

# San Jose-Santa Clara Regional Wastewater Facility & Lower South San Francisco Bay





# Serving 1.4 million residents

+ 17,000 commercial & industrial facilities in Silicon Valley



# San Francisco Bay



**Where the water goes...**

# Lower South Bay

Dumbarton Bridge

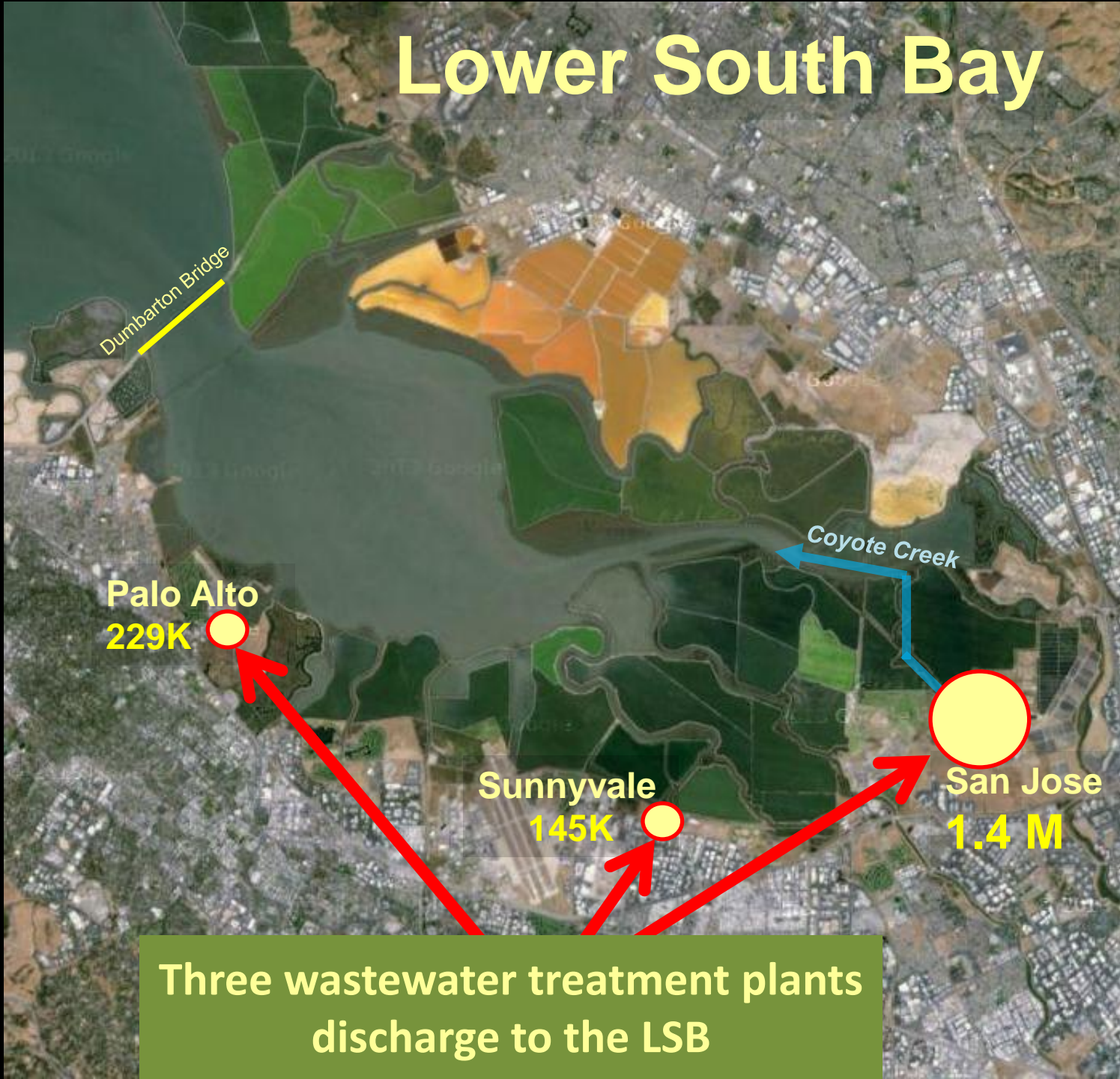
Palo Alto  
229K

Sunnyvale  
145K

Coyote Creek

San Jose  
1.4 M

Three wastewater treatment plants  
discharge to the LSB





# Beneficial Uses of Artesian Slough & Lower Coyote Creek

*San Jose-Santa Clara RWF*

