

Salton Sea Air Quality Mitigation Program



IIID

A century of service.

FORMATION
ENVIRONMENTAL

Salton Sea Air Quality Mitigation Program

Comprehensive, science-based, adaptive program

- Proactively detect, locate, assess, and identify options to mitigate dust emissions from exposed Salton Sea playa





01 – Estimate Emissions

Objectives:

- Where and when dust (PM₁₀) emissions occur?
- How much dust (PM₁₀) is emitted?
- Which areas of the playa should be prioritized for dust control?





Map Playa Exposure

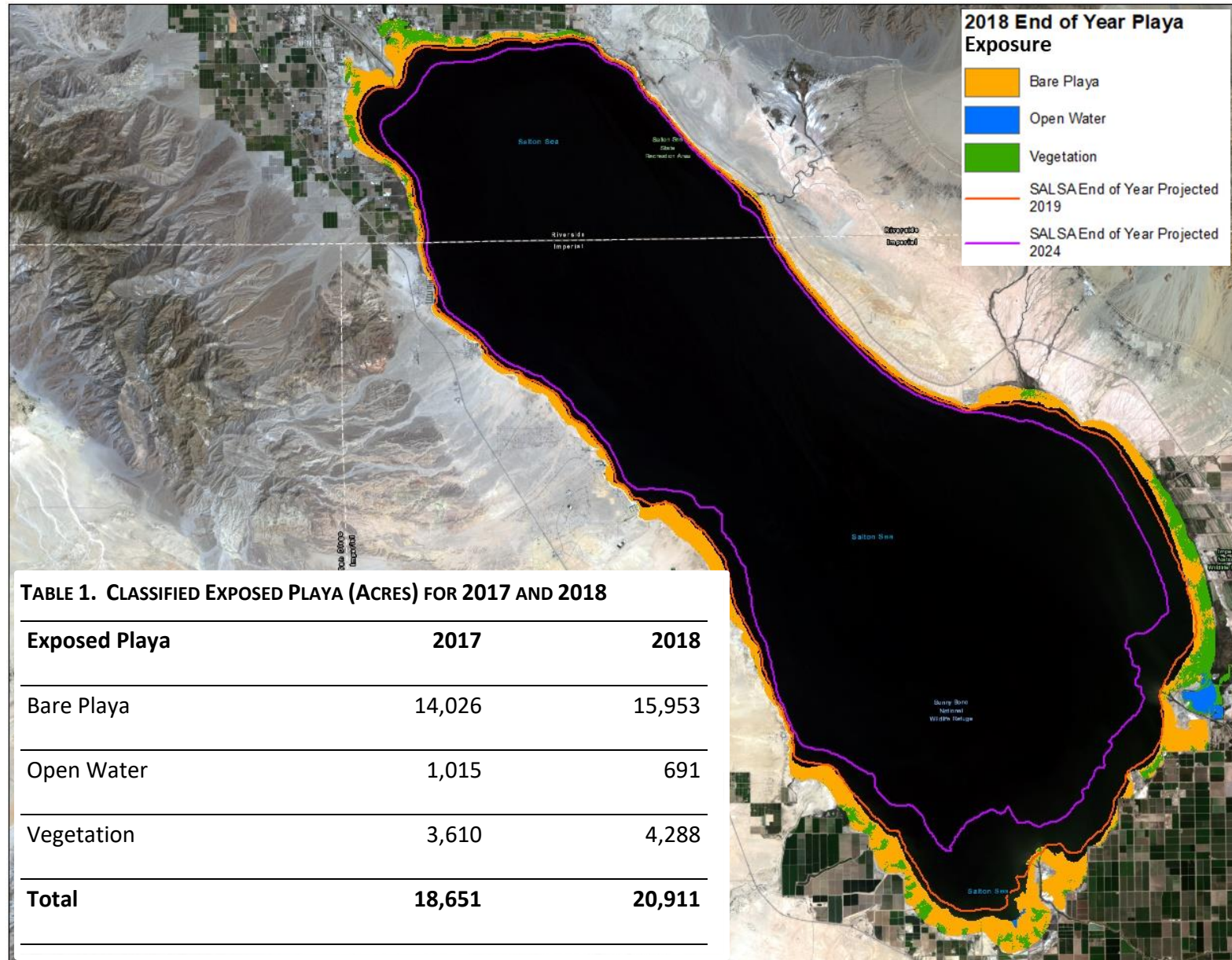
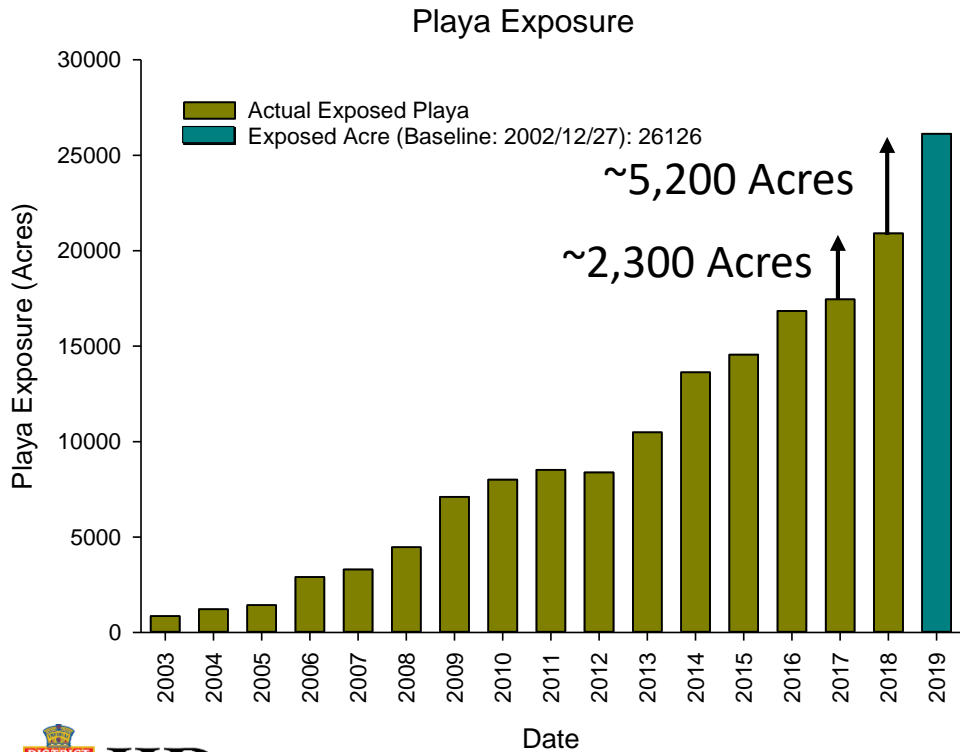


