Status & Fate of the Salton Sea, CA Fish Communities

California Department of Fish & Wildlife

Salton Sea Program: Region 6

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OUTLINE

- Water Quality
- Pupfish Monitoring
- Tilapia Monitoring
- Concluding Remarks

Salton Sea Physico-Chemical Characteristics

Photo by Samantha Haynes - CDFW

Measured Variables at the Salton Sea 2018

Date	Site	Water Temp (°C)	TDS (g/L)	DO (%)	DO (mg/L)	Secchi (m)
7/25/2018	Alamo River	32.4	45.652	40.7	2.45	0.8
7/26/2018	Alamo River	32.2	49.0456	52.2	3.08	0.9
7/30/2018	Test Base	33.2	49.9344	0	0	0.6
7/31/2018	Test Base	32.6	61.1656	7.5	0.38	0.5
8/1/2018	New River	33.1	60.2768	24.5	1.9	0.9
8/2/2018	New River	33.1	60.6808	55.4	3.07	0.8
8/9/2018	Rec Area	33.2	61.5696	25.5	1.46	0.8
9/12/2018	N. Shore	30.8	62.8624	2.8	0.12	0.8
9/13/2018	N. Shore	30.5	62.5392	1.4	0.07	0.8
9/18/2018	Whitewater	30.2	62.0544	5.9	0.41	0.8
9/19/2018	Whitewater	29.5	61.6504	5.1	0.33	0.8
9/19/2018	Bat Caves	30.5	62.4584	95.2	5.4	0.8
9/20/2018	Bat Caves	30.8	62.62	65.4	3.66	0.8
10/9/2018	Whitewater	25.7	61.7312			0.85
10/10/2018	Whitewater	24.3	61.0848			0.8

SALTON SEA DESERT PUPFISH (*Cyprinodon macularius*)

Photo by Sharon Keeney - CDFW

Desert Pupfish Status & Threats to Population

Three Desert Pupfish Populations form Salton Sink Meta-Population (Desert Pupfish Recovery Plan)

1. Salt Creek Population: stable/trending downward

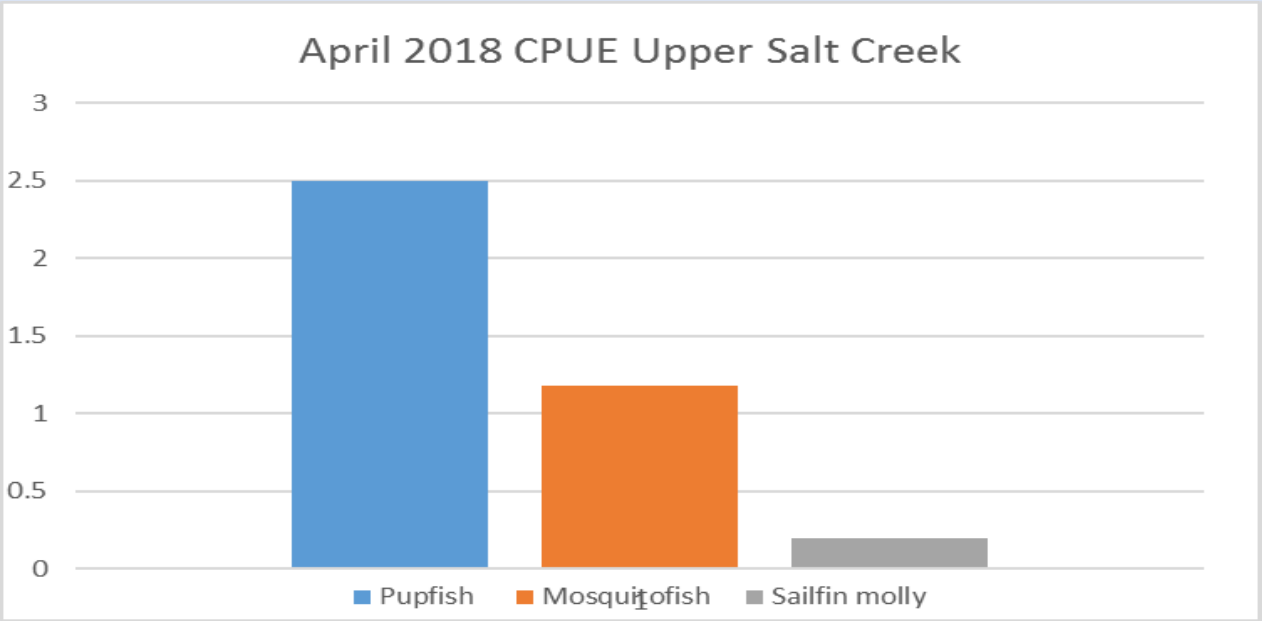
2. San Felipe Creek Population: trending downward

