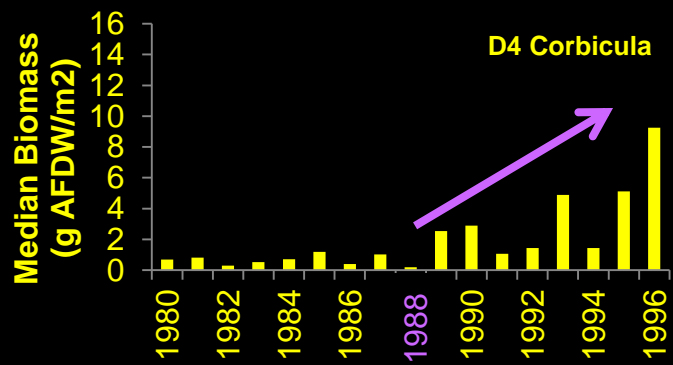
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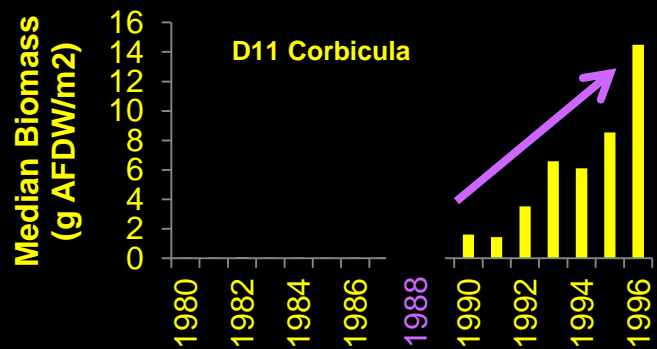
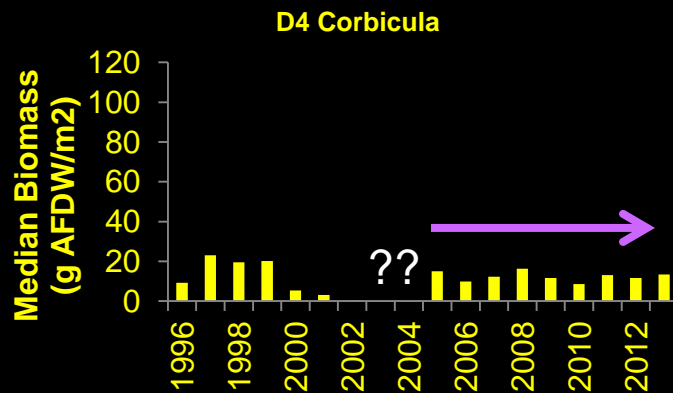
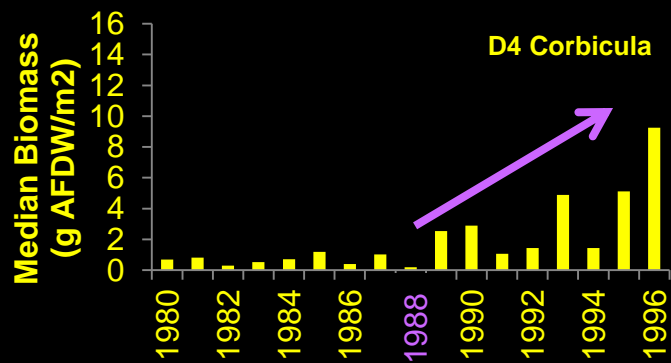
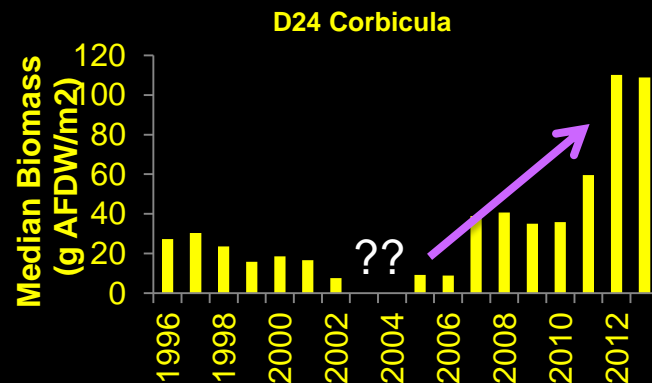
H_0 : *Potamocorbula* populations are past
'initial invasion unpredictability' and are stable
(1986-present)



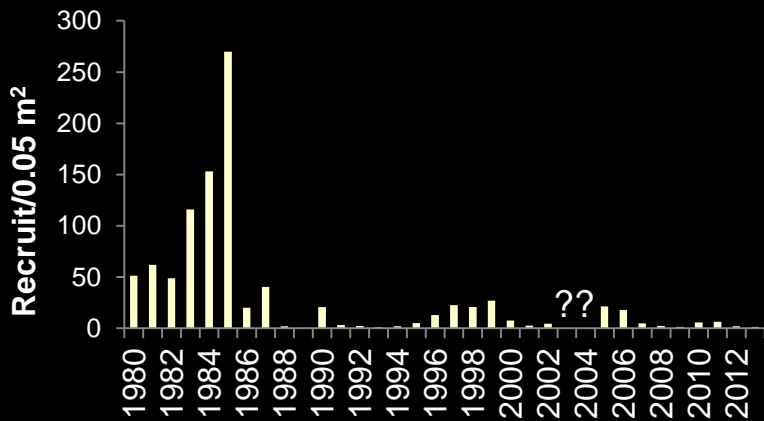
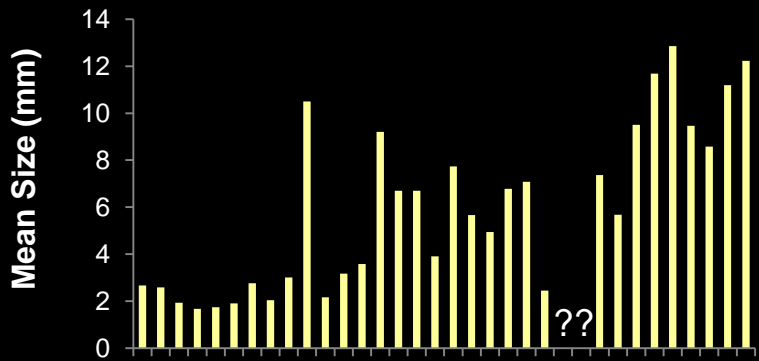
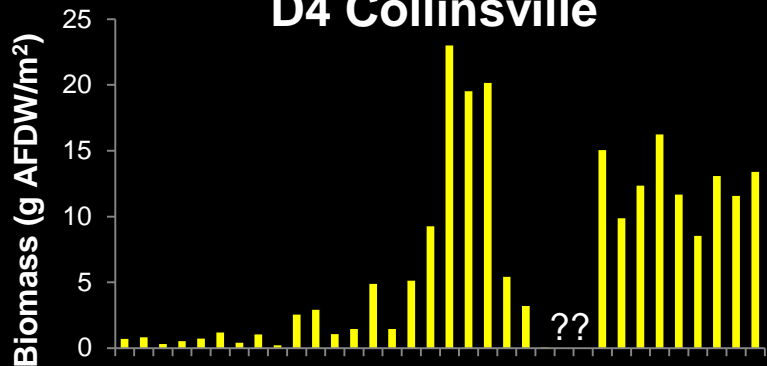






