

California Gulls at Mono Lake



Ryan Burnett, SWRCB Workshop 6/25/2026

California Gull Facts

- Highly adapted to breed on inland (saline) lakes in Great Basin
- Unique adaptations to feed on brine shrimp & flies
- 4 years to reach breeding age, typical lifespan – 20 years
- State bird of Utah
- Famously credited with saving settlers crops in 1848 by consuming katydid plague in Utah



California Gull Population

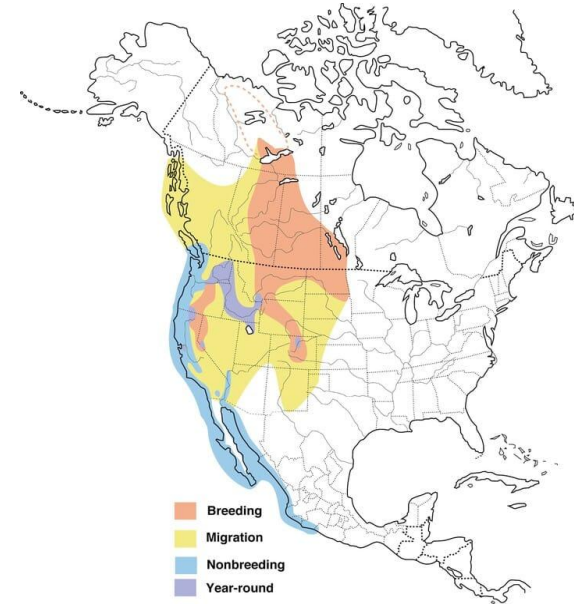
World breeding population estimated at ~400,000 birds

Two Subspecies (*californicus* & *albertaensis*)

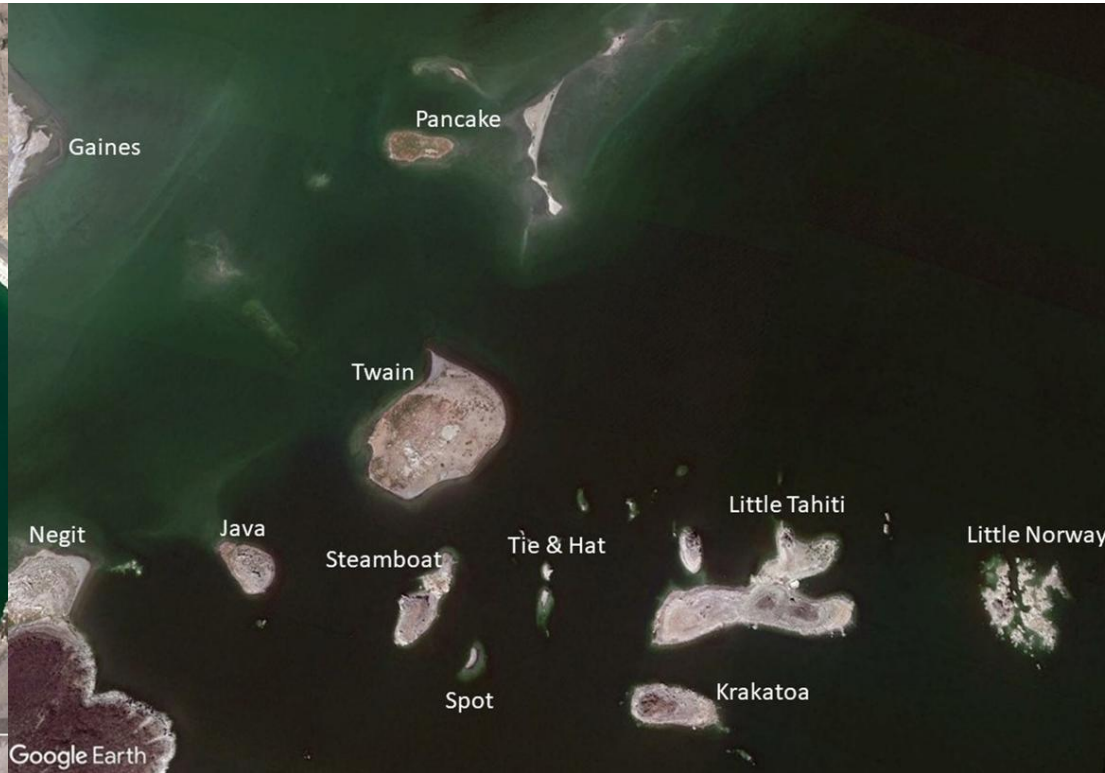
Mono Lake- 21,000 birds today was 45,000 30 years ago

