

Observations of shoreline habitats and bird species richness associations in the central and north portion of Salton Sea, 2014-2024



- ***Monitoring bird populations and habitats at the Salton Sea during the sea's transformation is a vital part of best-practices in conservation management of the Salton Sea in a regional context.***



Figure 1. Huge numbers of Eared Grebes at the Salton Sea, February 1992.

Robert McKernan and Chet McGaugh
Oasis Bird Observatory

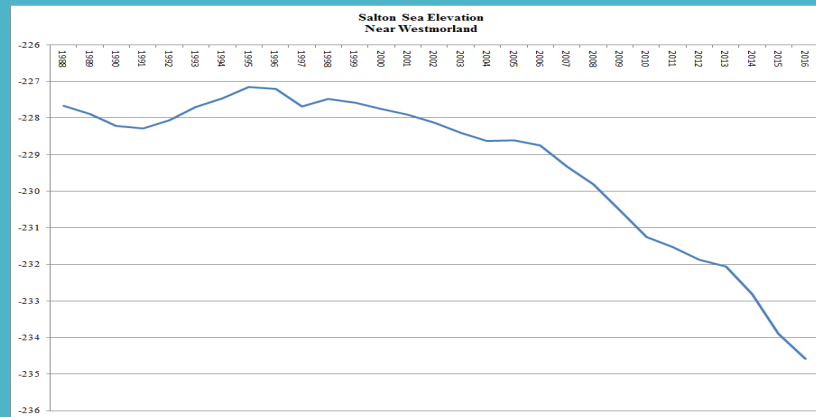


Figure 1. Oasis Bird Observatory Salton Sea survey locations

Locations of weekly surveys- Eastside: A = north North Shore, B = North Shore, C = State Recreation Area, D = Salt Creek. Westside: E = 81st Ave., F = 83rd Ave./84th Ave., G = 84.5th Ave./85th Ave.

Location of monthly surveys – Eastside: H = Hayes Road, Westside: I = Desert Shores.

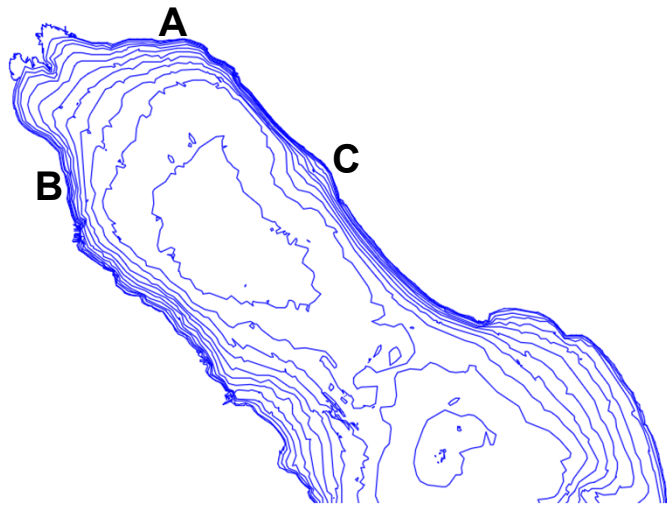
Observers: RM = Robert McKernan, CM = Chet McGaugh.



NET GAIN / NET LOSS OF SHORELINE HABITATS
AT SALTON SEA

**Effects of water levels receding and topographic variation
for waterbird habitats at NESS**

Bathymetric Contours
(5 foot) - Salton Sea
sounding points taken
by Bureau of Reclamation
Project 2007