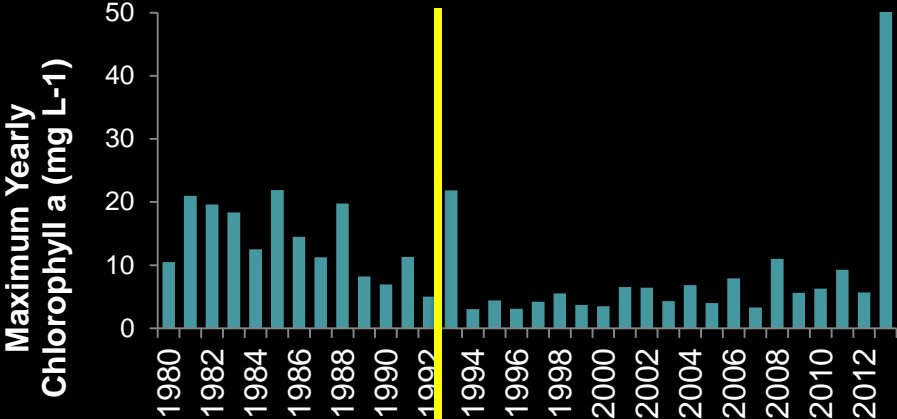


D4 Collinsville

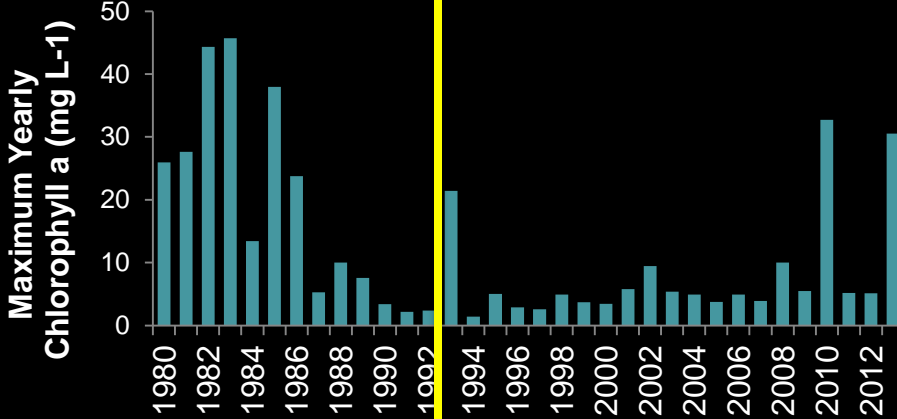


Eating the Signal?

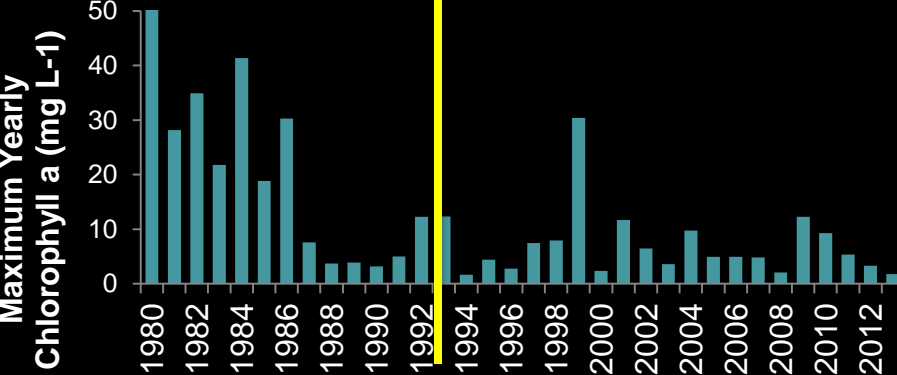
Upstream
(Emmaton)

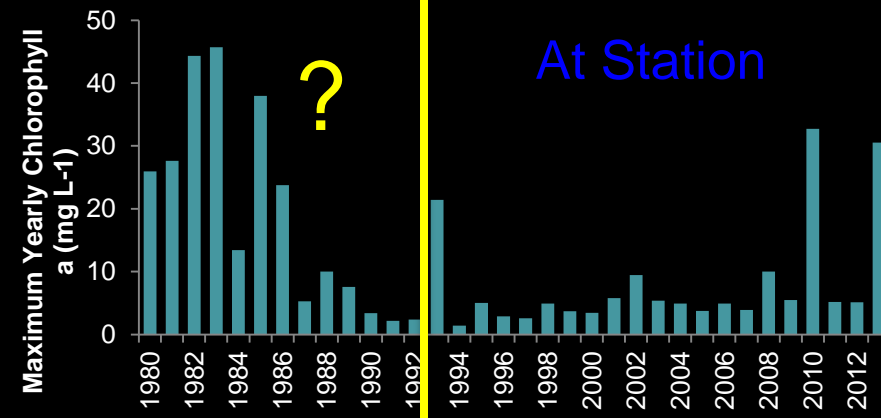
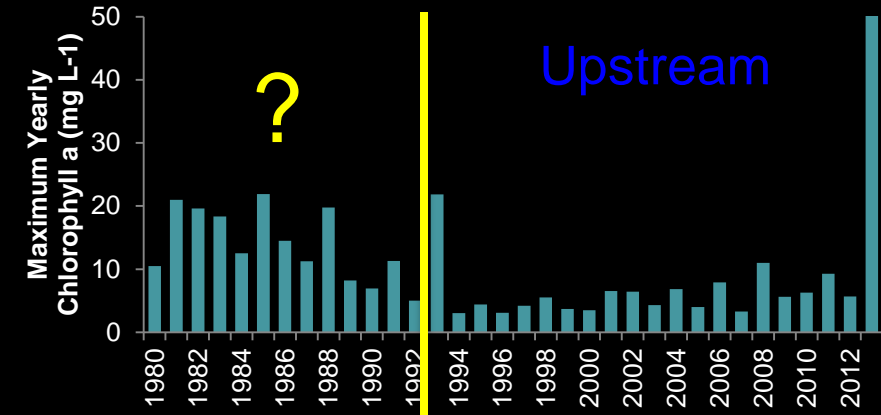


At Station
(Collinsville)