*Pond A18*

*Pond A16*

*Artesian Slough*

*Pond A17*

*Coyote Creek*





# Beneficial Uses of Artesian Slough & Lower Coyote Creek

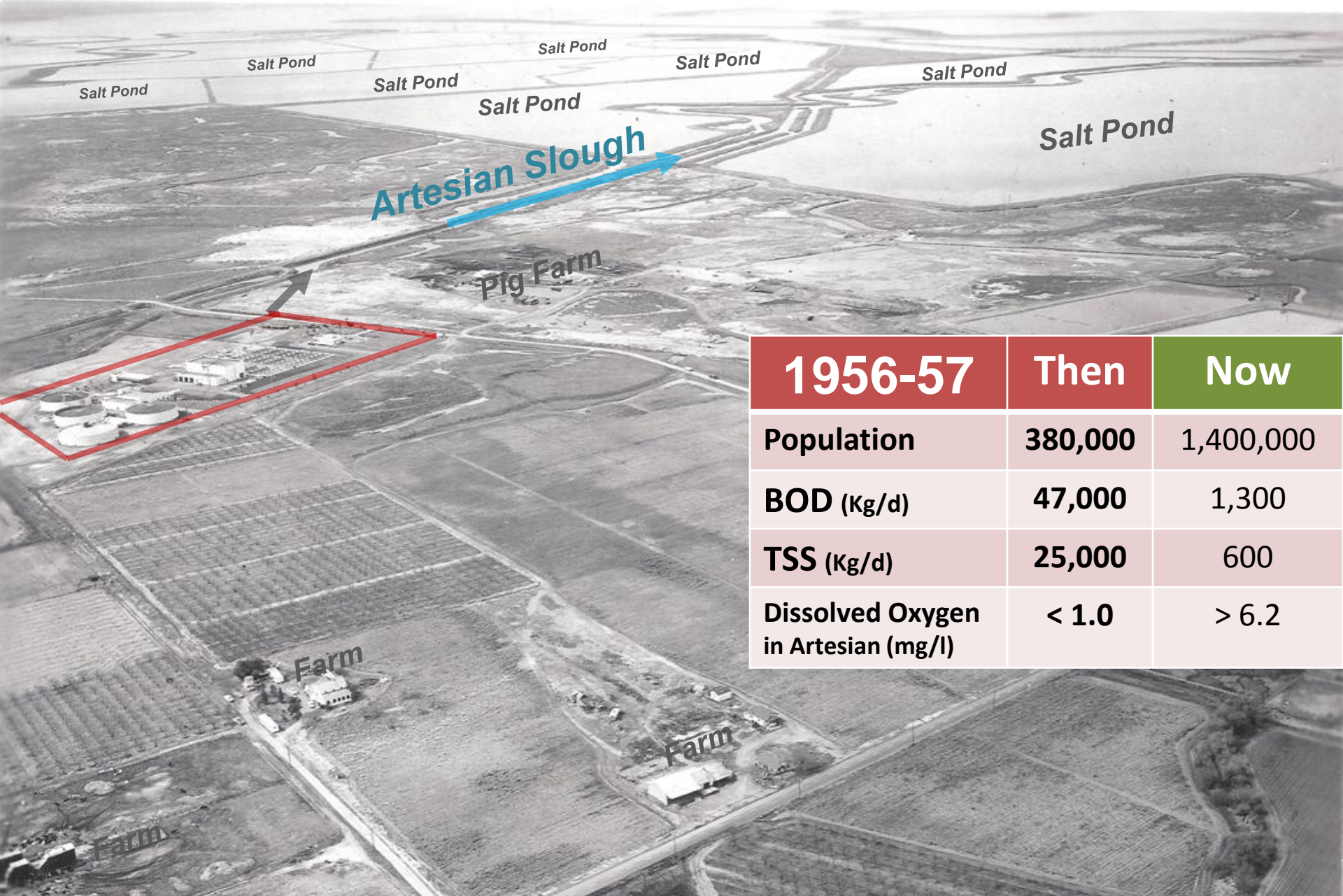
1. Wildlife Habitat (WILD)
2. Fish Spawning (SPWN)
3. Warm Freshwater Habitat (WARM)
4. Cold Freshwater Habitat (COLD)
5. Fish Migration (MIGR)
6. Non-Contact Recreation (REC-1)
7. Contact Recreation (REC-2)
8. Commercial & Sport Fishing (COMM)
9. Rare & Endangered Species (RARE)