Great Salt Lake area population ~140,000

South S.F. Bay population – 200 in 1980, ~50,000 in 2020



Mono Lake California Gulls



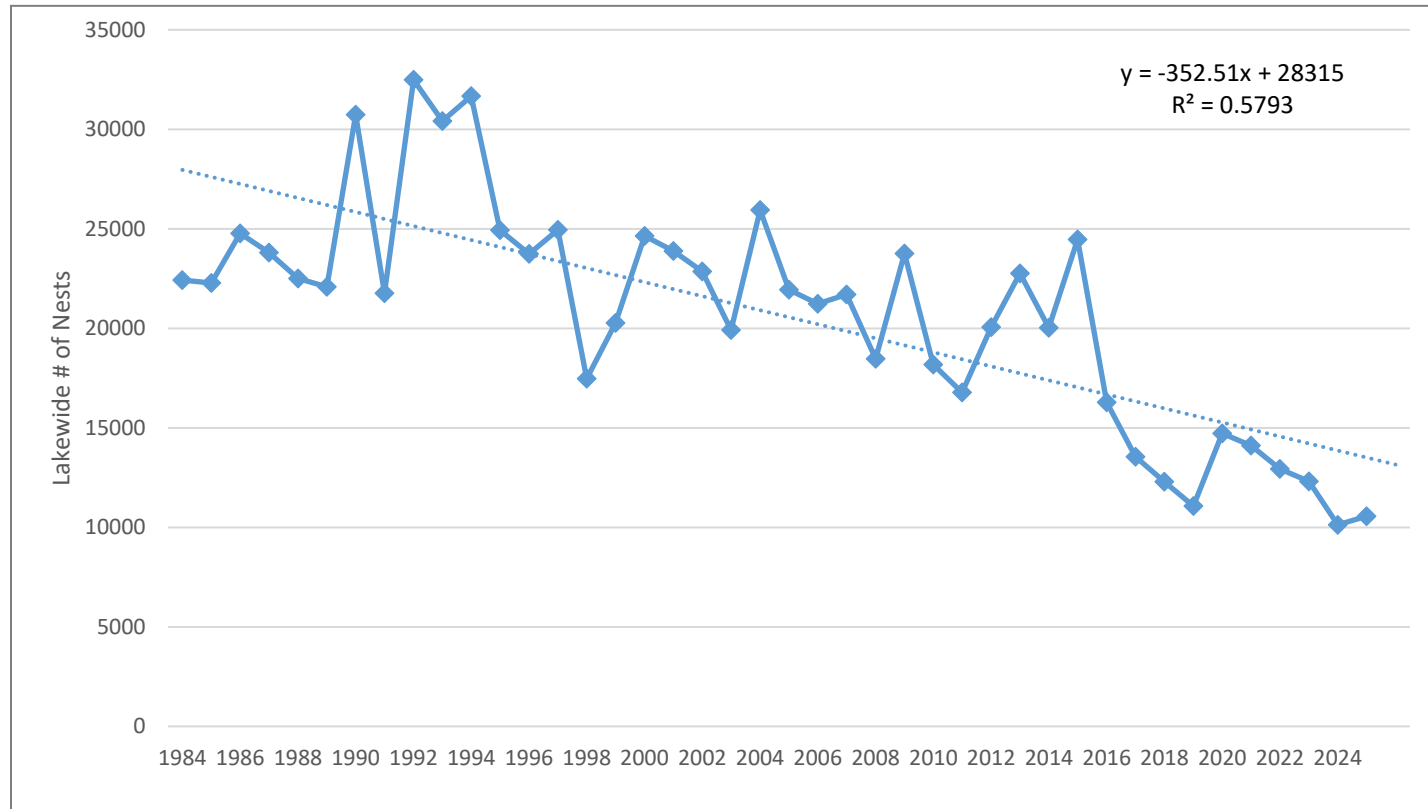
Mono Lake California Gull Study

- 1983 – present
- Total breeding population, # of Chicks/nest
- Historically ground based counts
- 2020 completed transition to aerial imagery
- Machine learning used to assist nest counts