Northeast shoreline, 2019 = A

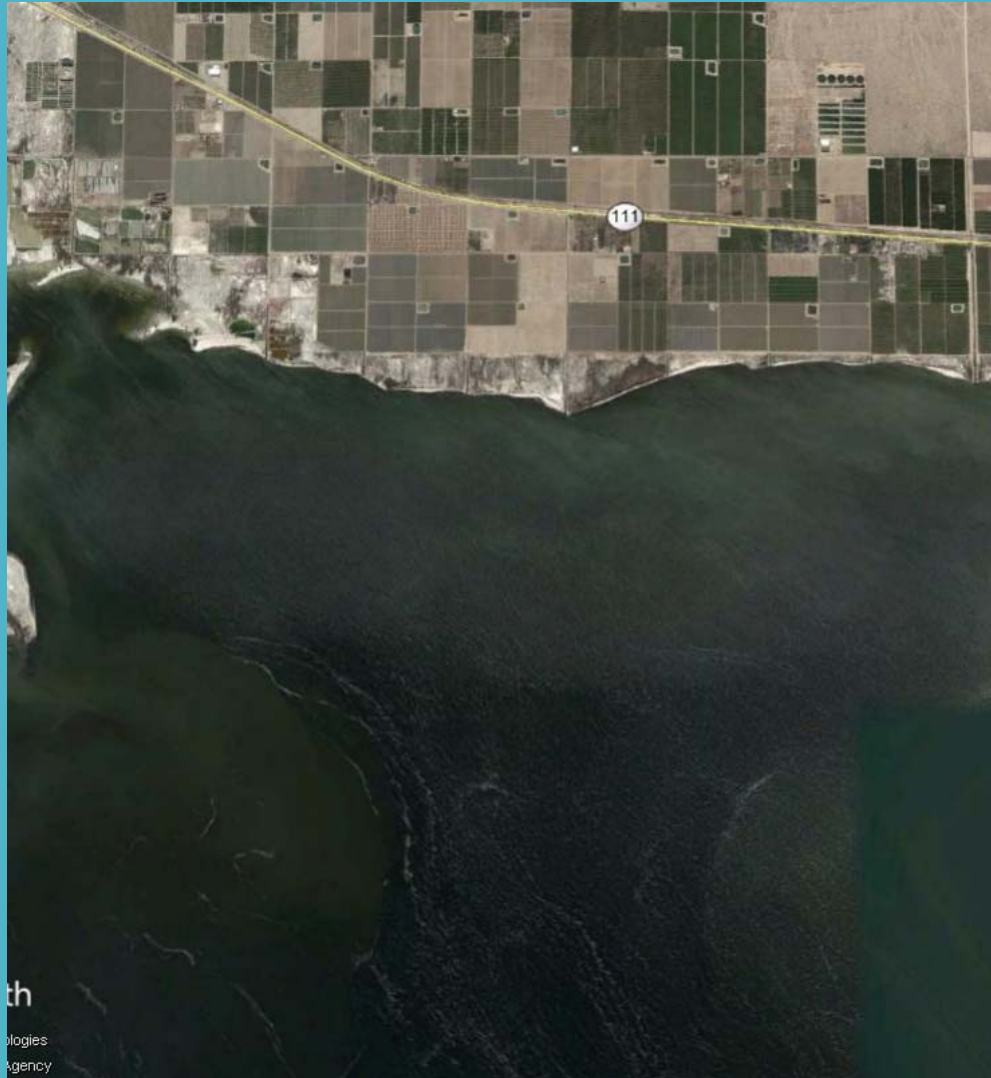


82nd Ave. shoreline, 2018 = B



Salt Creek shoreline, 2019 = C

Aug. 2005, northeast shoreline of Salton Sea



