

A California Gull is shown in profile, facing left. It has a white head and neck, a yellow beak with a red tip, and a red eye. The bird is standing on a nest made of rocks and twigs. Two white eggs are visible in the nest. The background is a blurred, rocky landscape.

California Gull Population Growth and Response to Pond A6 Breach

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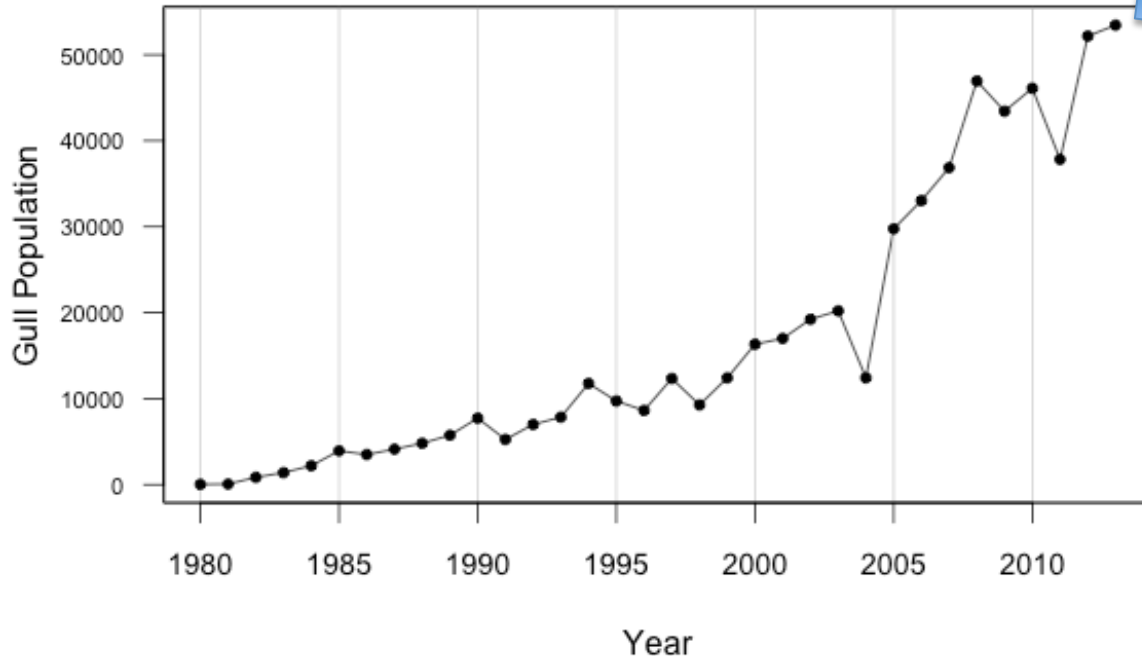


SAN FRANCISCO BAY
BIRD OBSERVATORY

What's the story with all those gulls?

South Bay California Gulls from 1980-2013

53,448 California Gulls in 2013



- Assess changes in California Gull abundance
- Review ecological impacts of gulls
- Gull response to 2010 breach at Pond A6



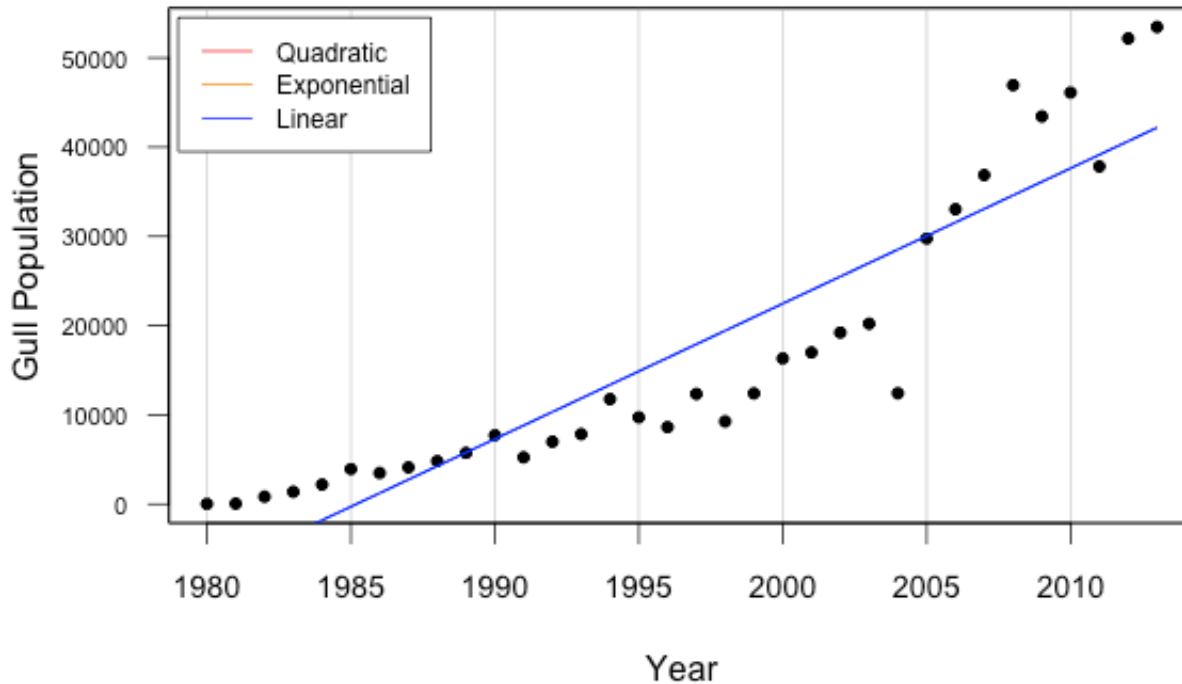
- 15 colonies in South Bay since 1980, 10 still active today
- SFBBO has been surveying these colonies since 1980
- Largest colony (through 2010) was at A6 – over 23,000