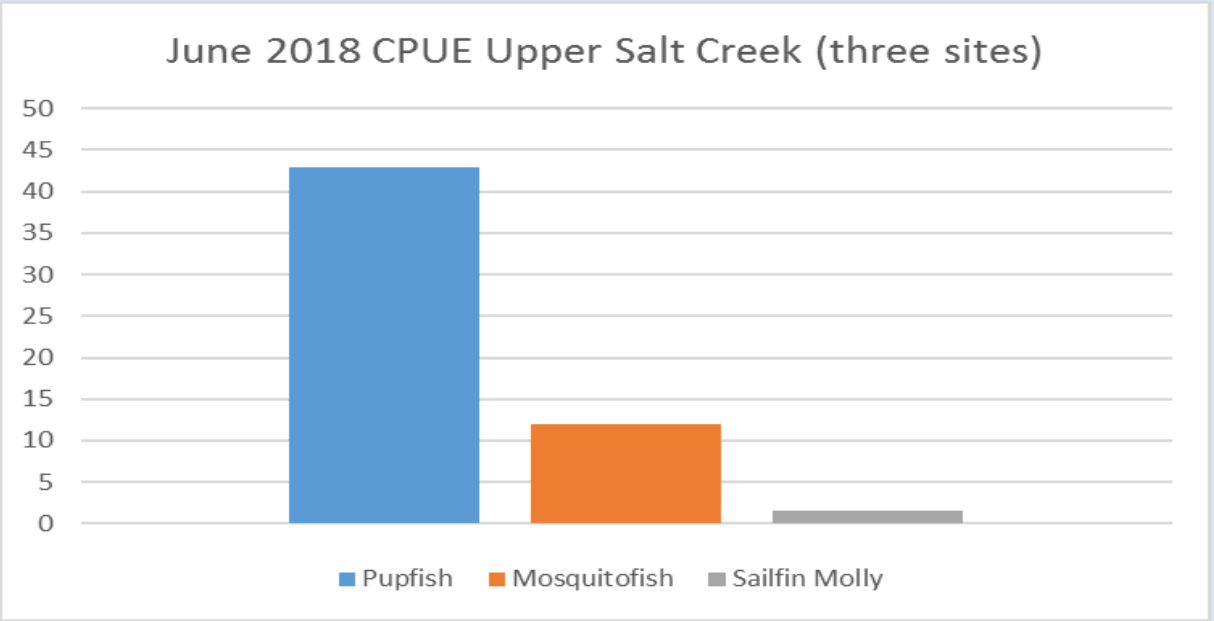
3. Shoreline Pools/Irrigation Drains: stable/trending downward

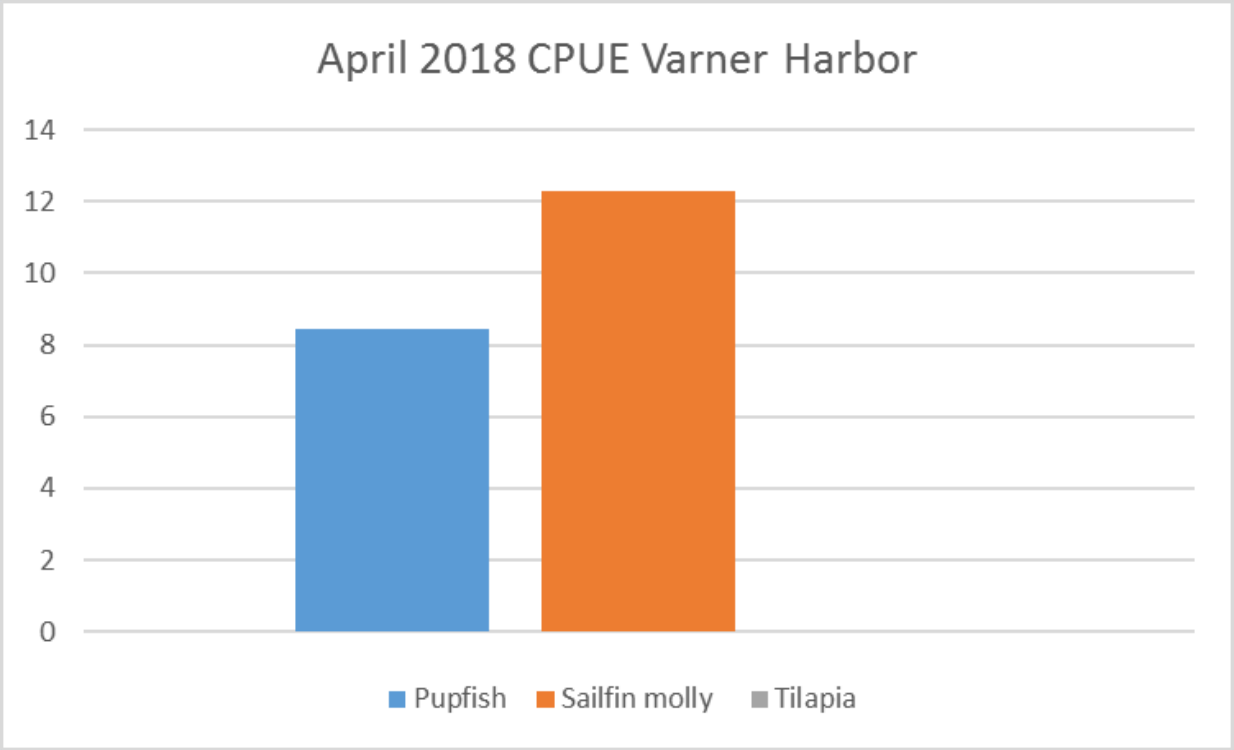
Except areas of freshwater inflows, *C. macularius* not expected to use Salton Sea as TDS exceeds 70 g/L