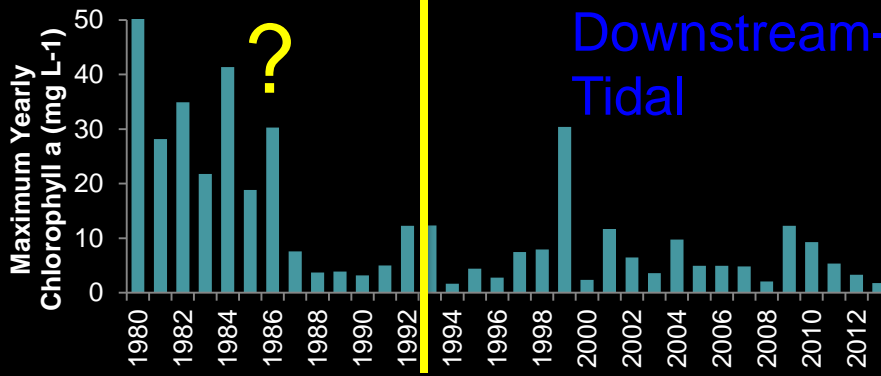


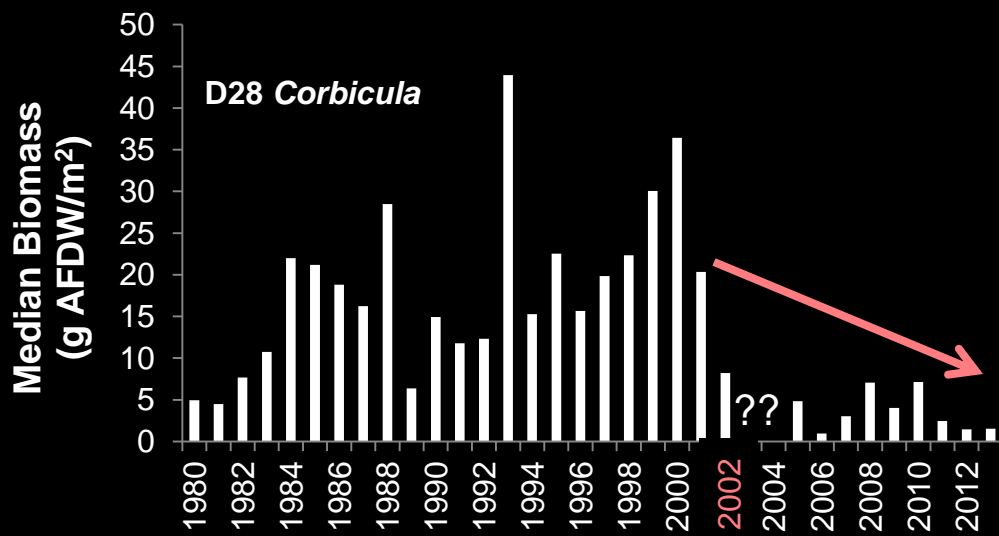
Downstream-Tidal
(Grizzly Bay)



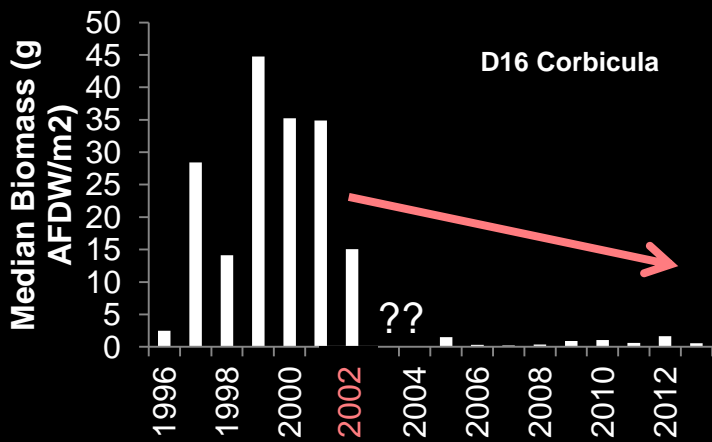
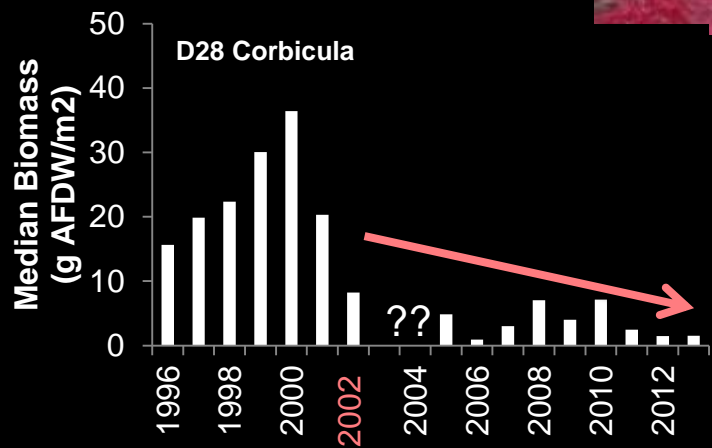