Sept. 2018, northeast shoreline of Salton Sea



Feb. 2008, Hayes St. drain



Sept 2018, Hayes St. drain



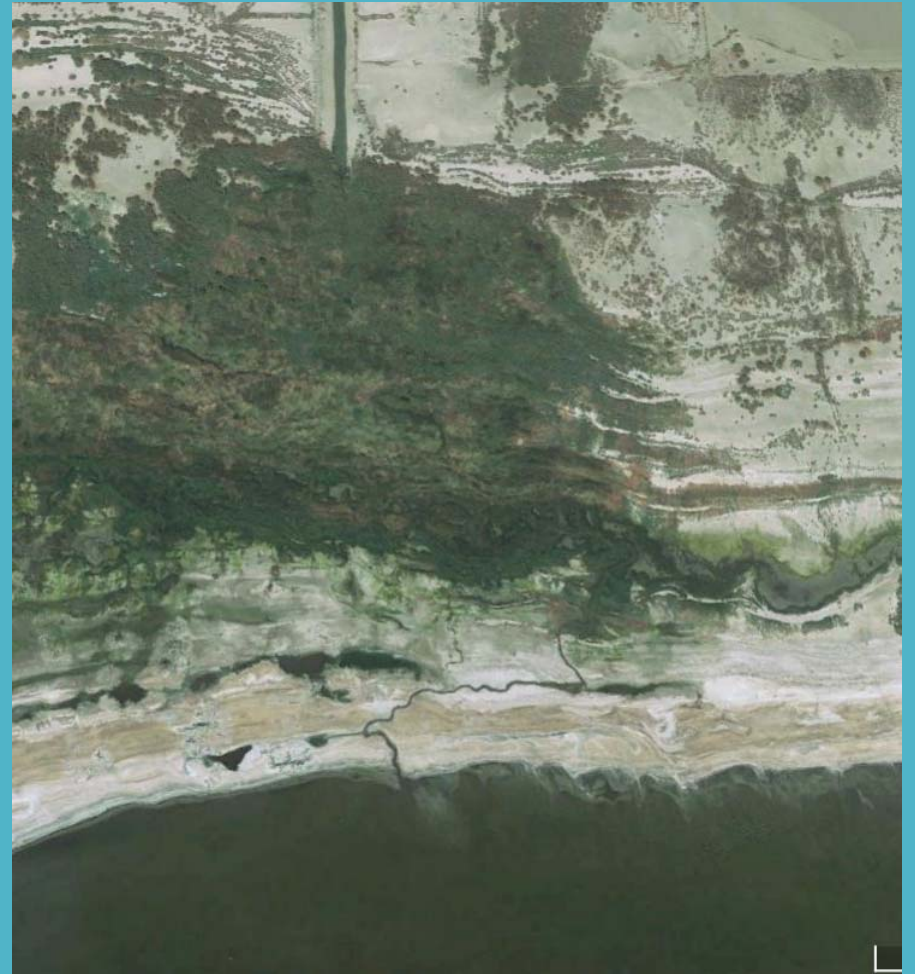
Nov 2018, in vicinity of Hayes St. drain