TABLE 1. CLASSIFIED EXPOSED PLAYA (ACRES) FOR 2017 AND 2018

Exposed Playa	2017	2018
Bare Playa	14,026	15,953
Open Water	1,015	691
Vegetation	3,610	4,288
Total	18,651	20,911

Characterize Playa Surfaces



Primary Surface Types & Development on the Salton Sea Playa



4. Botryoidal



3. Weak Botryoidal



2. Smooth



1. No Crust

MORE STABLE

Surface Types

LESS STABLE



Time & Evaporation

LESS STABLE

Dynamic Processes

CRUST DEVELOPMENT

MORE STABLE

CRUST DEGRADATION



Precipitation & Wind



Barnacle Beds

This surface is composed of dead barnacle shells deposited by wave action as the Sea recedes. Once deposited, barnacles are typically not transported from their location.





Measure and Model Wind & Dust Emissions



AIR QUALITY MONITORING STATIONS



METEOROLOGICAL TOWERS

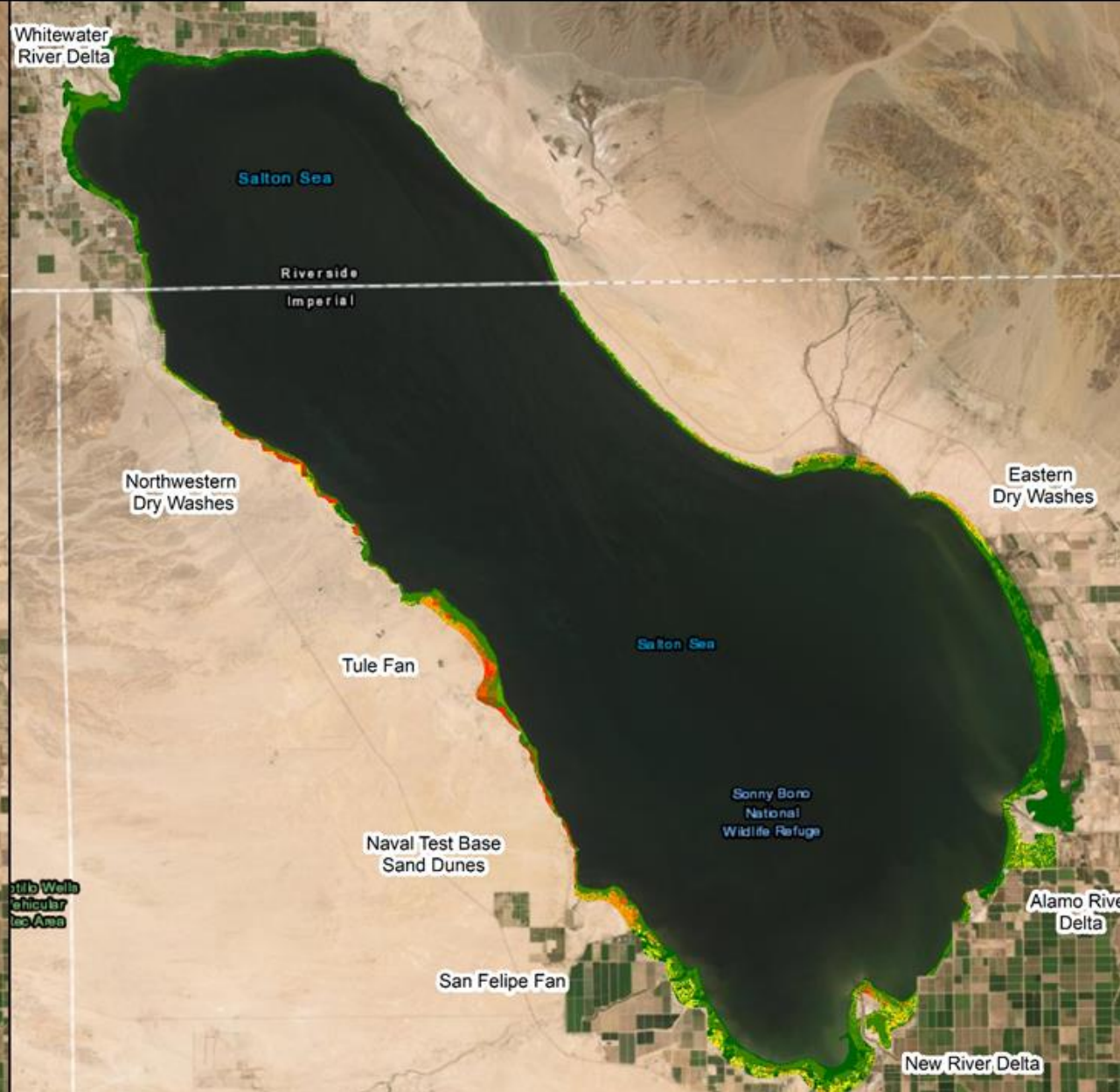
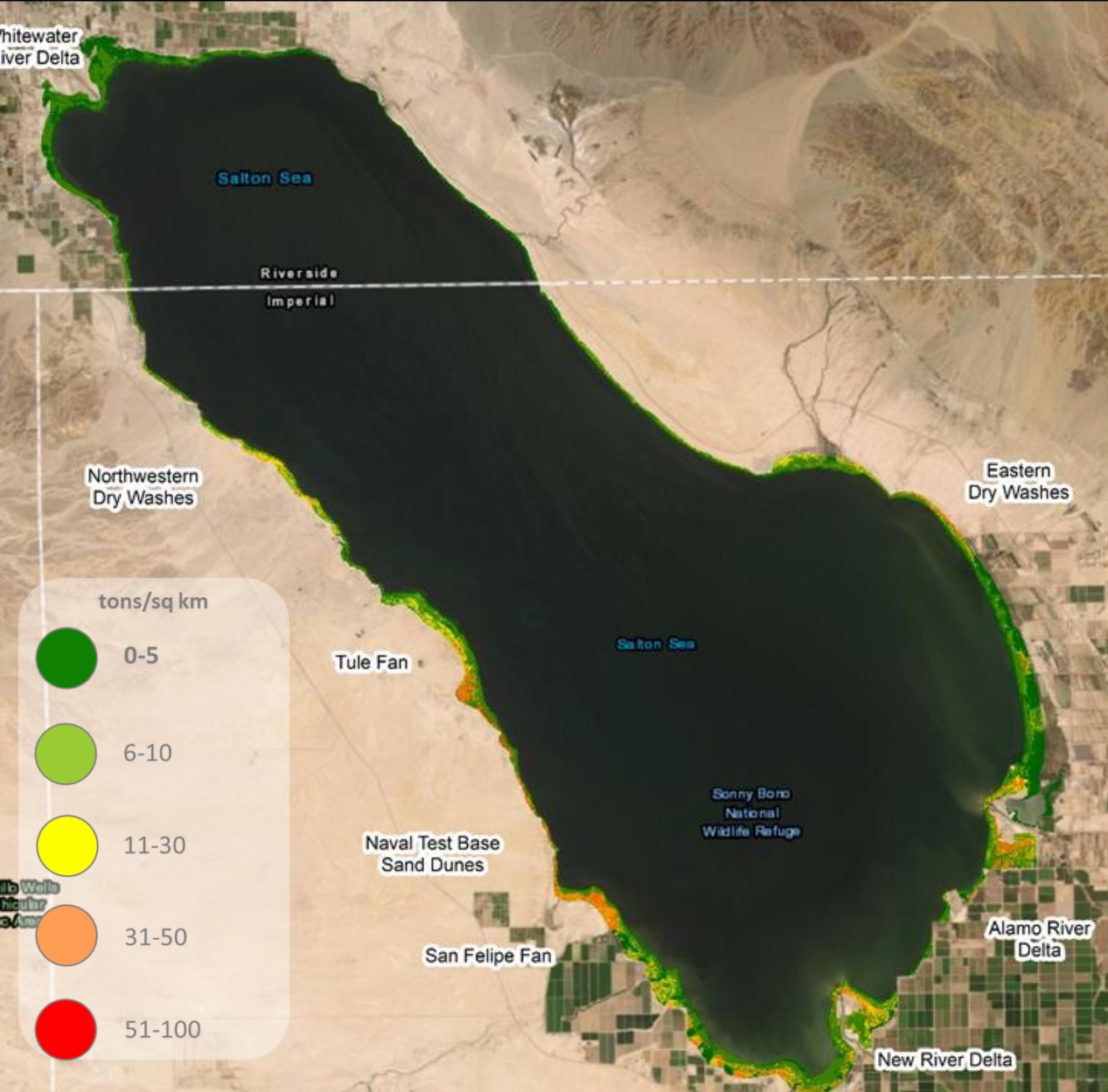