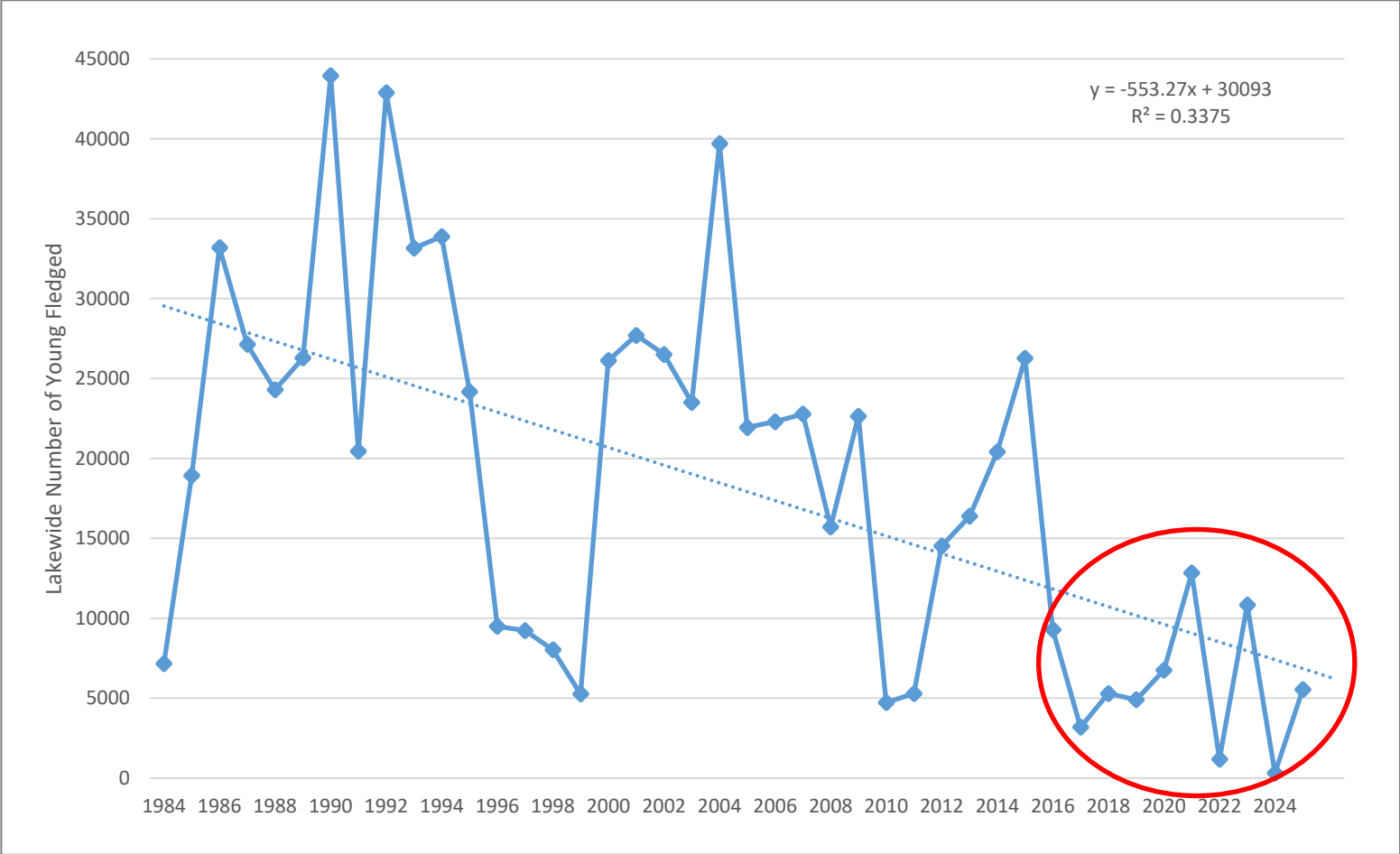


Mono Lake Gull Population in Decline

Average loss of 353 nests per year



553 Fewer Young Fledging Per Year



Factors Influencing Nesting Population

From Wregge et al. 2006

Study Period: 1987 - 2003

4 Factors explained 80% of Variance in Nesting Gull Numbers

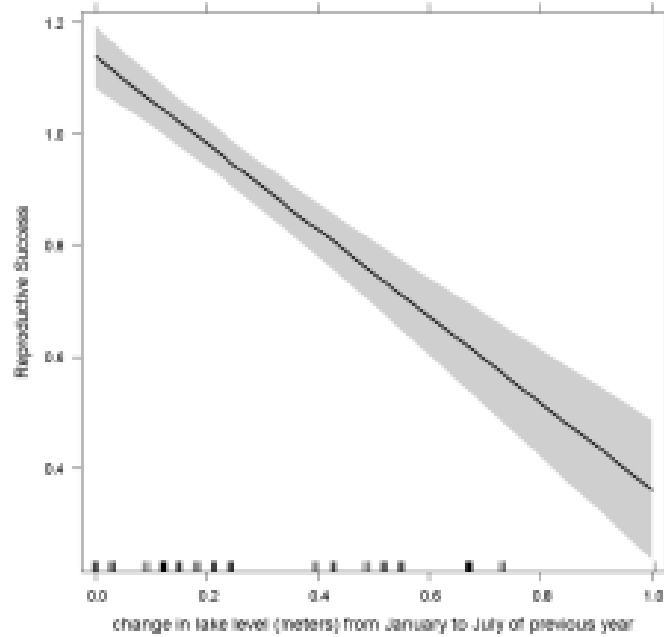
- Density of bring shrimp around egg laying (+)
- Mean temperature month before egg-laying (+)
- # of potential 4 year old gulls returning to breed for first time (+)