Characterizing California Gull population growth:

South Bay California Gulls from 1980-2013



$R^2 = 0.83$

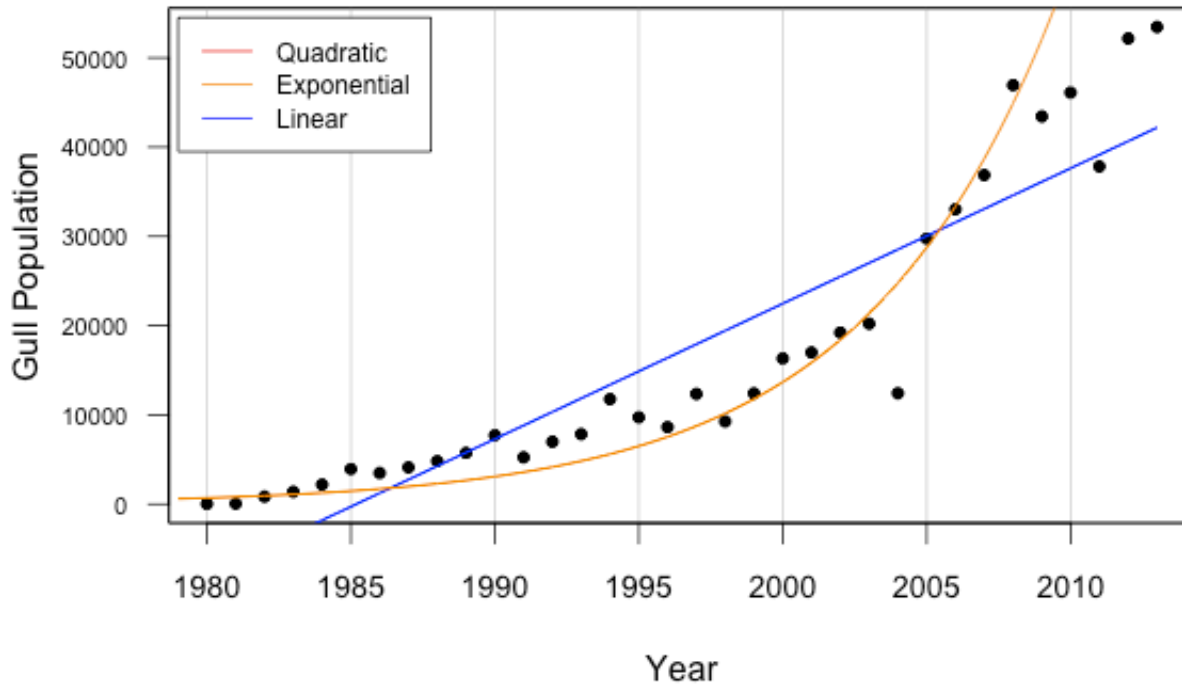




Characterizing California Gull population growth:

South Bay California Gulls from 1980-2013

$R^2 = 0.74$



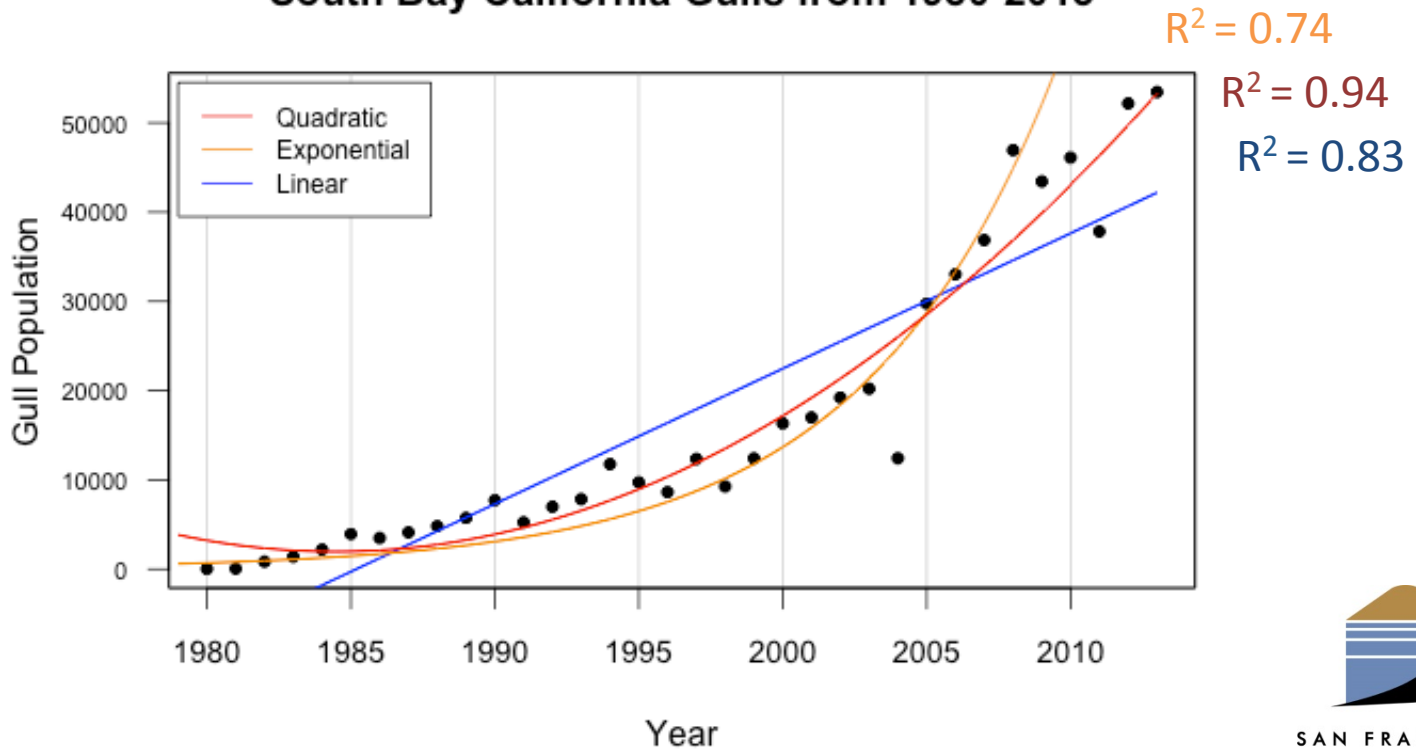
$R^2 = 0.83$





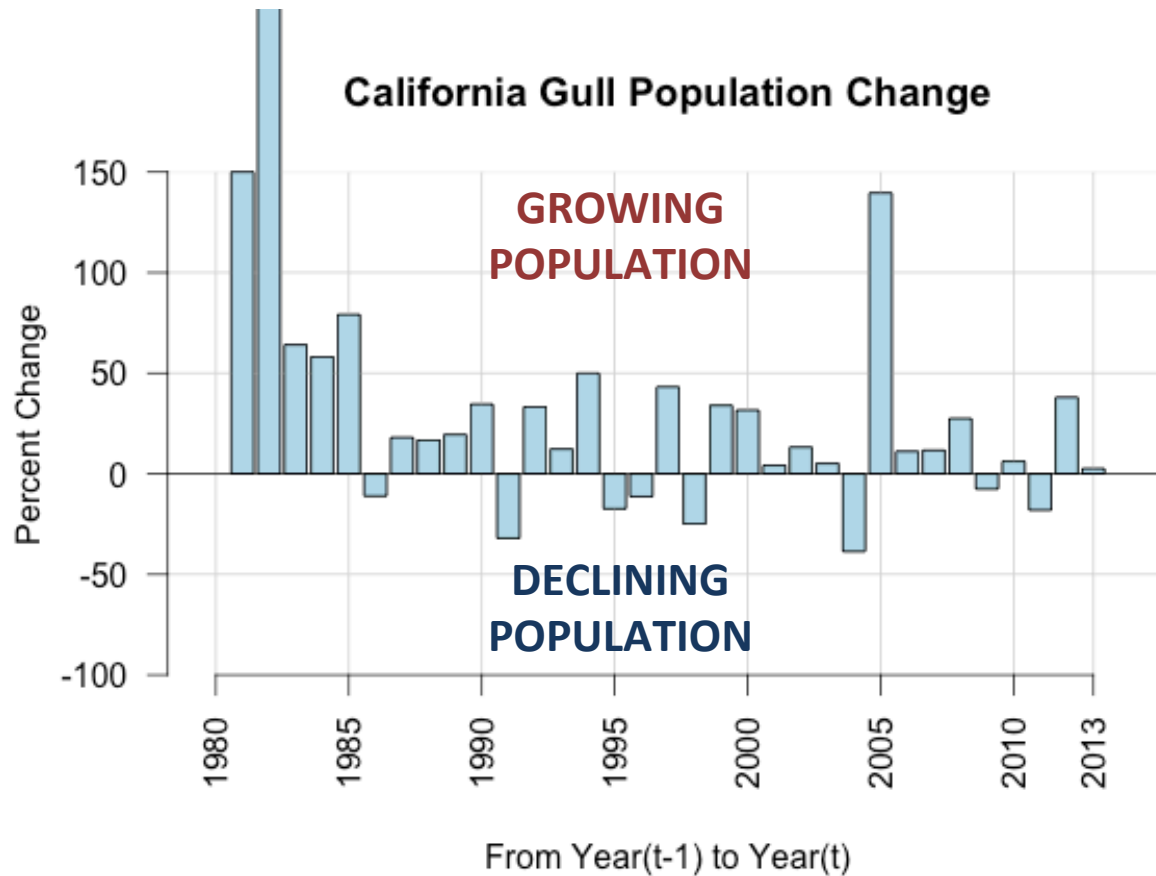
Characterizing California Gull population growth:

South Bay California Gulls from 1980-2013



Rates of population change

- Very rapid *rates of change (%)* in early 1980s followed by gradually declining rates of growth