*Pond A18*

*Pond A16*

*Pond A17*

*Coyote Creek* →



1956-57	Then	Now
Population	380,000	1,400,000
BOD (Kg/d)	47,000	1,300
TSS (Kg/d)	25,000	600
Dissolved Oxygen in Artesian (mg/l)	< 1.0	> 6.2

**What went right?**



# Treatment Eras

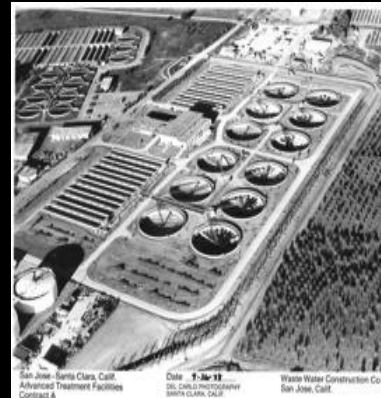
- 1957-1964: primary treatment
- 1964-1979: secondary treatment
- 1979-1997: tertiary/advanced treatment
- 1997-2013: Biological Nutrient Removal (BNR)

1956

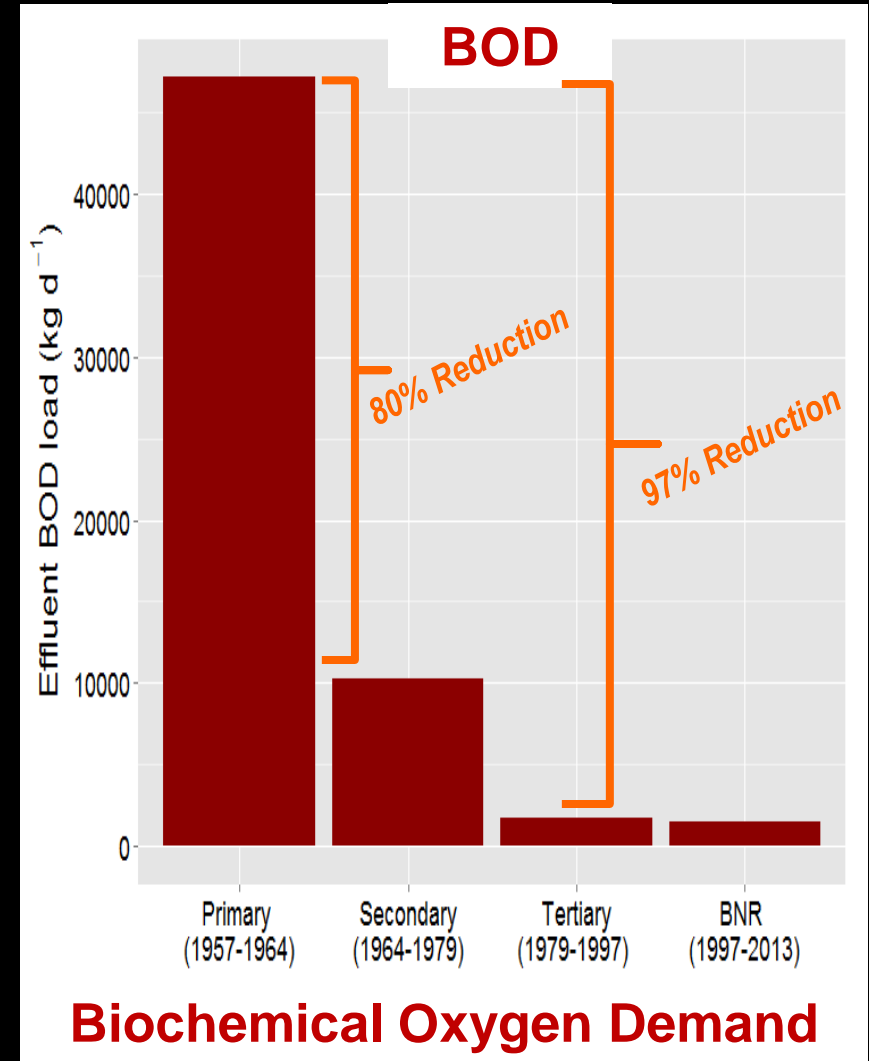
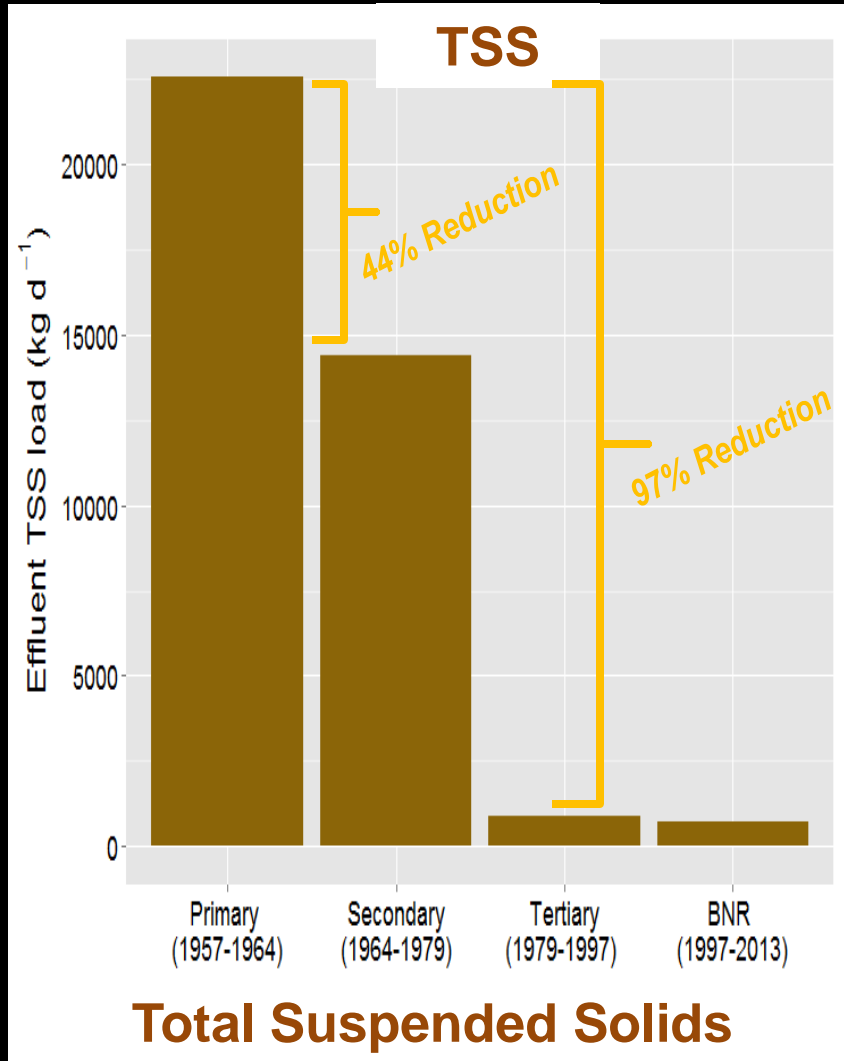
1964