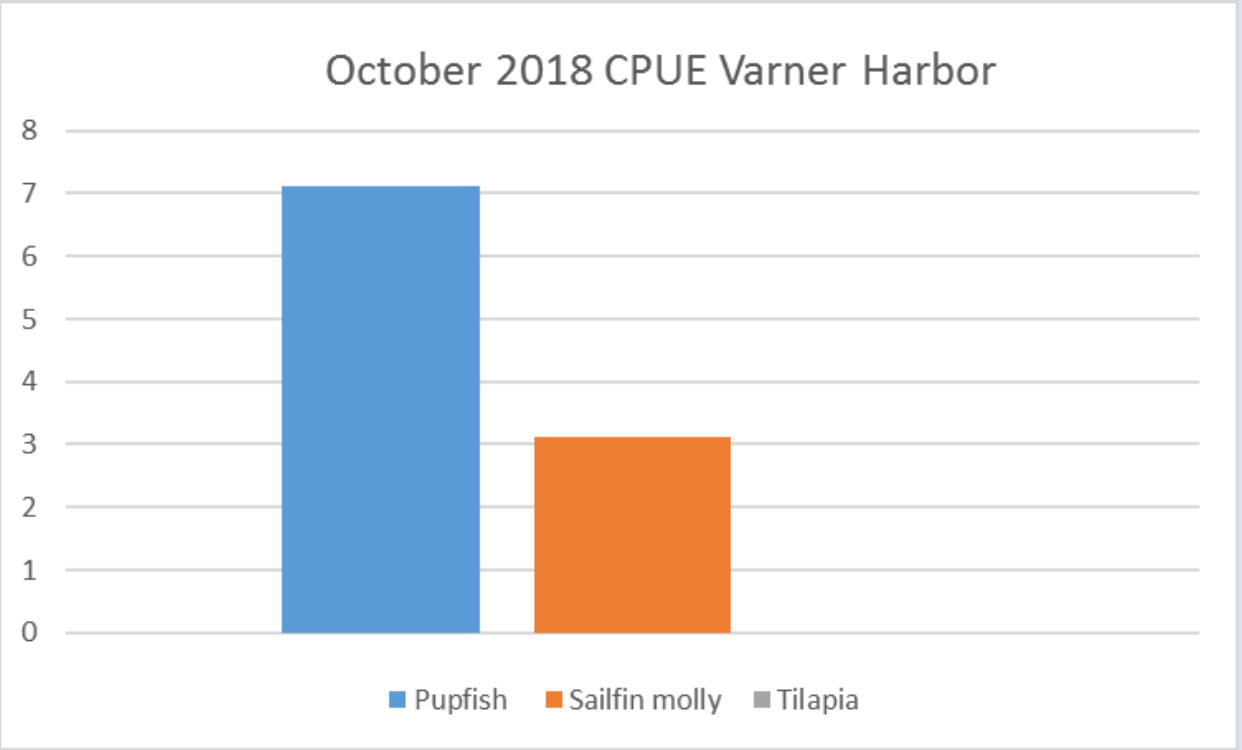
Threat: Invasive species: mosquitofish, sailfin molly, red swamp crayfish, etc.