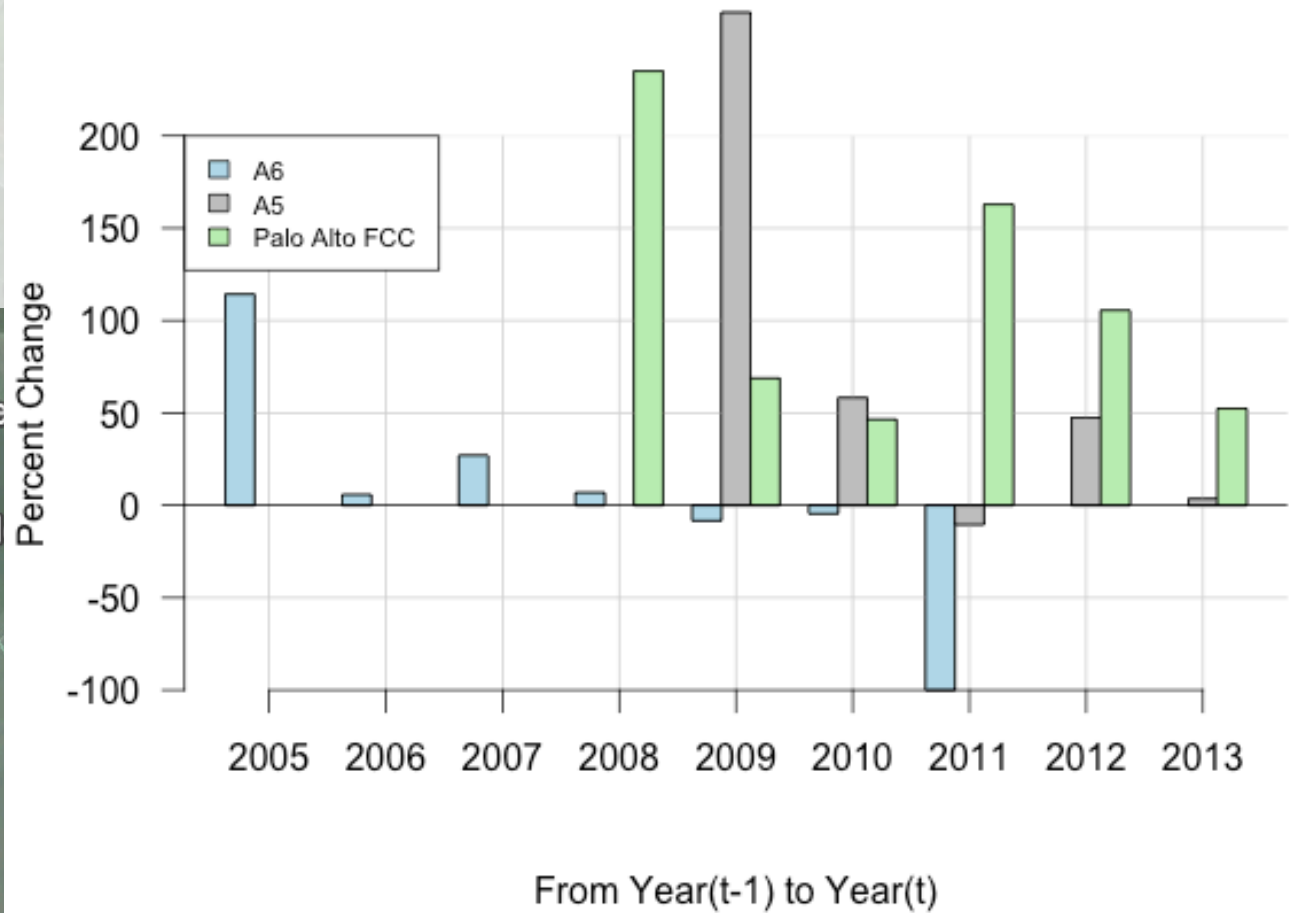


- Though % change is lower now, observed changes in gull numbers are still considerable (a small % of a large number still adds a lot of birds!)



Photo: K. Vylet

Differences between colonies



Year	A6	A5	PAFCC
2010	23108	174	1704
2011	0	156	4478
2012	0	230	9200
2013	0	238	14014

Why such a dramatic increase in gull numbers?



- Emigration? Little evidence for this
- Food availability? Increased access to food at landfills and elsewhere a likely factor
- Climate – Pacific Decadal Oscillation; ENSO; sea surface temperatures
- Further research needed, particularly on gull nest success



Summary: Population growth

- The South Bay gull population has **increased rapidly** over the past three decades
- **Colony growth varies** from colony to colony but most are growing quickly
- The *rate* of growth (% per year) is **slowing gradually**
- **A6 Breach displaced the largest colony** in the South Bay, and caused movement of thousands of gulls