- Winter coastal conditions (previous Fall)

Factors Influencing Chick Production

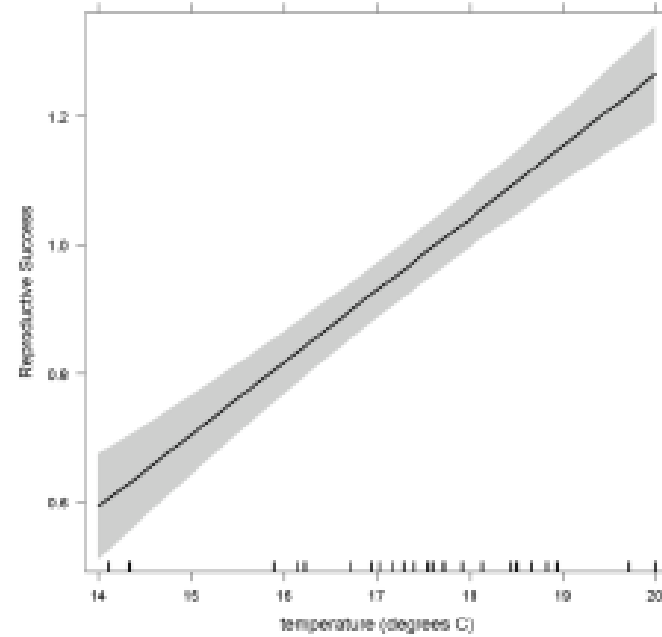
From Nelson, Roberts, Shuford & Burnett 2013

- 2 Variables explained 46% of variance in chicks produced per nest
- **Lake level increase prior year (-)**
- **April – May High temperatures (+)**
- Winter ocean conditions & bring shrimp density less important
- Freshwater inputs influence shrimp populations
- Flies not considered (lacking time series data)