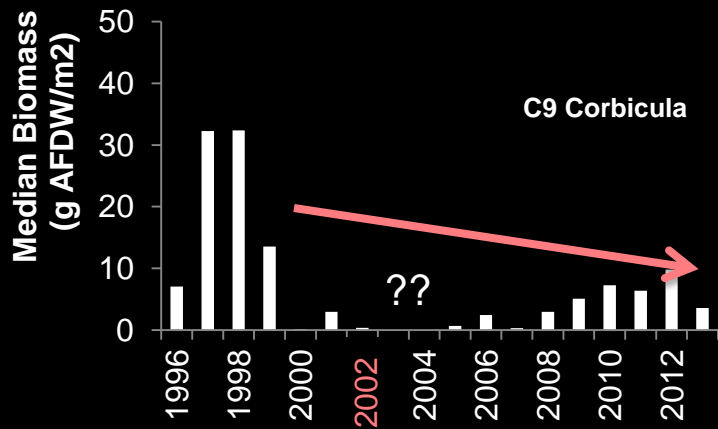
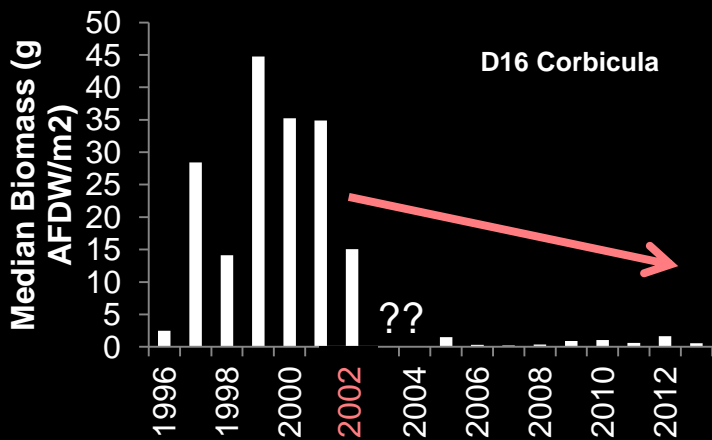
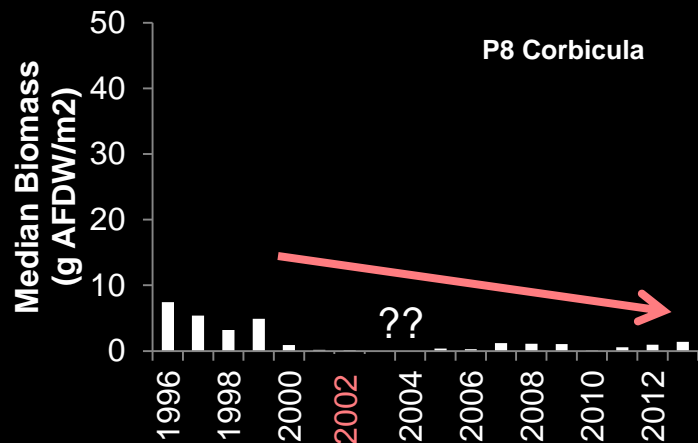
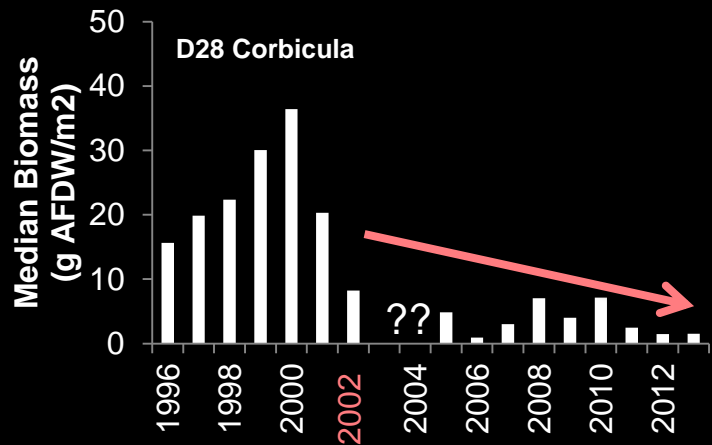
1980-1986?

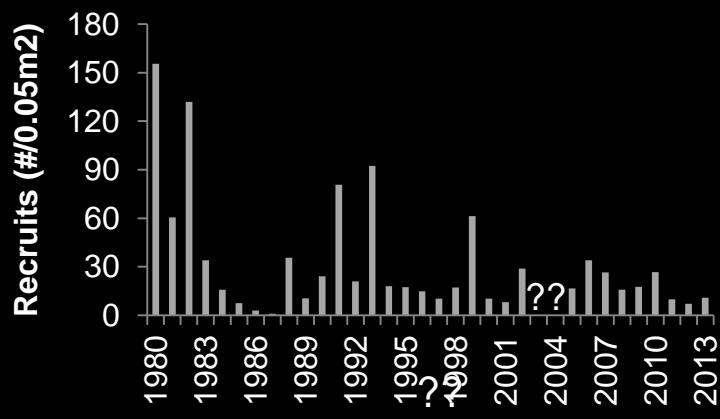
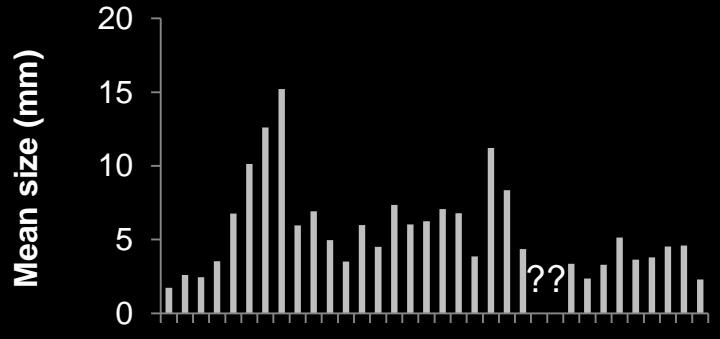
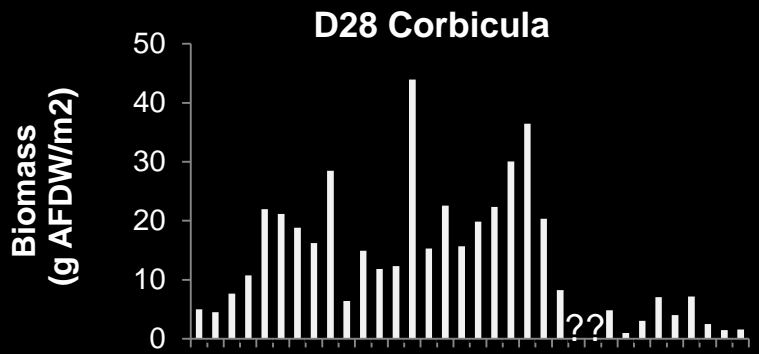