1979

1997



# Facility Improvement = better effluent



1956

Primary

1964

Secondary

1979

Tertiary/Advanced

1997

BNR

# State Board Order WQ 90-5

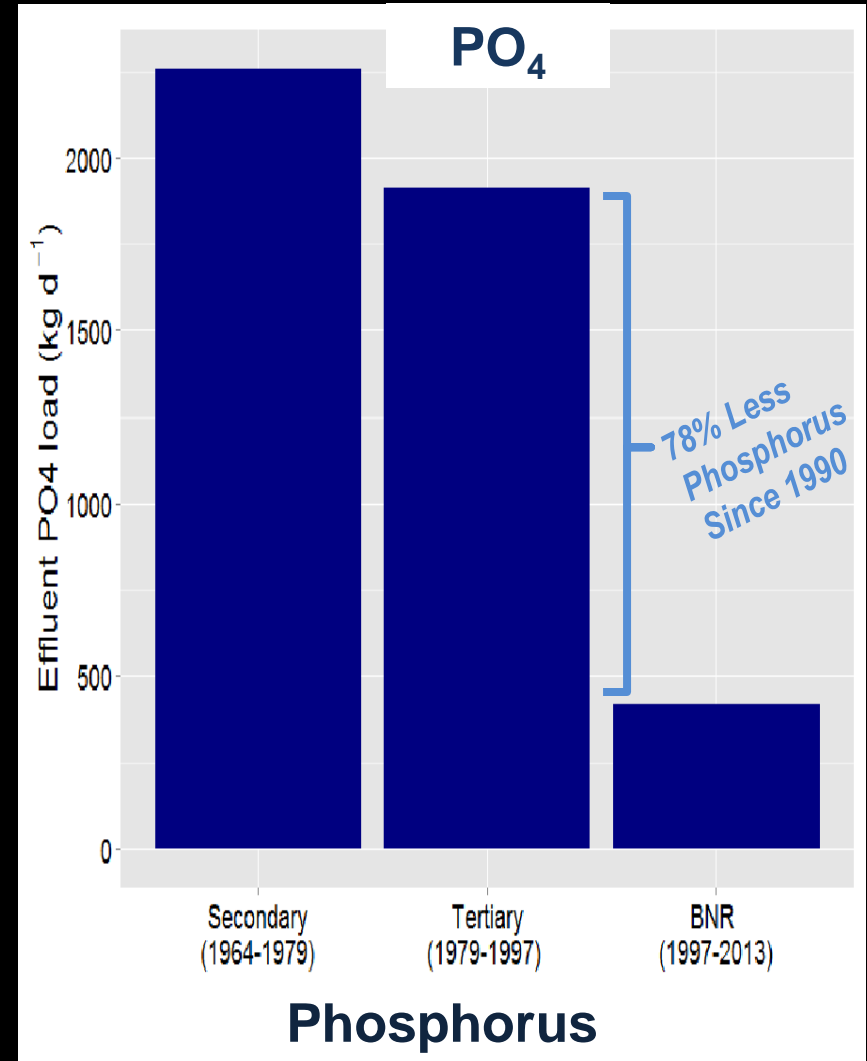
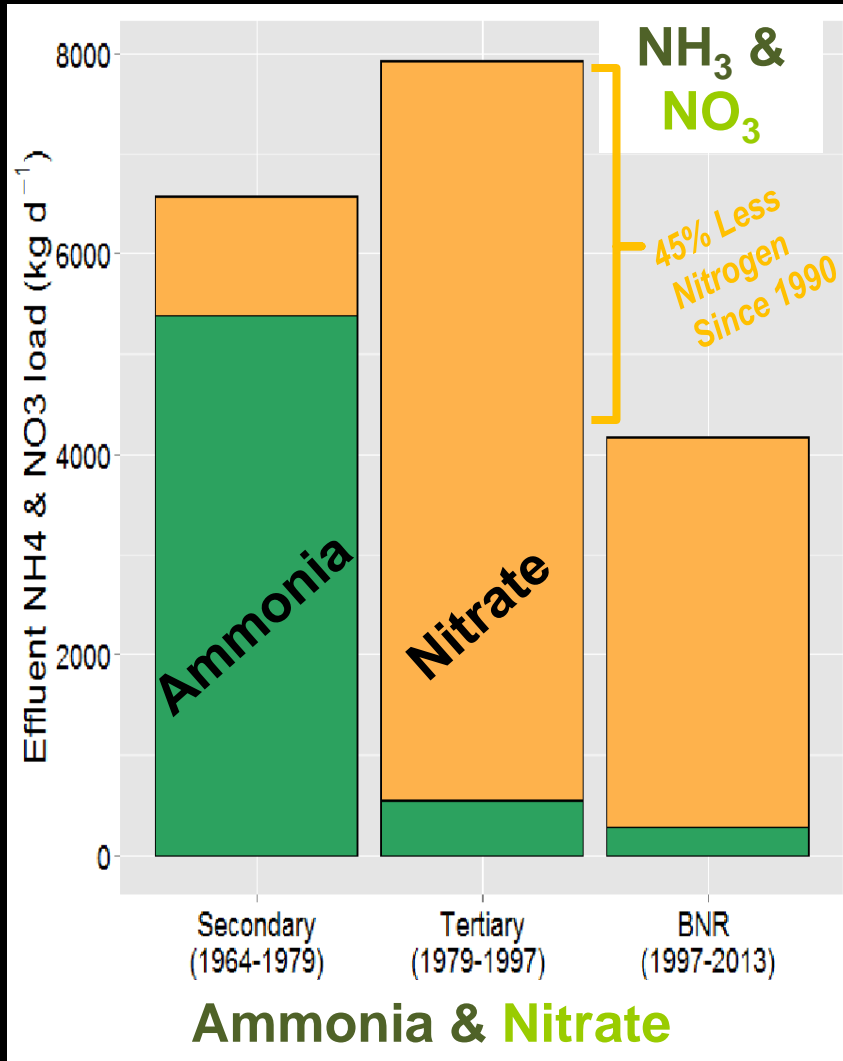
## Three major concerns in 1990:

**1. Nutrients**

**2. Metals, particularly copper & nickel**

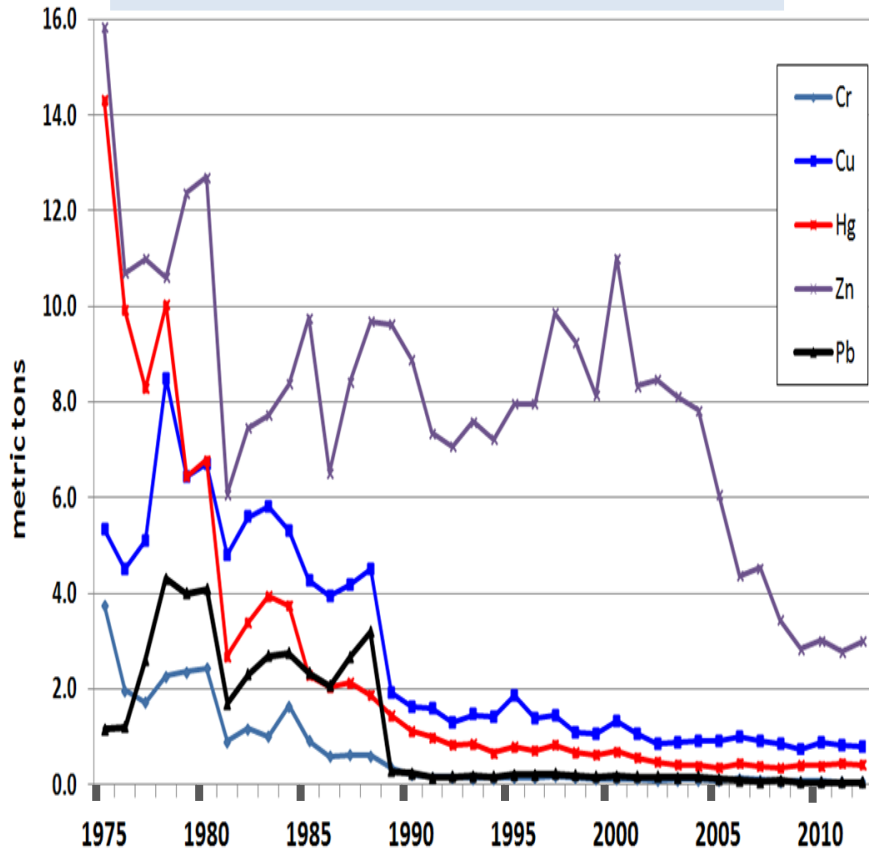
**3. Conversion of salt marsh to fresh**