Threat: Decreasing freshwater availability and increasing TDS in the Salton Sea


April 2018 CPUE Upper Salt Creek
3
2.5
2
1.5
1
0.5
0
Pupfish
Mosquitofish
Sailfin molly


June 2018 CPUE Upper Salt Creek (three sites)
50
45
40
35
30
25
20
15
10
5
0
Pupfish
Mosquitofish
Sailfin Molly


April 2018 CPUE Varner Harbor
14
12
10
8
6
4
2
0
Pupfish
Sailfin molly
Tilapia


October 2018 CPUE Varner Harbor
8
7
6
5
4
3
2
1
0
Pupfish
Sailfin molly
Tilapia

Gambusia affinis
Mosquitofish

Poecilia latipinna
Sailfin Molly

Physiological tolerance: upper temperature/salinity acclimation, which species is best positioned to acclimate to abrupt changes?

Cyprinodon macularius
Desert Pupfish

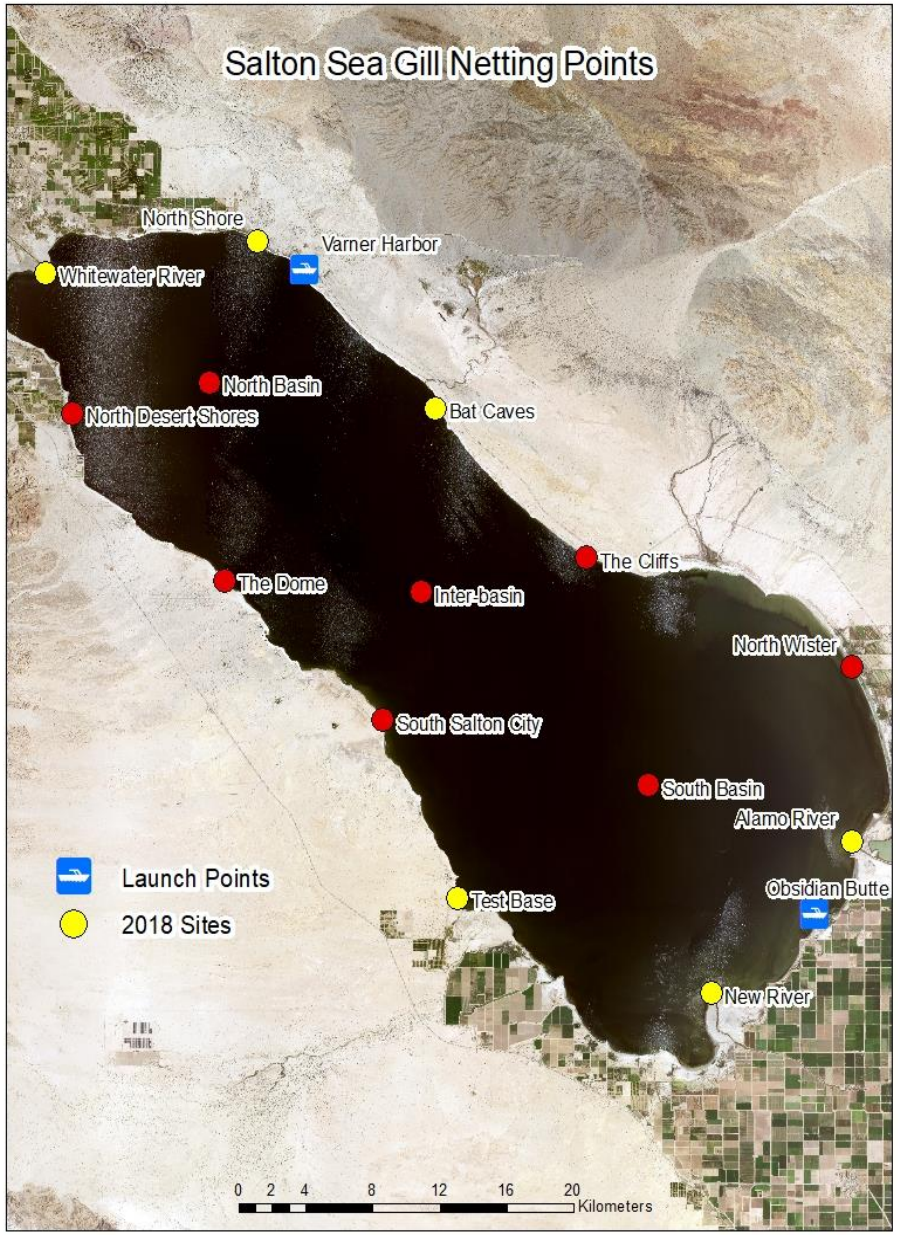
Power Point Web Photos

Salton Sea Other Fishes: Tilapia

Oreochromis mossambicus x O. urolepis hornorum

Photo by Nasseer Idrisi - CDFW