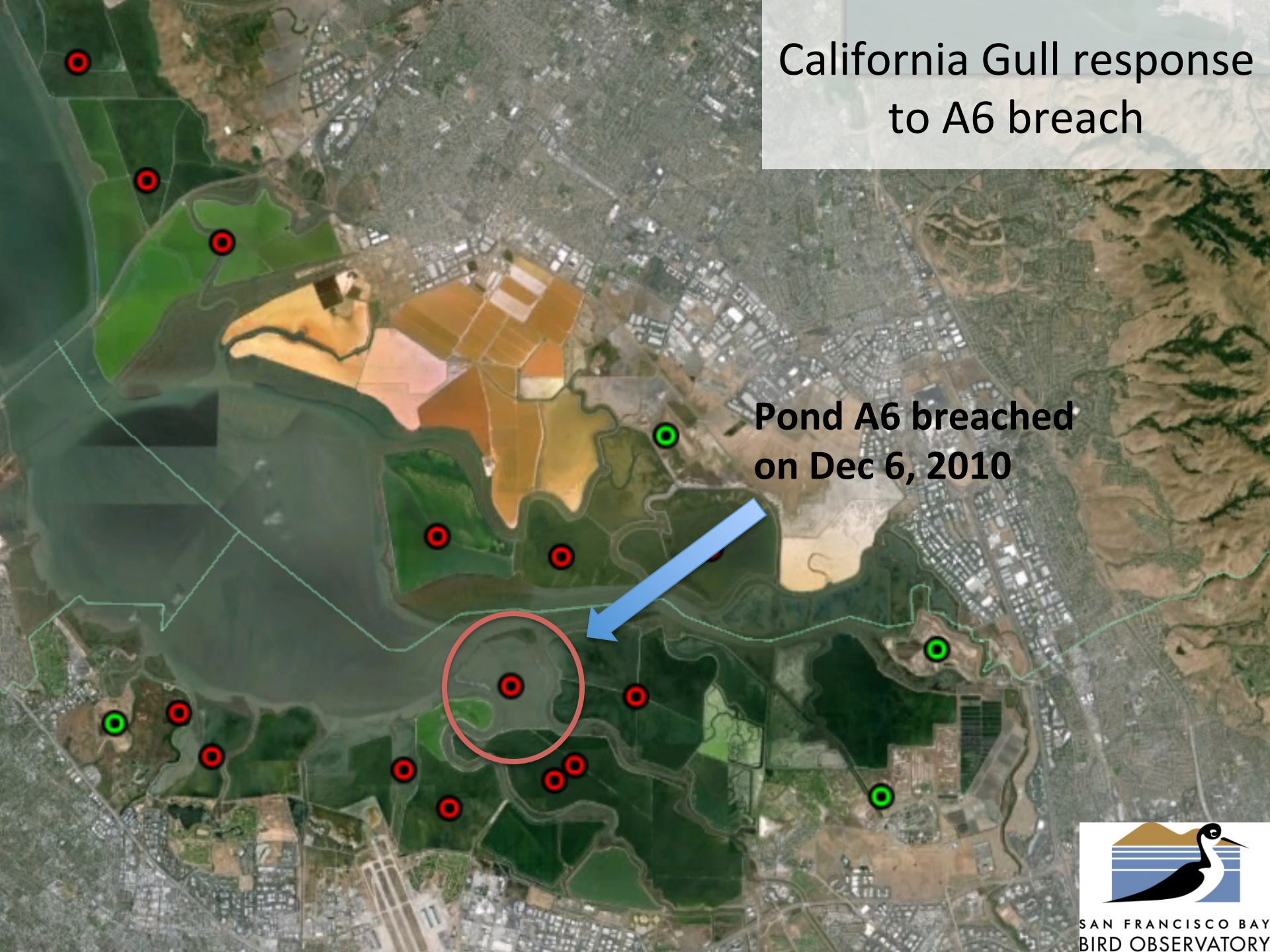
What does this mean for other bird species?



- Studies by SFBBO and others show negative ecological impacts of gulls through nest and chick predation and colony encroachment
- Higher gull numbers likely mean lower survival and reproduction for species like the Forster's Tern, American Avocet, Western Snowy Plover

California Gull response to A6 breach

Pond A6 breached