# San Jose Nutrient Loads (Kg/d)



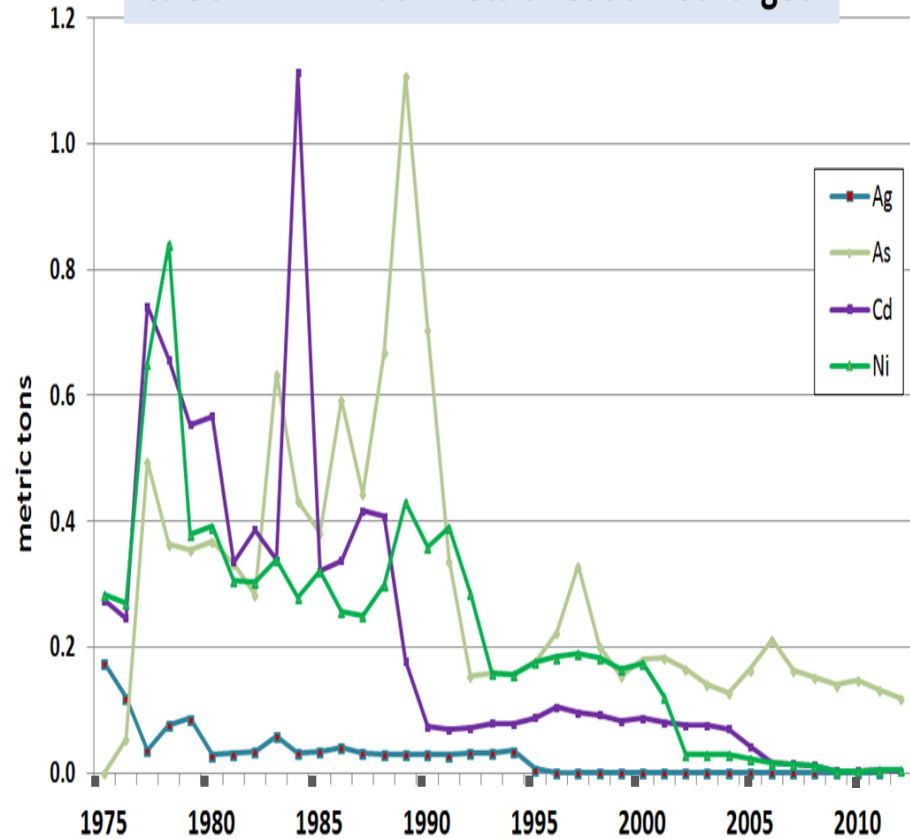
# San Jose Metals Loads (Mt/d)