360-DEGREE CAMERAS



2016/2017 IID Annual Emissions Estimates (IID 2018)

2017/2018 IID Annual Emissions Estimates (IID 2019)



Results: Playa



2016/2017 Playa Emissions Estimates

Surface Type	Area (km ²)	Area (Acres)	Total Emissions (short tons)	Per Area Emissions (short tons km ⁻²)	Per Area Emissions (short tons acre)	Annual Emissions Tons per Day
Median						
Barnacles	4.10	1,014	7	1.70	0.007	0.02
No Crust	14.13	3,492	92	6.49	0.026	0.25
Weak Botryoidal Crust	12.97	3,203	169	13.03	0.053	0.46
Botryoidal Crust	3.09	765	35	11.32	0.046	0.10
Smooth Crust	32.27	7,973	71	2.02	0.009	0.19
Total	66.56	16,447	374	5.61	0.023	1.02

2017/2018 Playa Emissions Estimate

Surface Type	Area (km ²)	Area (Acres)	Total Emissions (short tons)	Per Area Emissions (short tons km ⁻²)	Per Area Emissions (short tons acre)	Annual Emissions Tons per Day
Median						
Barnacles	2.13	526	3	1.32	0.005	0.01
No Crust	17.17	4,242	151	8.82	0.036	0.41
Weak Botryoidal Crust	22.62	5,589	235	10.39	0.042	0.64
Botryoidal Crust	2.88	711	31	10.61	0.043	0.08
Smooth Crust	26.58	6,568	27	1.03	0.004	0.08
Total	71	17,635	447	6.27	0.025	1.23