on Dec 6, 2010



California Gull response to A6 breach

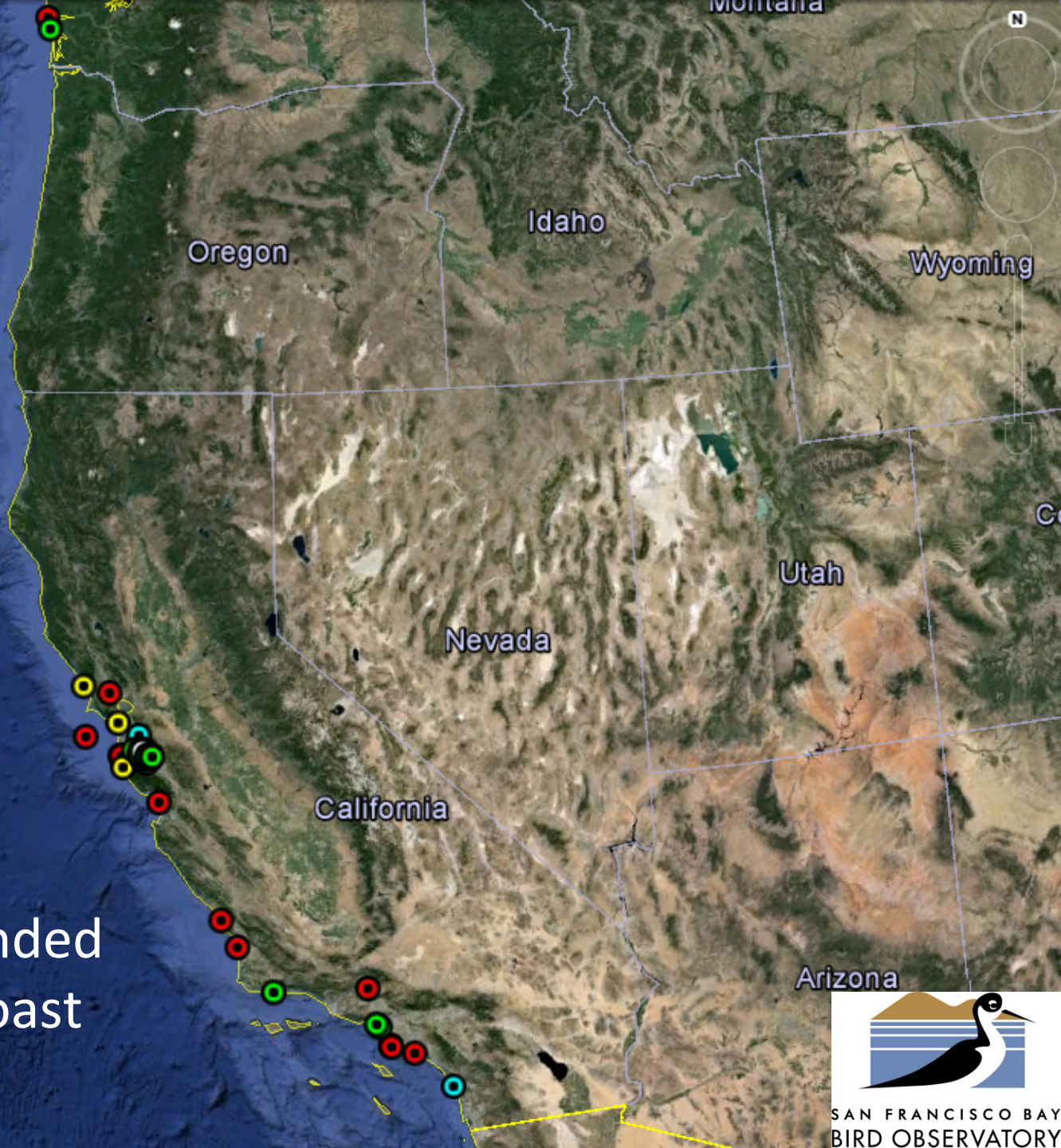
- SFBBO banded gulls at A6 prior to the breach
- We conducted resight surveys to determine movements following breach
- Followed movements of 1307 banded gulls sighted at A6 from 2008-2010 breach; assessed resight data through June 2013
- 134 banded gulls seen after breach (169 sightings) at 50 locations