Colfax Street inflow drain



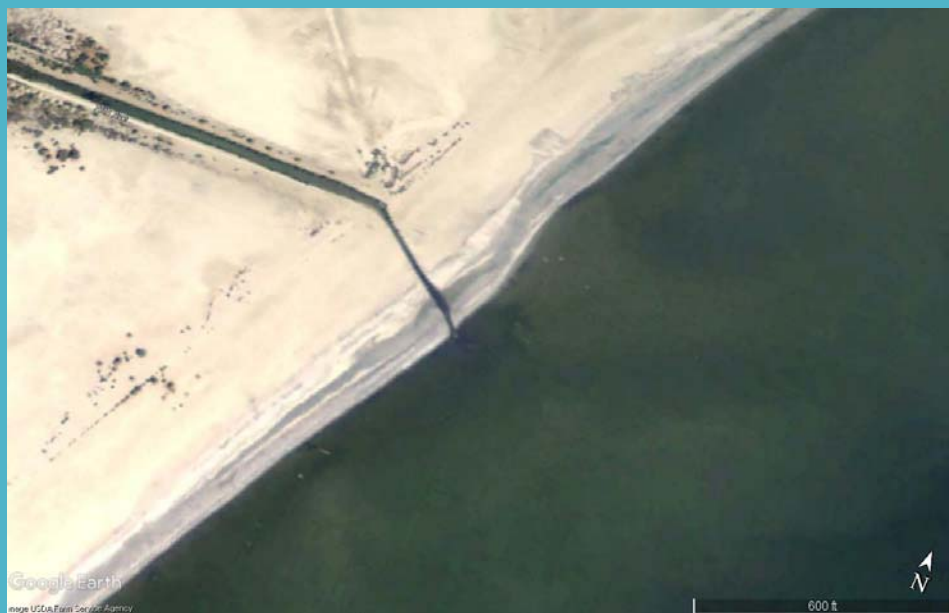
June 2009



September 2018

**Northeast shoreline: Garfield
St., Arthur St., Cleveland St.
inflow drains. 15 August 2018**





26 November 2010, 76th Ave inflow drain.

R. McKernan



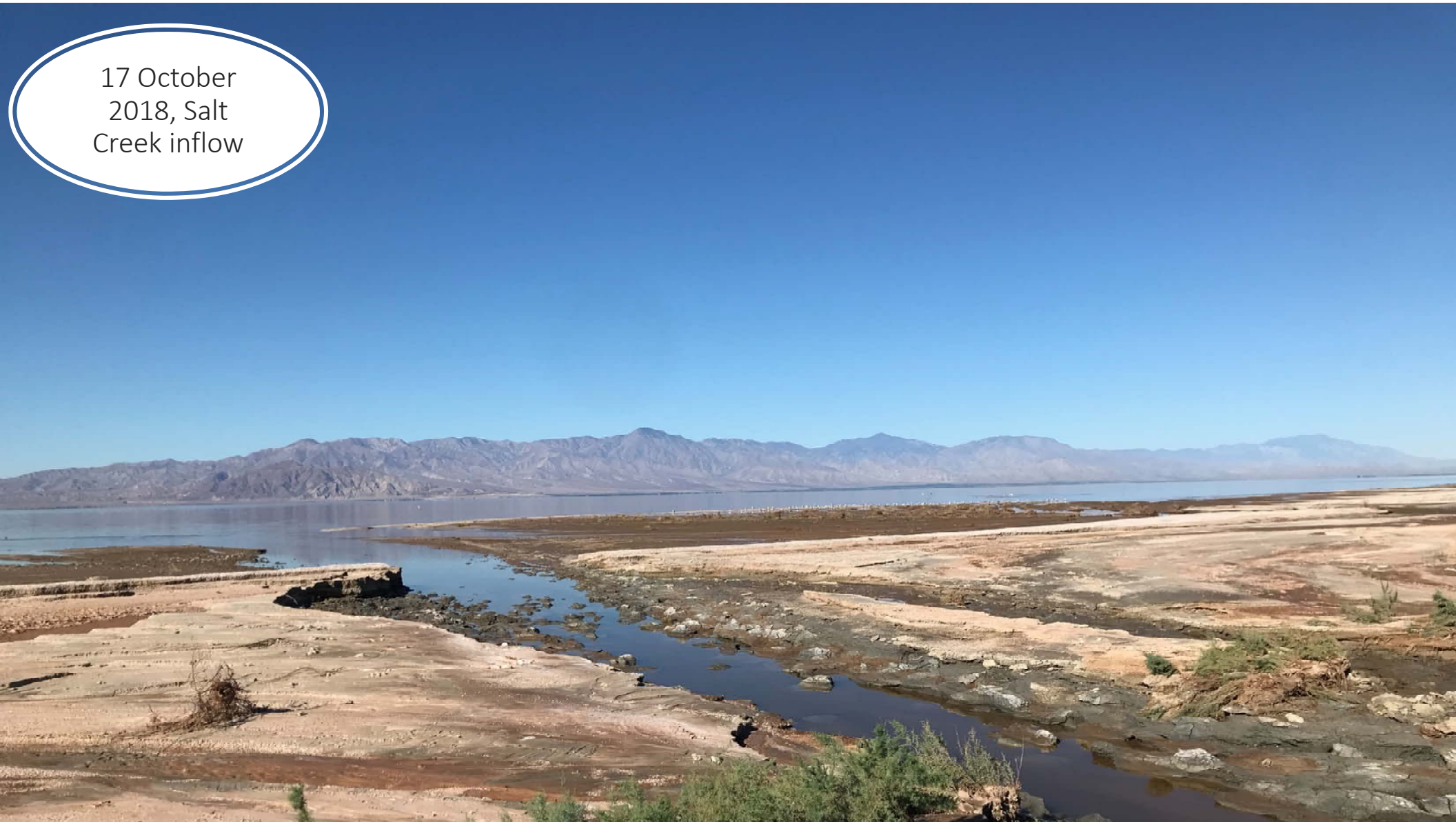
29 March 2019,
76th Ave. drain





Figure 4. An aerial view of the receding shoreline at Salt Creek along the eastern shore of Salton Sea, 22 November 2019. This aerial view of Salt Creek shoreline clearly indicates the shallow bathymetry nearshore combined with the receding Salton Sea has created significant shallow water habitats and widespread barnacle bars. Continued OBO surveys reveal that shallow bathymetry locations create wide-ranging suitable foraging habitat for waterfowl, wading birds and shorebirds.