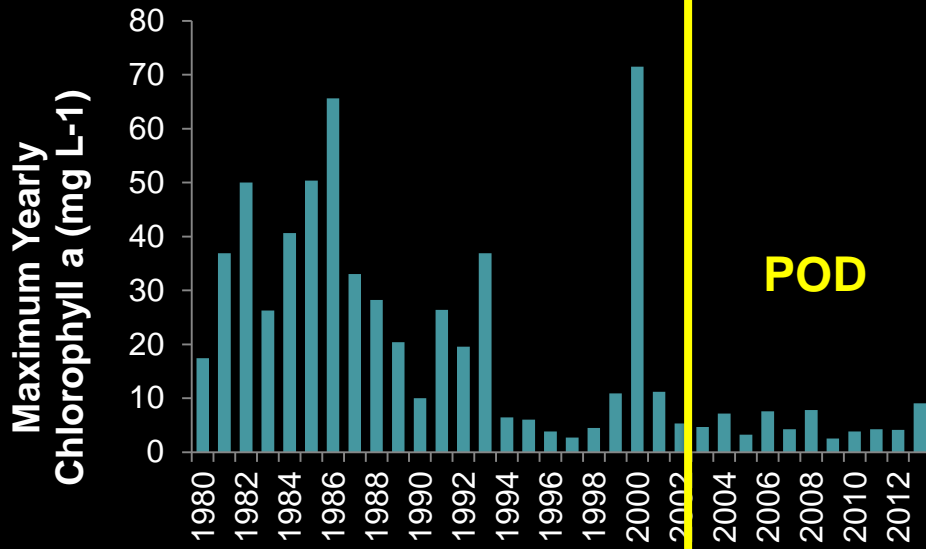


1996-2013



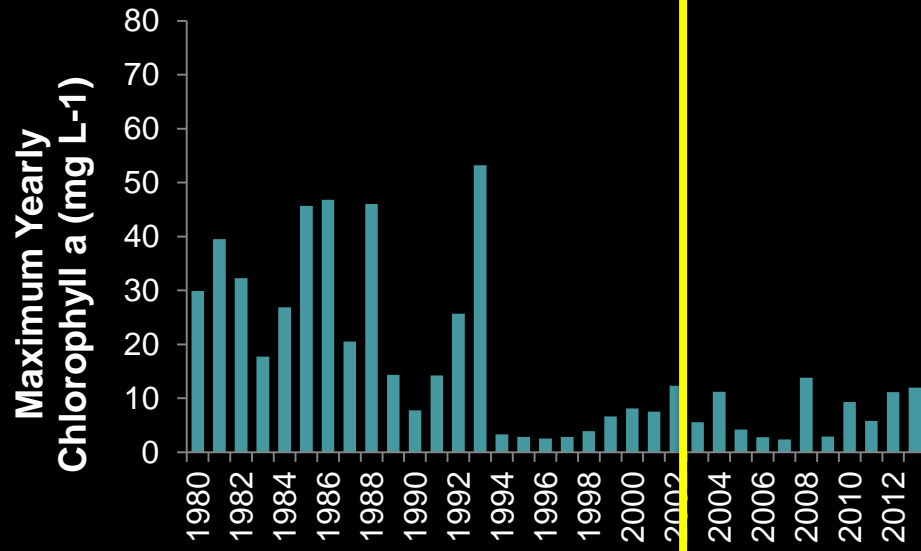




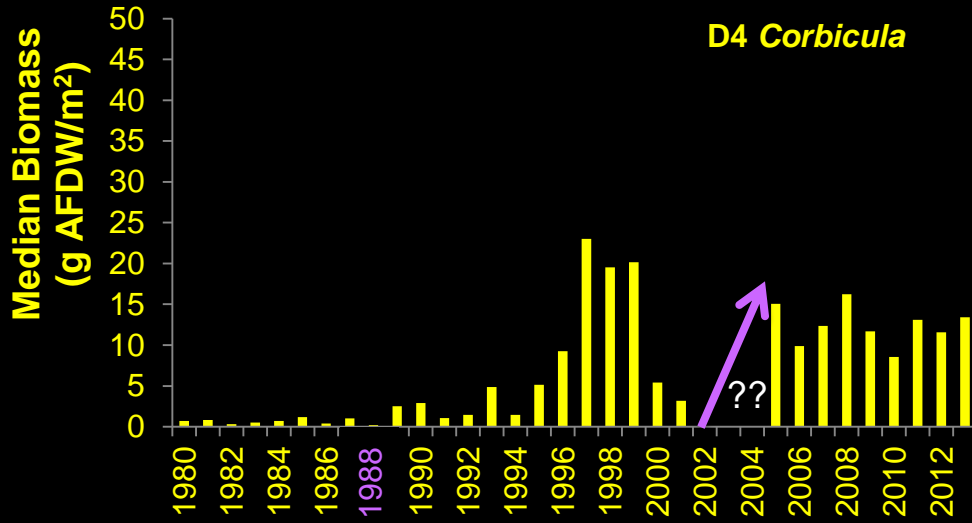


Upstream (San Joaquin River)

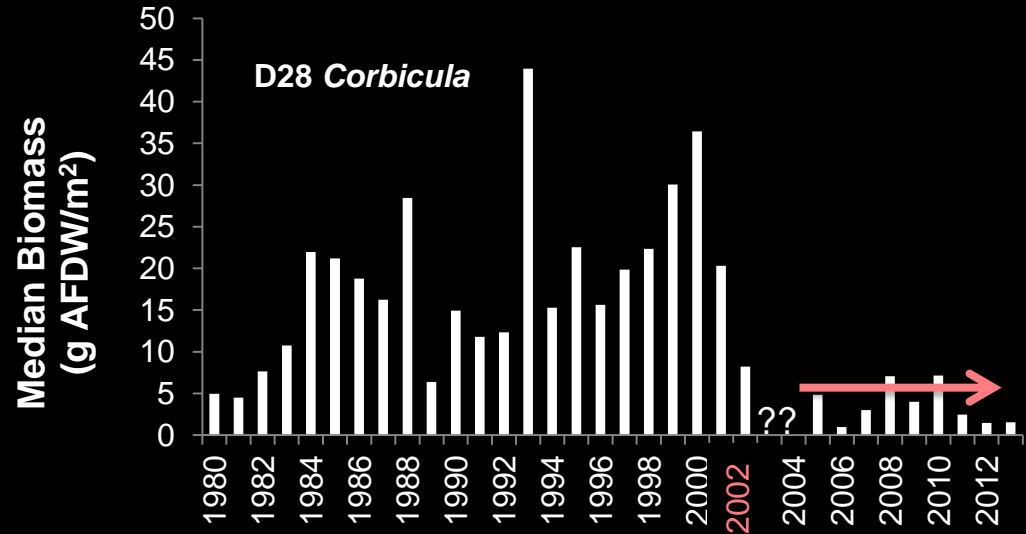
POD

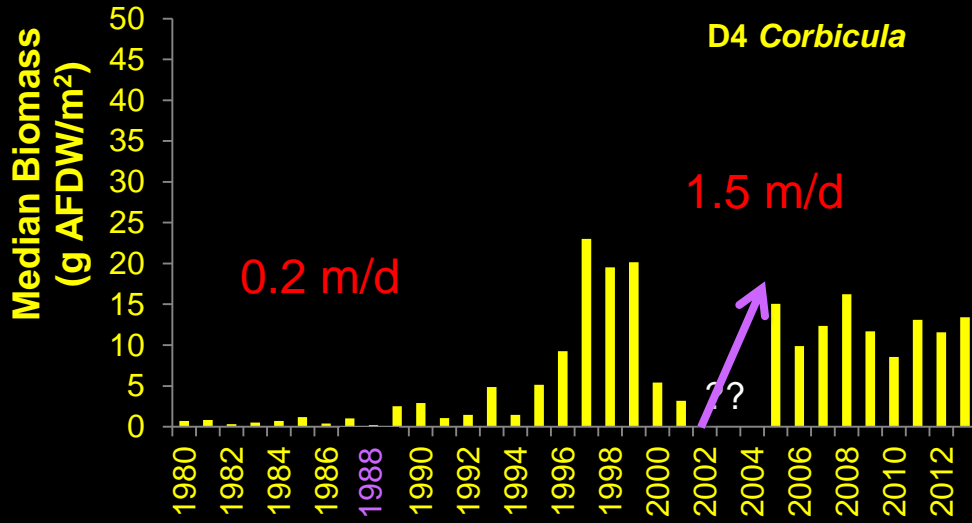


At Station (Old River)