Photo: K. Vylet

- 2011
- 2011-12
- 2012
- 2012-13
- 2013
- 2011-2013

Resightings of banded A6 gulls: West Coast



Resightings of banded A6 gulls: South Bay

- 2011
- 2011-12
- 2012
- 2012-13
- 2013
- 2011-2013

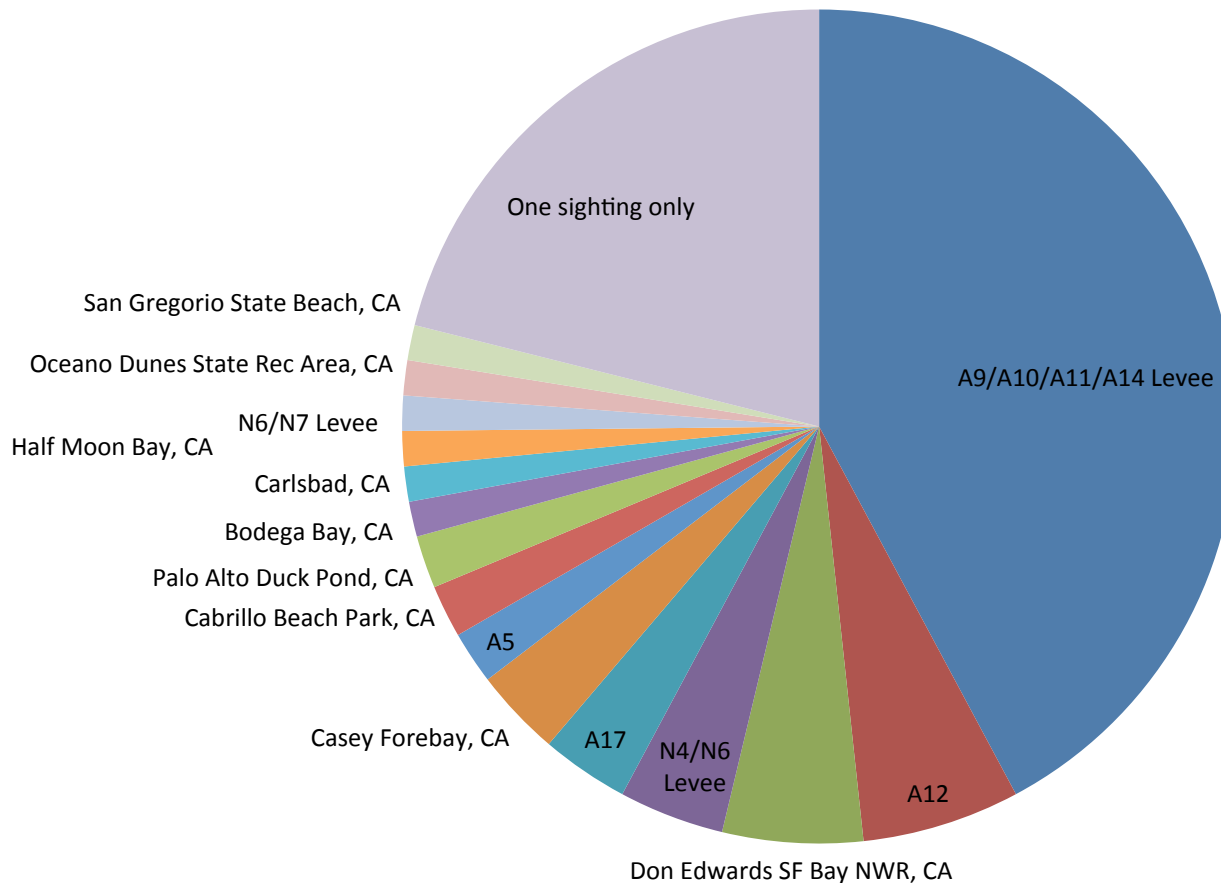


Image Landsat
Image © 2013 DigitalGlobe

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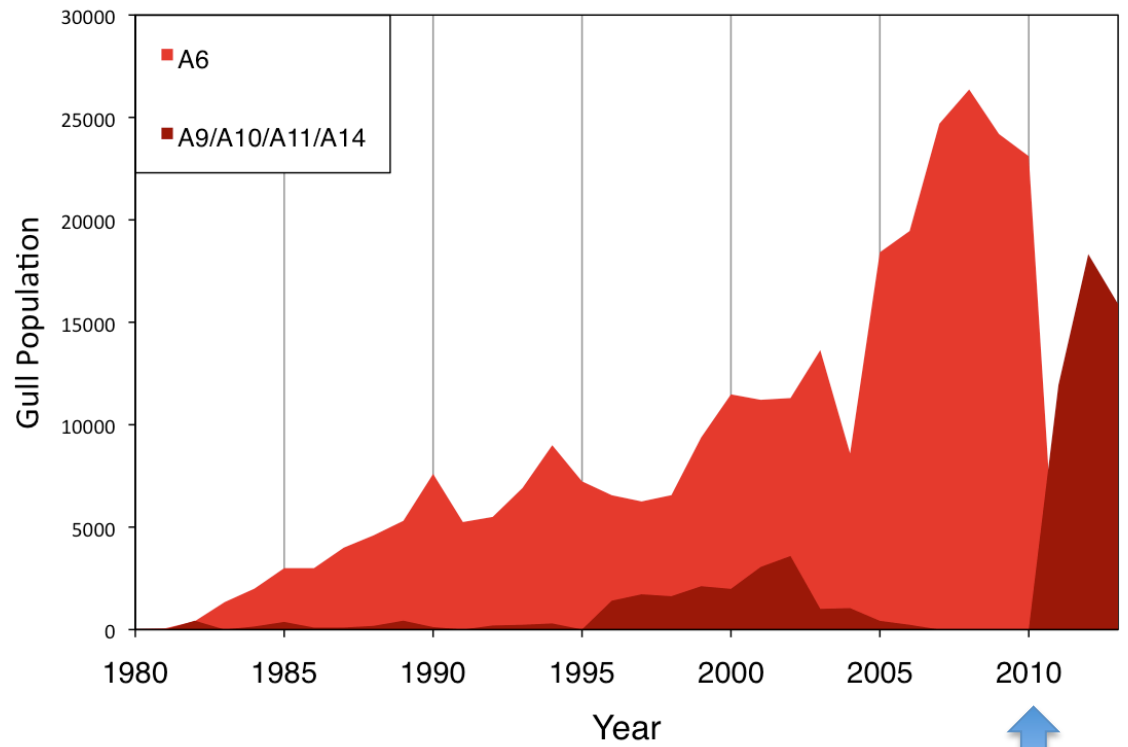
Google earth

Number of CAGU Resights by Location (2011-2013)