17 October
2018, Salt
Creek inflow

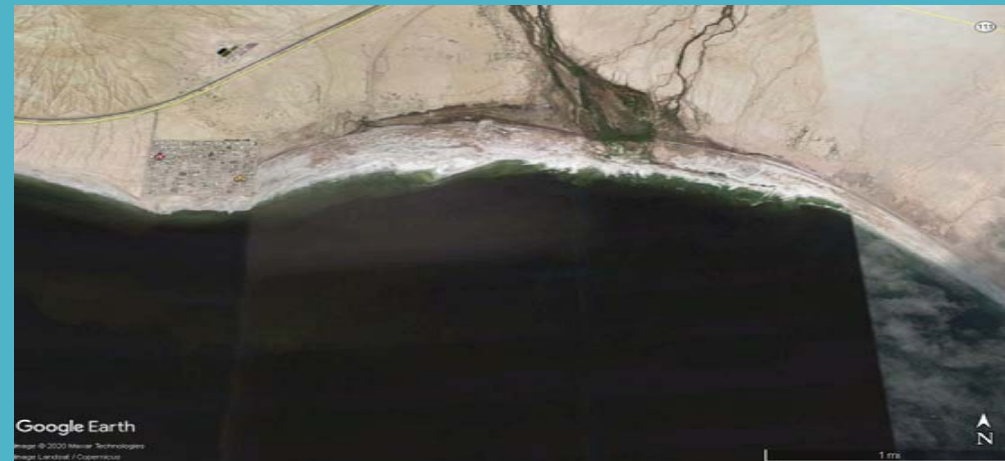




South of Bombay Beach, “Frink – Pope” Wash Complex



July 2005



October 2016



March 2019



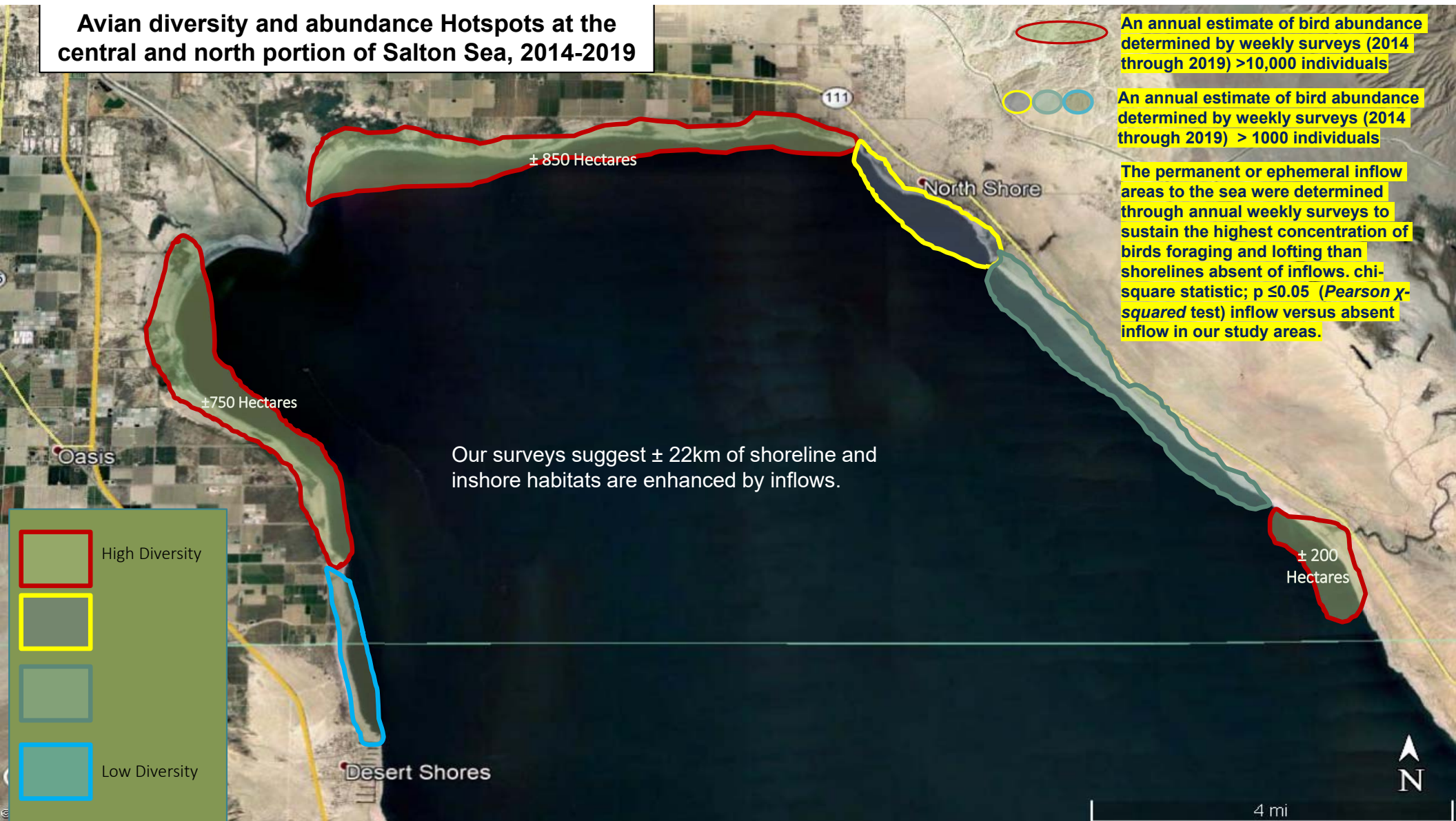
Figure 3. The receding shoreline between Salton City and abandoned Naval Station along the western shore of Salton Sea has formed extensive shallow water habitats and widespread barnacle bars, 22 November 2019.