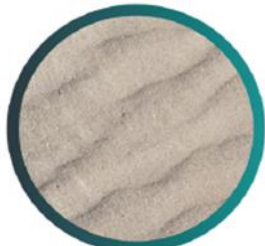
4. Botryoidal



3. Weak Botryoidal



2. Smooth



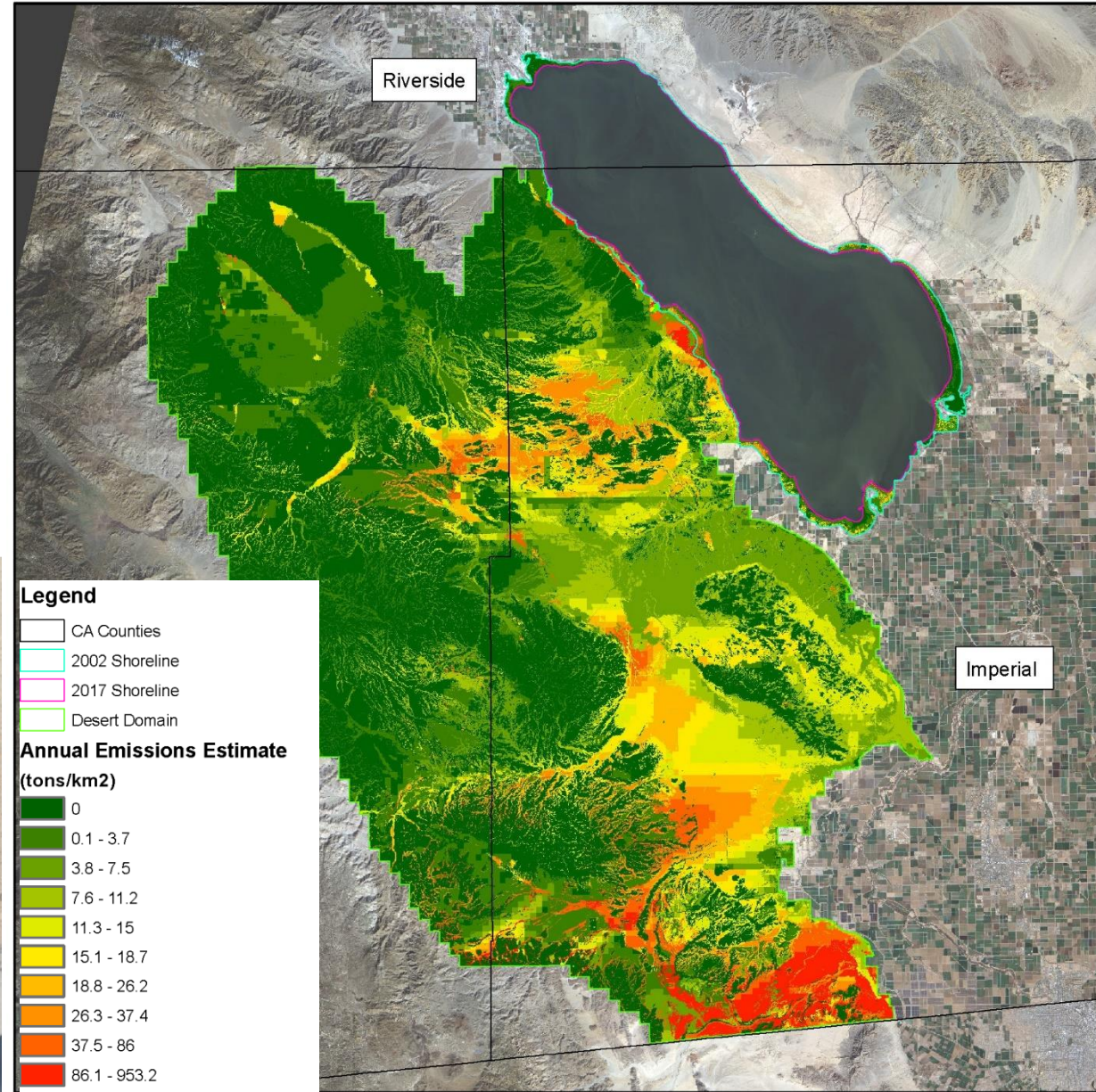
1. No Crust



Estimate Emissions

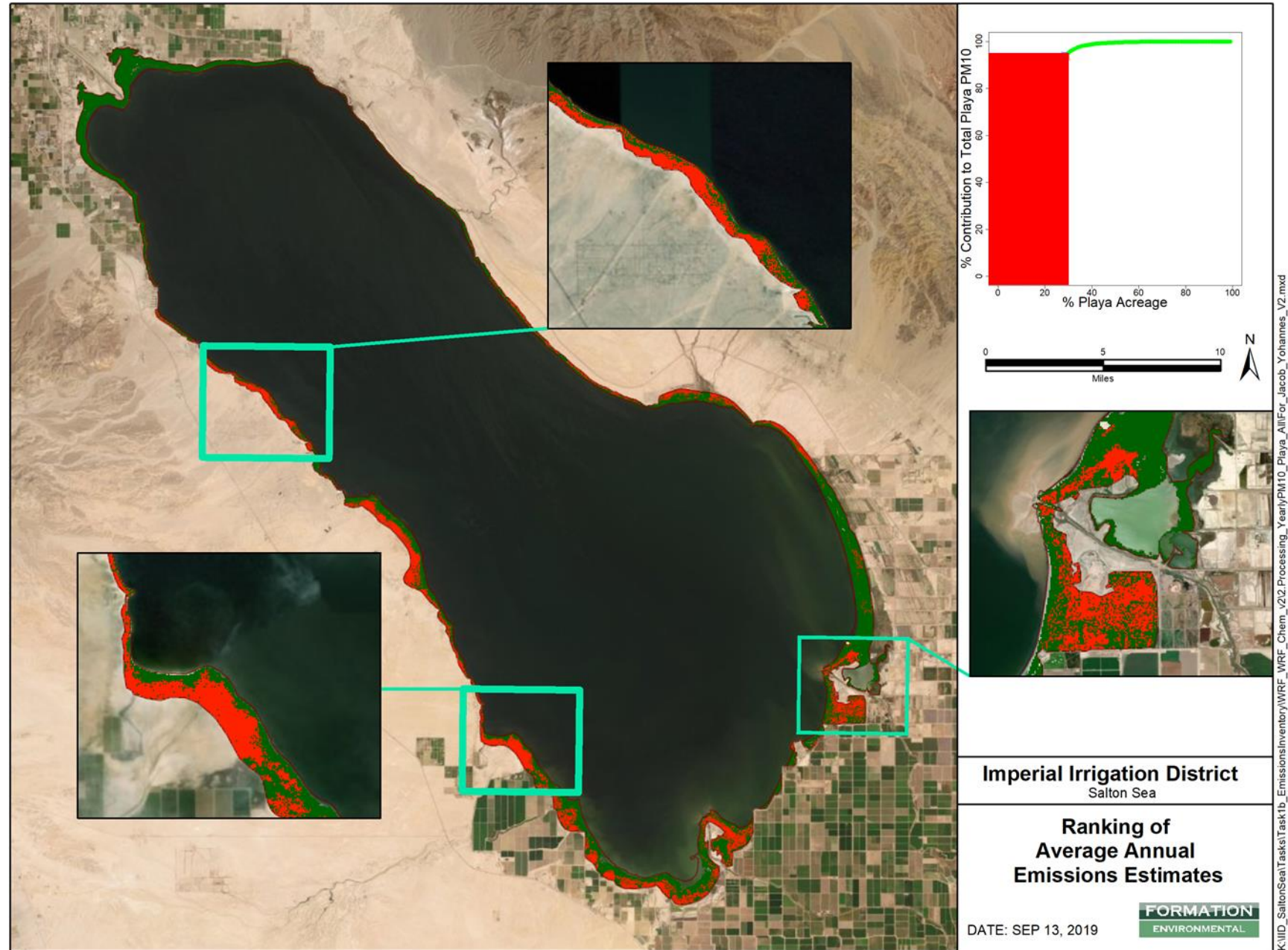
IID Emissions Estimate	2016/2017	2017/2018
Desert ³	123.94	124.06
Playa	1.02	1.23

Upwind Sand Encroachment Onto The Playa





Proactive Dust Control Prioritization





Proactive Dust Control Implementation



Seeding an Irrigated Furrow



Vegetation Established in Furrows





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Thank You

Brian Schmid

bschmid@formationenv.com