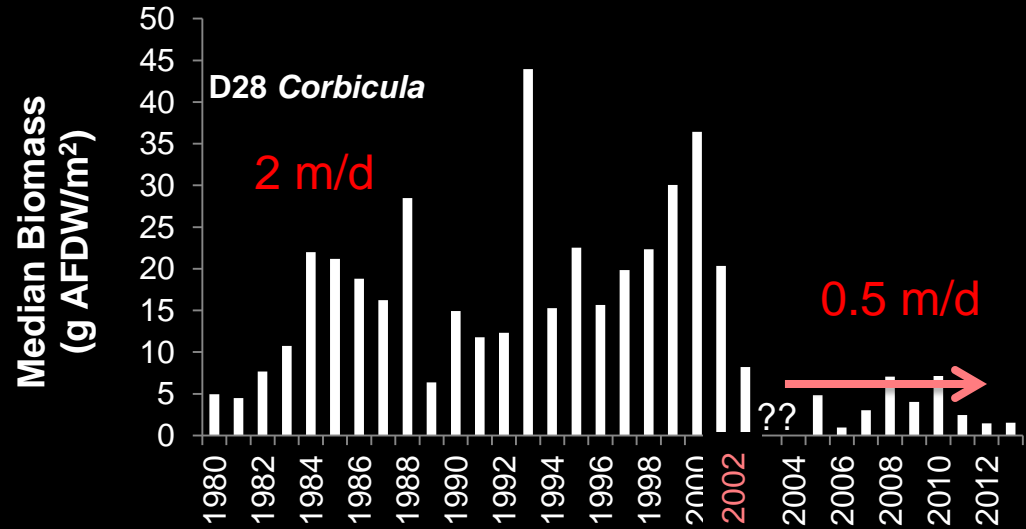


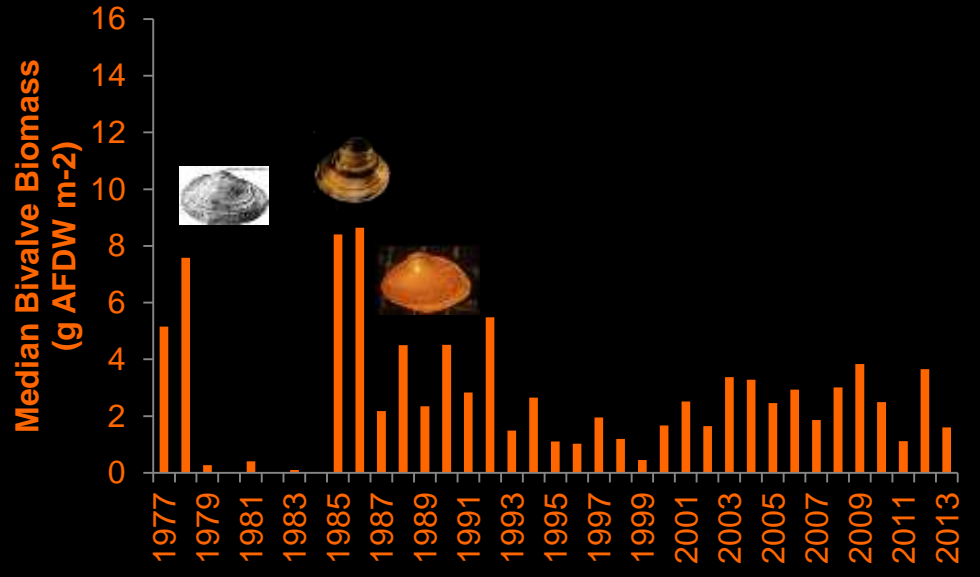
Is co-occurrence
with POD a
coincidence?

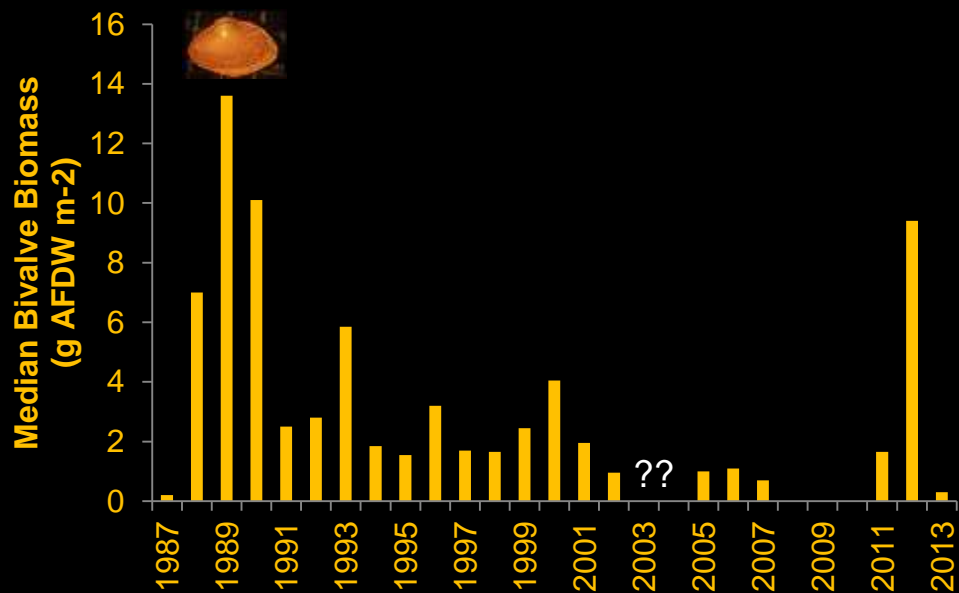
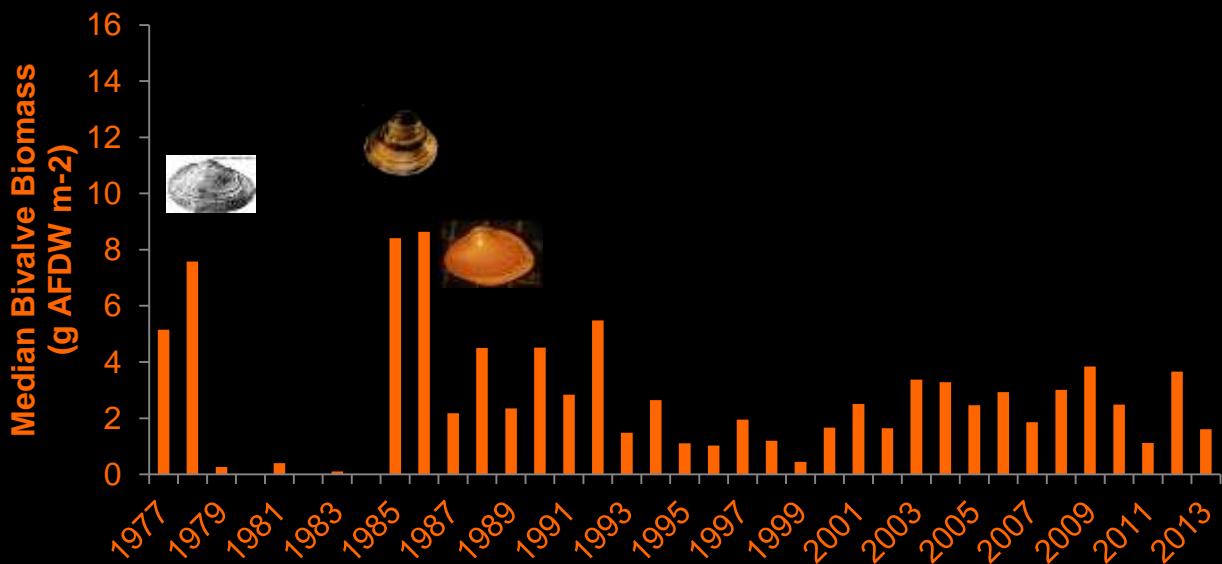