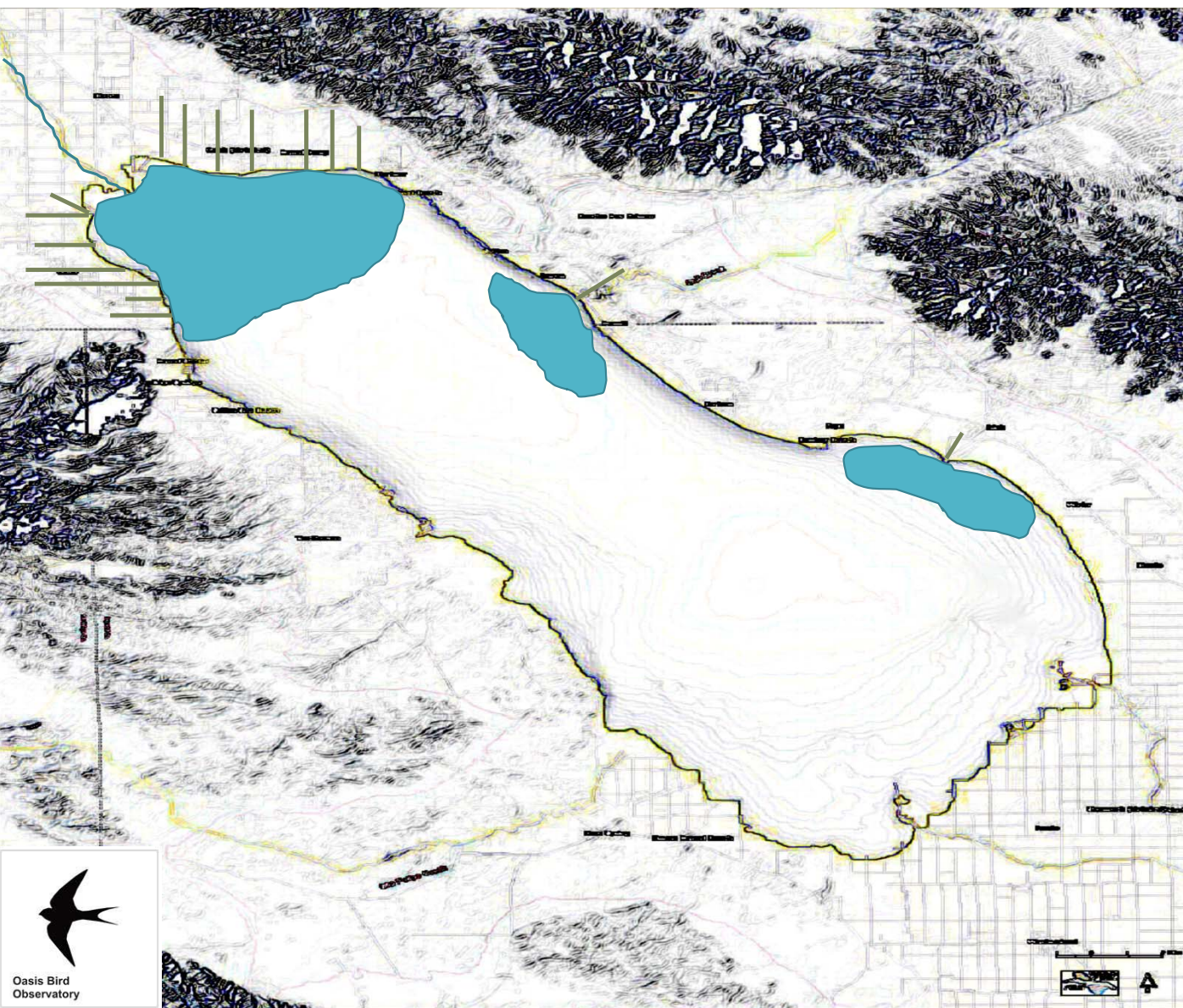
Levee portion compromised



Inundation along the westside shoreline of Salton Sea, the establishment of a series of braided streams flowing to the sea between Whitewater River and Ave 76th, this fluvial environment was presumed created by flood waters (February-March 2019) compromising a portion of the west levee of Whitewater River

Avian diversity and abundance Hotspots at the central and north portion of Salton Sea, 2014-2019



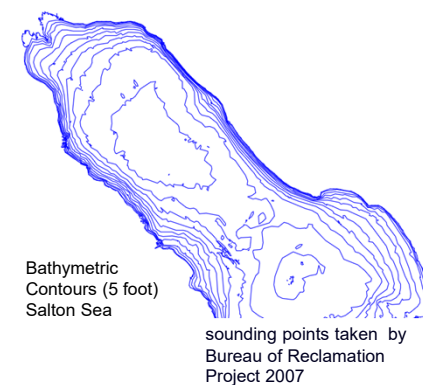


Dynamic Area-based Salton Sea habitats (DABSSH's)

Based on Oasis Bird Observatory long-term monitoring of the north and central portion of Salton Sea it appears as the Sea becomes more hypersaline drain outflows appear to be imperative refugia for migratory, staging, overwintering and breeding birds.

DABSSH's are enhanced by receding shorelines increasing shallow water and barnacle pool habitats thereby promoting rich avian diversity

A survey-based compelling feature that appeared to begin in late 2017 was the receding Salton Sea and the current shallow bathymetry along the north and central areas of the Sea has presented large extensive shallow water areas creating high-use areas for waterbird species near drain outflows.