Salton Sea Gill-Netting Sites



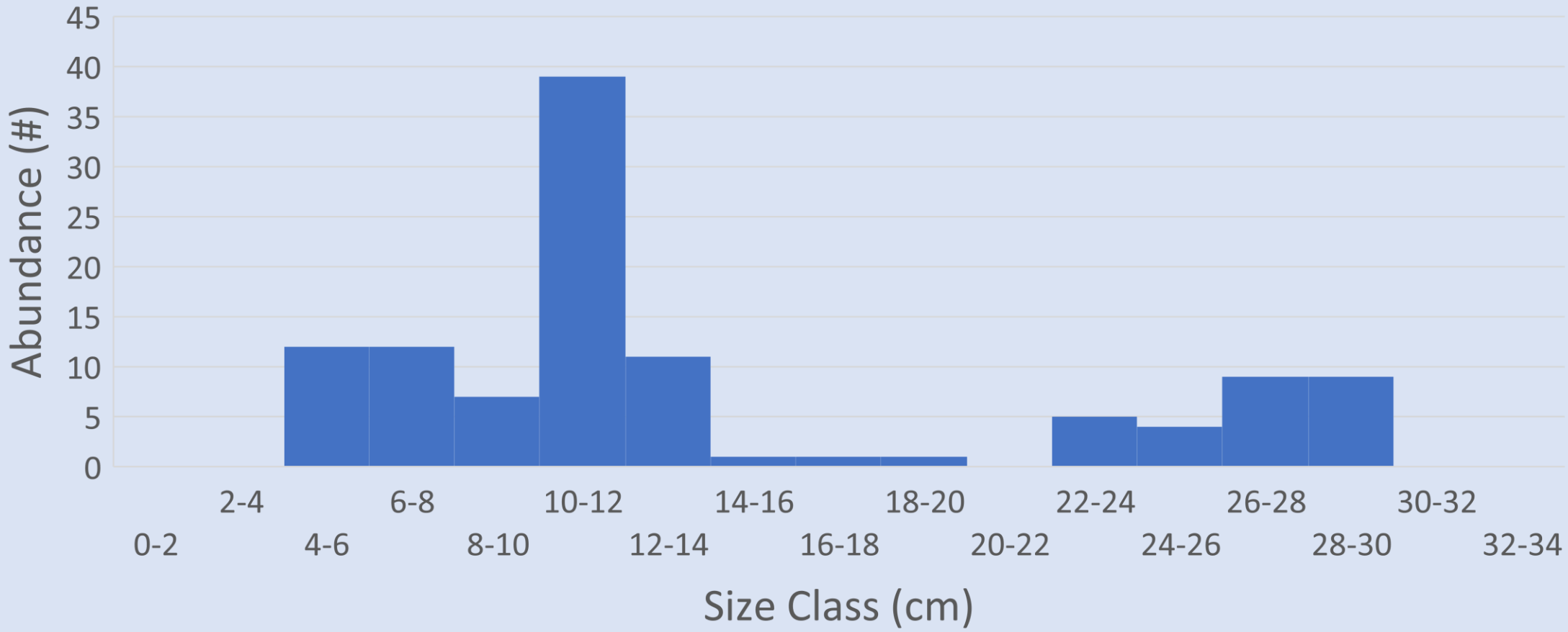
® Google Earth

Salton Sea Tilapia

Catch per Unit Effort 2003-08, 2017&18

Year	Tilapia CPUE
2003	1.14
2004	7.23
2005	10.85
2006	10.05
2007	14.63
2008	27.01
2017	1.12
2018	0.45

Salton Sea Tilapia Size Structure (2018)



CONCLUDING REMARKS

Salton Sea nutrients are tending towards favoring nitrogen-fixing cyanobacteria, TDS is currently >60 g/L, average seawater is 35 PSU.

Desert pupfish population in Salt Creek appears to be stable/trending downward due to invasive species and detrimental changes in water quantity and quality impacting the population. Most *C. macularius* populations in the Salton Basin are trending downward.

Increase in salinity and reduction in freshwater flow into the Salton Sea may be responsible for the current reduction in the fish community present at the Sea.


QUESTIONS??