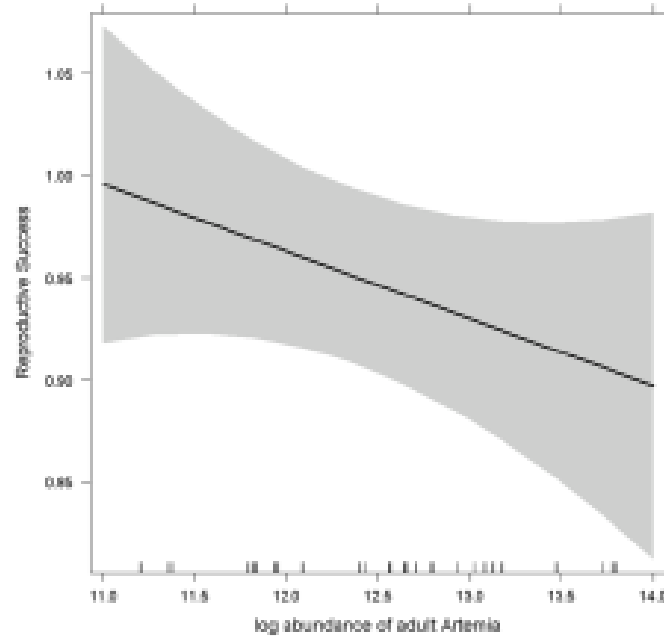
Lake Level Change in previous year



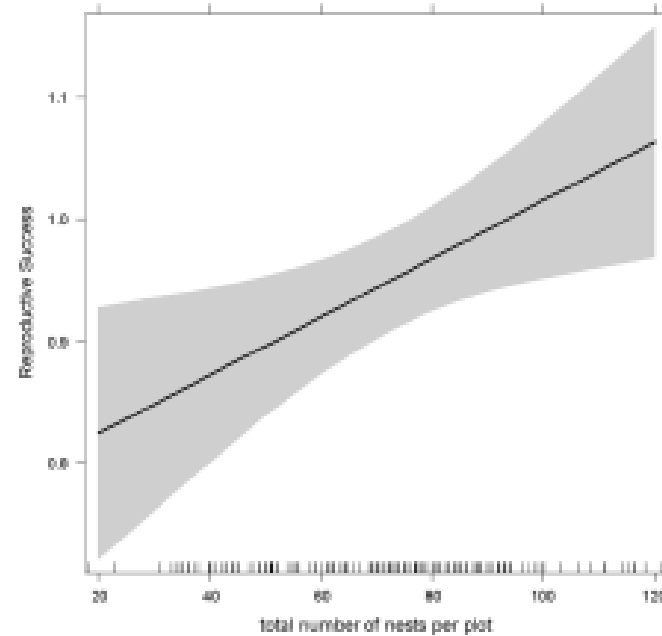
April/May average high temperature



Artemia log abundance (early spring)