drain outflows

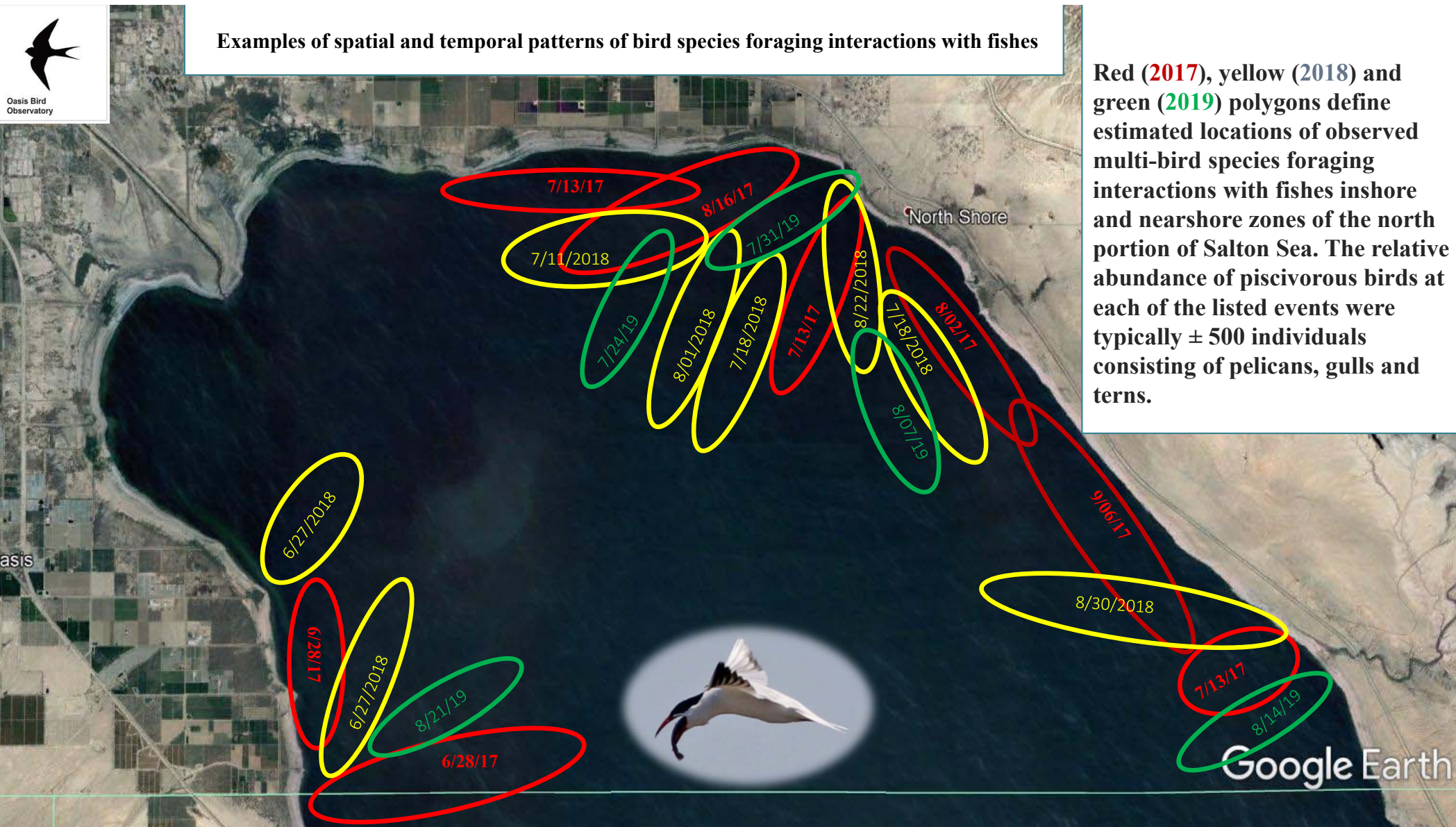
Estimated areas of drain influence which support high avian diversity based on shoreline survey results from OBO 2014-2020.



Oasis Bird
Observatory

Examples of spatial and temporal patterns of bird species foraging interactions with fishes

Red (2017), yellow (2018) and green (2019) polygons define estimated locations of observed multi-bird species foraging interactions with fishes inshore and nearshore zones of the north portion of Salton Sea. The relative abundance of piscivorous birds at each of the listed events were typically ± 500 individuals consisting of pelicans, gulls and terns.



Key Conclusions



- Consider an adapted management strategies for inflow drain water resources at Salton Sea
- The northwest (± 750 hectares), northeast (± 850 Hectares) and Salt Creek (± 200 Hectares) are critical Hotspots for bird diversity.
- A critical elements to further understand bird ecology during the sea transition would be bird dietary studies and aquatic invertebrate sampling.
- Determine if drain water inflows buffer salinity and thereby perhaps improving conditions for invertebrate species and the fishery at the north end of Salton Sea.
- Continue to assess the Salton Sea status as a globally significant migratory stopover and overwintering location in western North America for birds.
- OBO multi-year weekly surveys builds a suitable measure to more specifically understand temporal and spatial patterns to define changes in bird populations at Salton Sea.