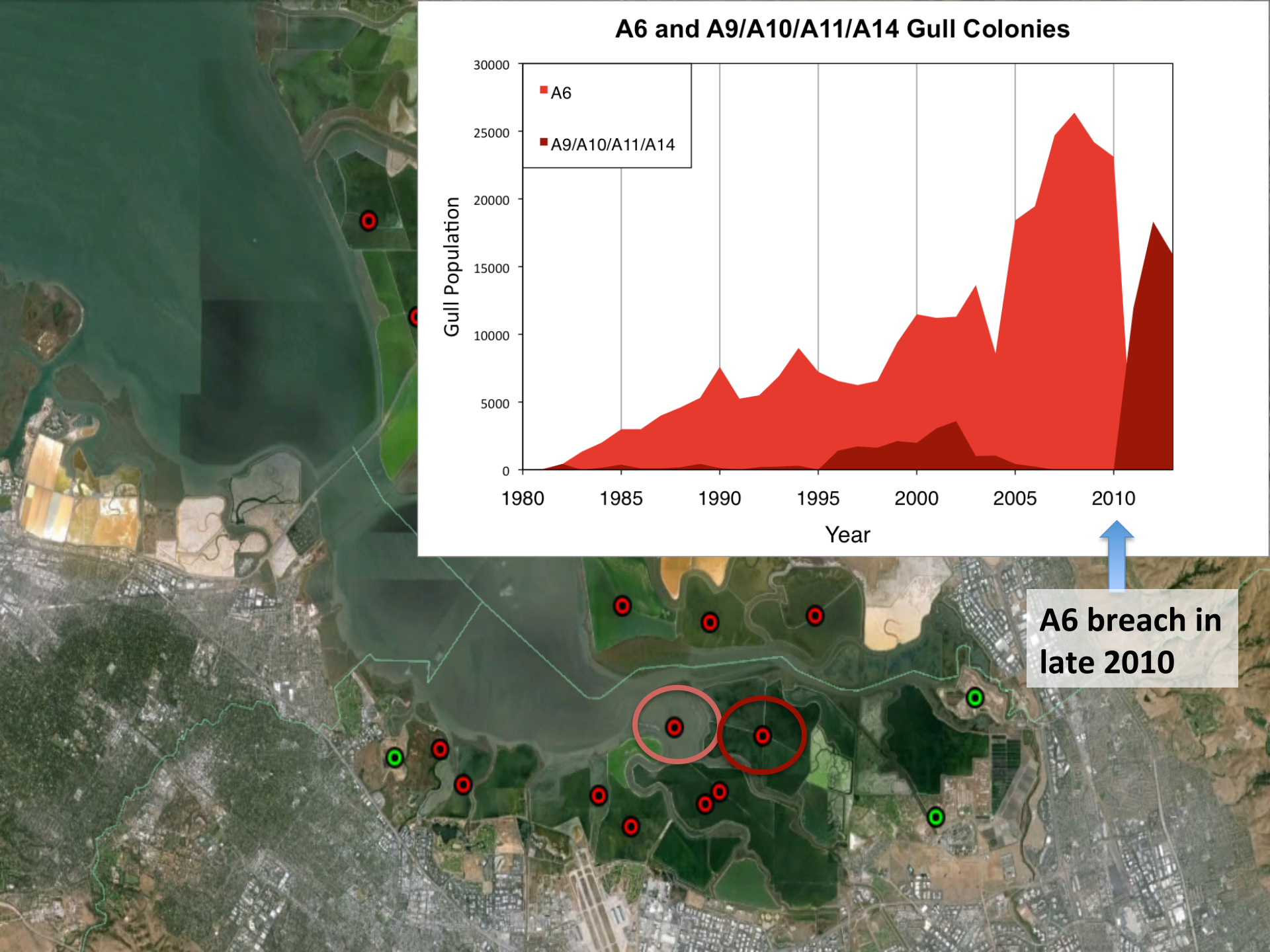


- Many gulls were resighted at adjacent ponds in Alviso (62 sightings, 42%)
- Most other locations had 1-2 sightings
- The colony adjacent to A6 grew rapidly after the breach

A6 and A9/A10/A11/A14 Gull Colonies



A6 breach in late 2010



Summary:

Gull response to A6 breach

- Birds found at A6 prior to the breach were resighted all over the west coast during 2011-2013
- The majority of sightings were at a nearby location in Alviso
- Growth at this colony was rapid in the years following the breach
- In the year following the breach (2011), growth of the gull population slowed, but rebounded with a nearly 40% increase the next year



Photo: K. Vylet



Many thanks to...

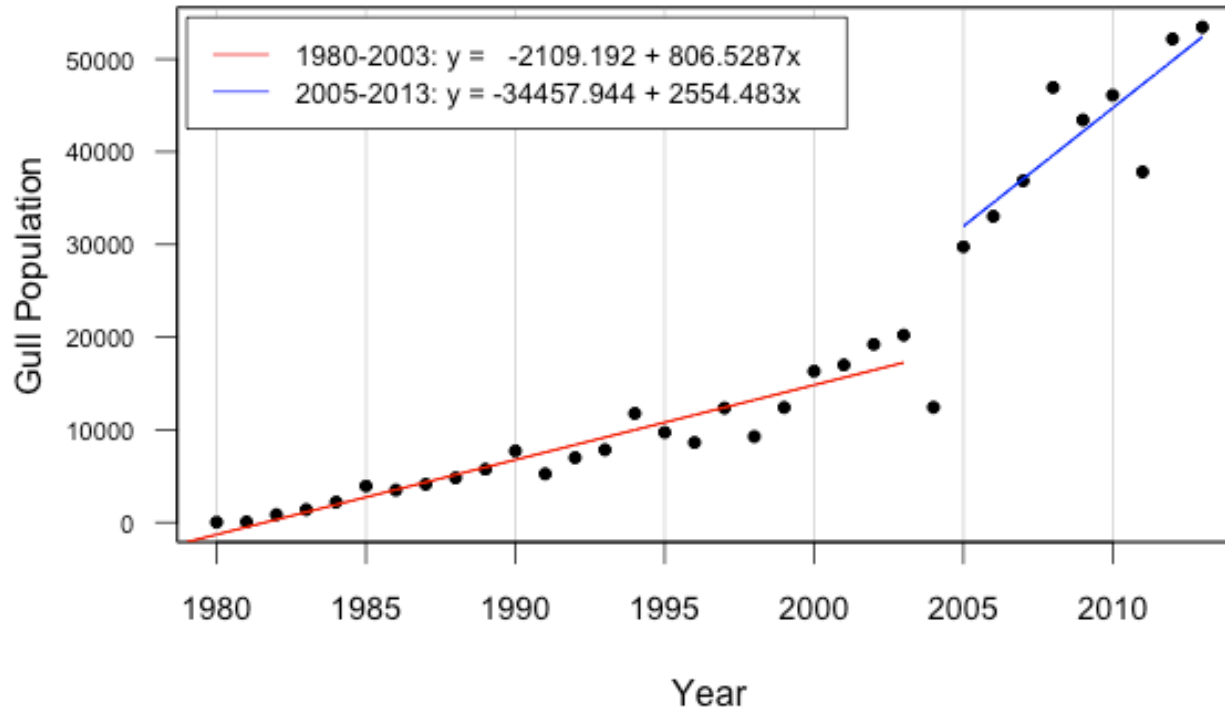


- SFBBO's donors, who have financially supported this work since 1980, Resources Legacy Fund
- Countless SFBBO staff members, volunteers, and student interns who conducted the surveys
- Partners at SBSRP, USFWS, USGS, CDFW and many other landowners and managers



SAN FRANCISCO BAY
BIRD OBSERVATORY

South Bay California Gulls from 1980-2013



- Moderate increase in abundance from 1980-2003 (806 gulls/yr)
- Rapid increase in abundance after 2004 (2554 gulls/yr)



- 2011
- 2011-12
- 2012
- 2012-13
- 2013
- 2011-2013

Resightings of banded A6 gulls: Bay Area