Number of nests



Terrestrial Predators Are A Threat

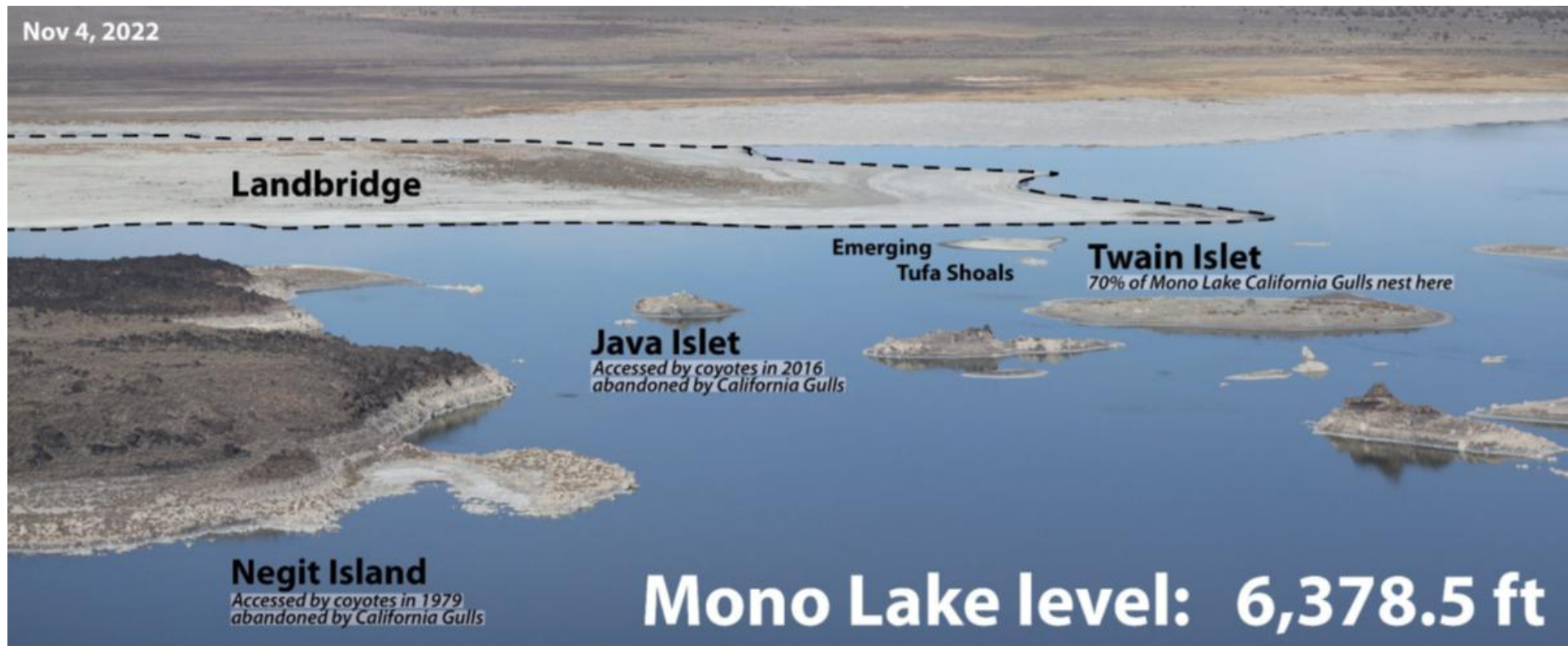
“Nesting islands secure from predators and human disturbance are nesting gulls’ greatest need” – Shuford & Ryan 2000.

- Negit supported majority of gull nests until 1979
- Land bridge connected Negit to mainland in late 1970’s
- Coyote’s raided colony multiple years in late 1970’s until it was abandoned
- Colony moved to Negit Islets (primarily Twain in early 1980’s)



Terrestrial Predators are Greatest Threat

- 70% of population nested on Negit Island until Coyotes accessed in late 1970s
- 2016 coyote evidence on Negit & Java, suspected presence on Twain (6378)
- Java- 439 nests in 2015, 60 nests in 2016, 0 from 2017-2023
- Accessed Negit by wading/short swim, swam at least 200 yards to Java
- Once they figure it out incentive to come back is great
- Once Negit islets are accessible there is no where left to go



Great Salt Lake Population Imperiled

- Largest Breeding Population ~100,000 – 150,000 birds
- No formal census in recent years
- 25% of world breeding population
- Lost 70% of its volume in last
- Climate-change, drought, water diversion threaten ecosystem collapse

Utah's Shrinking Salt Lake



South S.F. Bay Population

50,000 breeding birds

Population exploded after Negit Island colony abandonment in 1980

Using artificial salt pond habitat/land fills

Threat to Least Terns, Western Snowy Plover, and many other birds

Salt pond habitat is being converted to tidal marsh – gulls being displaced



If Not Mono Lake, then Where?



“In addition to its increasing [Bay Area] numbers, the California Gull was not included on the current [Bird Species of Special Concern] list because the main threat to the breeding population was reduced by a state water board order that will maintain lake levels at Mono Lake that will protect the state’s largest colony from ground predators....” -Shuford & Gardali 2008. California Bird Species of Special Concern