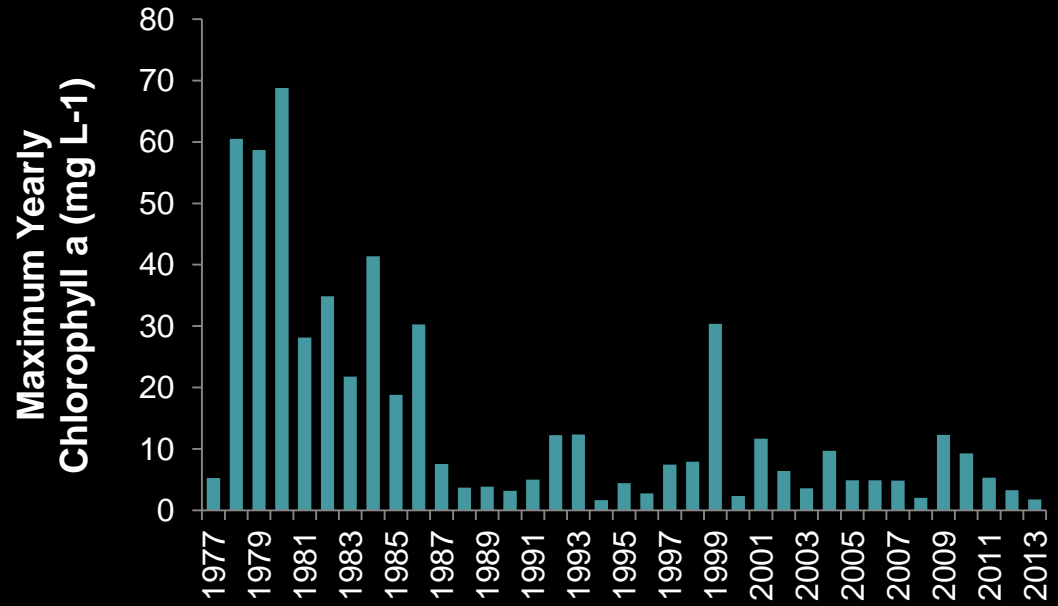
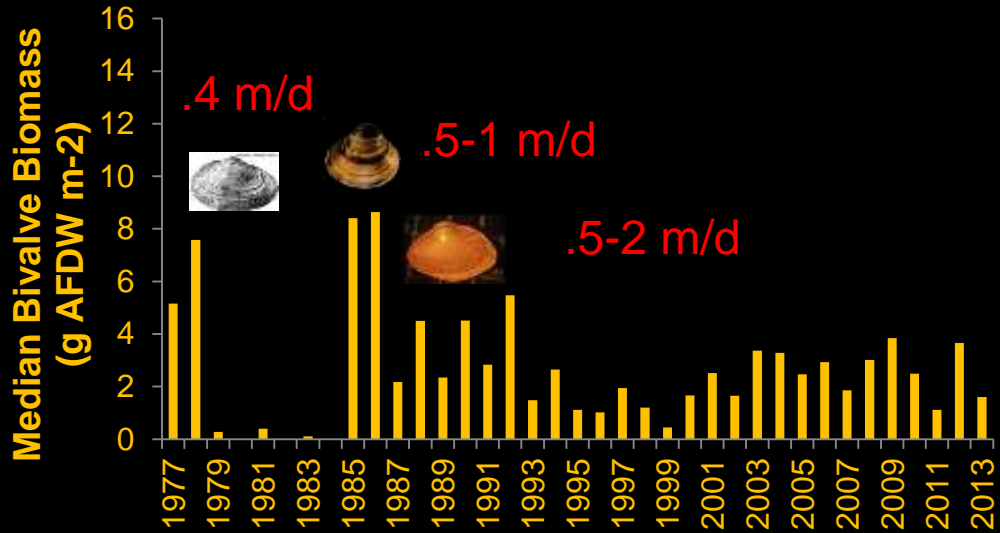
Grazing rate differences:







Grazing rate differences in Grizzly Bay



H_0 : *Corbicula* today = *Corbicula* past (No)=
Corbicula in restored habitat (1940-present)
(Maybe)

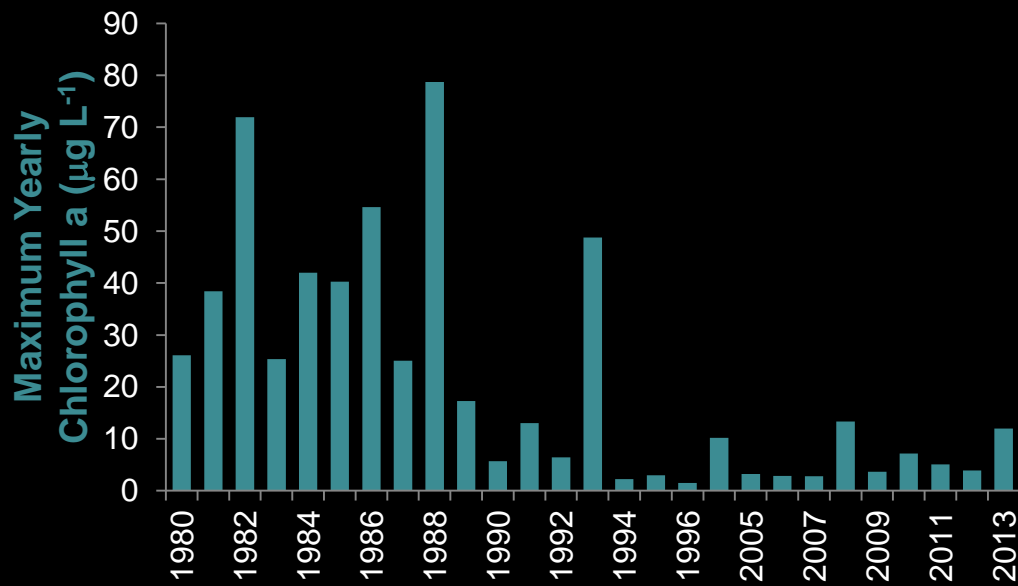
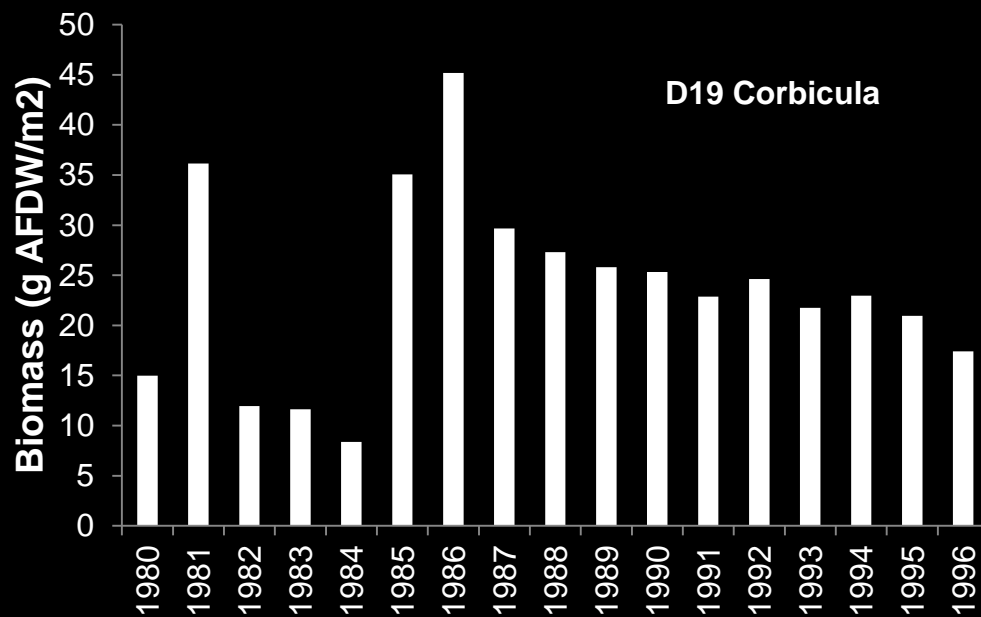
H_0 : *Potamocorbula* populations are past
initial invasion 'randomness' (Probably)
and are stable (1986-present) (some places
yes)

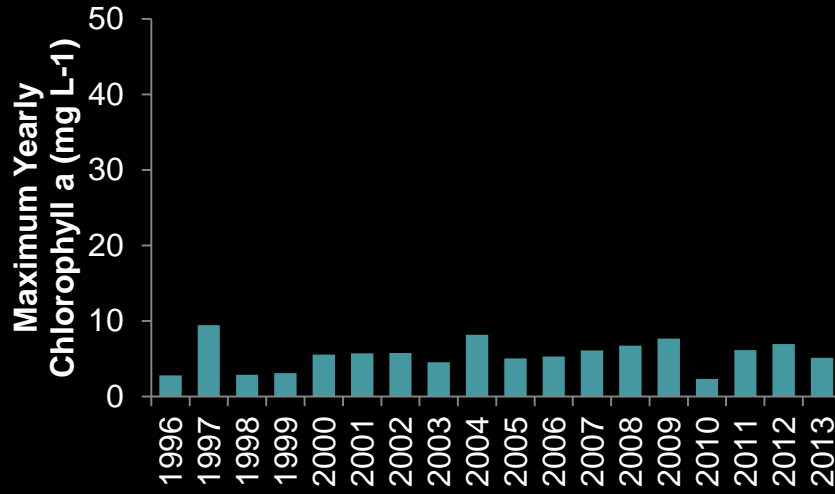
1) *What could have limited Corbicula at Confluence (<1986)?*

- not food quantity
- food quality?
- not reproduction
- predators? contaminants?

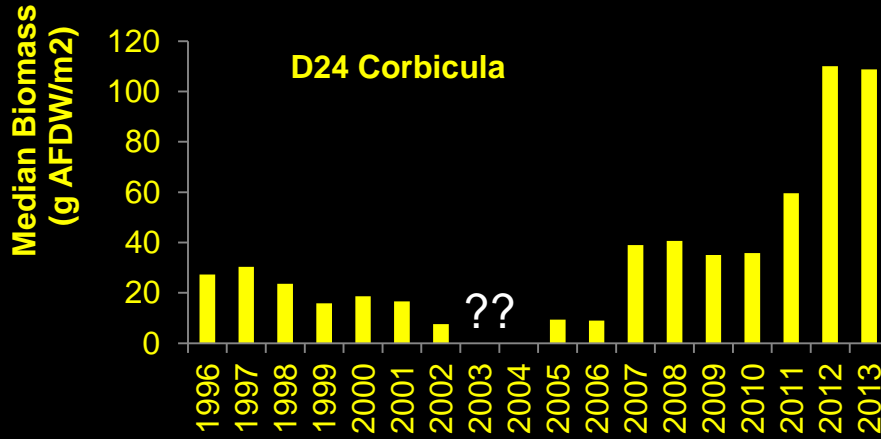
2) *What is limiting Corbicula populations in the Central Delta and San Joaquin river (>2000-2002)?*

- not food quantity
- food quality?
- maybe reproduction
- predators? contaminants?

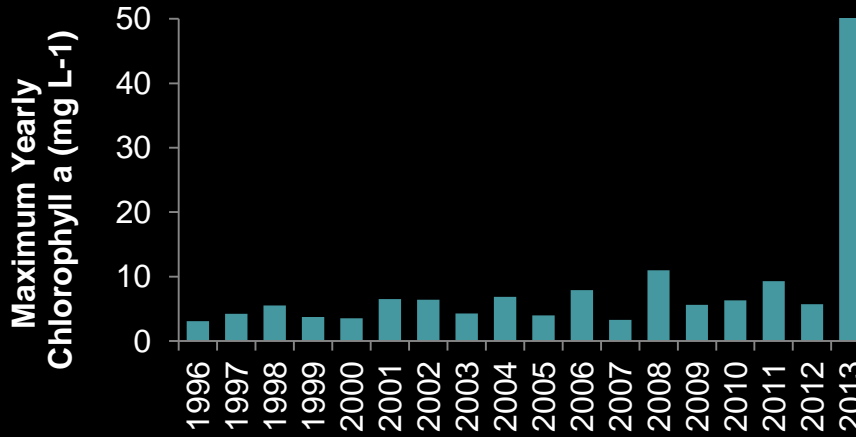




Upstream
(Greens Landing)



Rio Vista



Downstream
(Emmaton)