### SJ-SC RWF Annual Metals Loads Discharged



Higher Concentration Metals

### SJ-SC RWF Annual Metals Loads Discharged

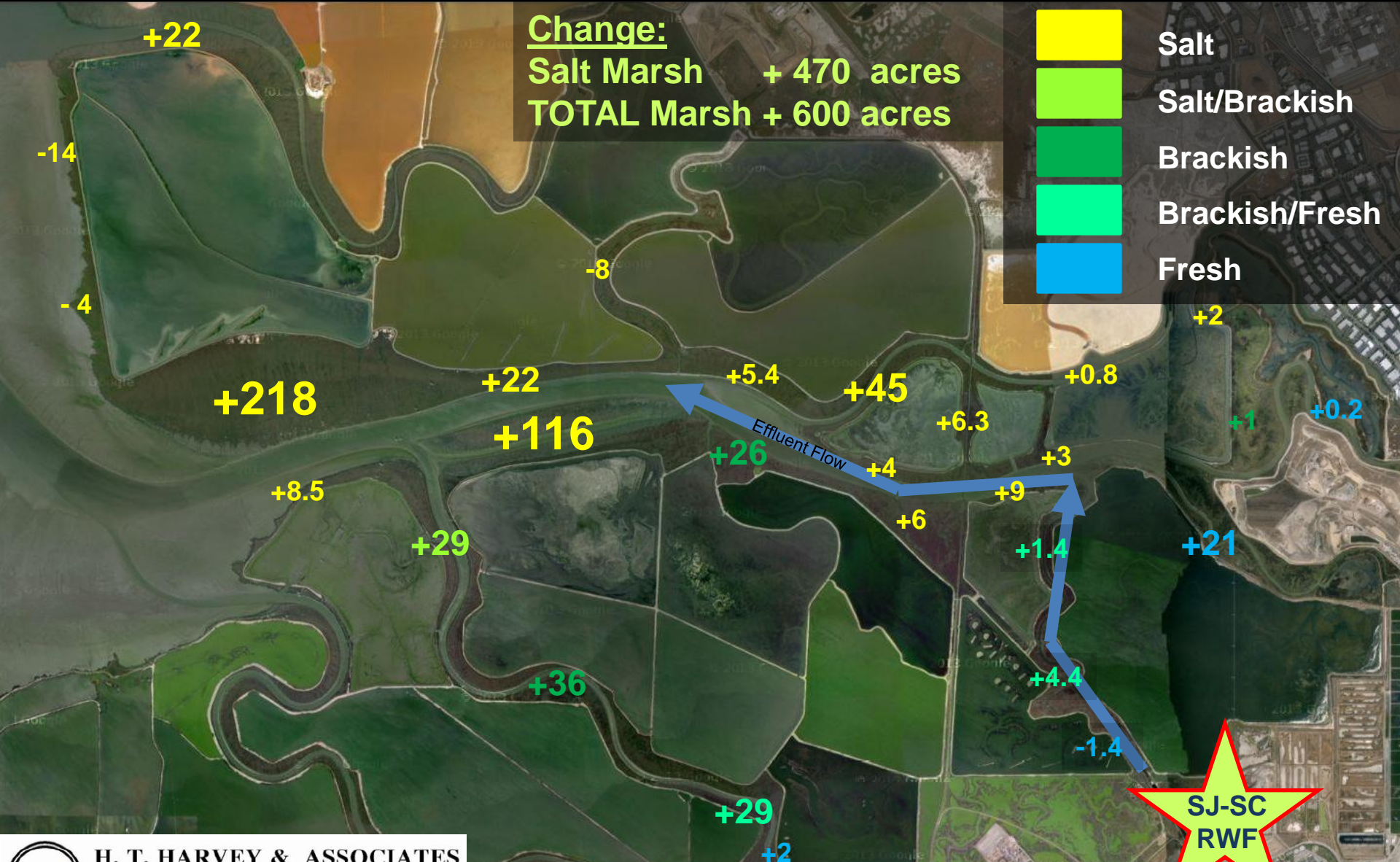


Low Concentration Metals

**Chromium, Copper, Mercury, Zinc, Lead, Silver, Arsenic, Cadmium, Nickel  
ALL DROPPED !**

# More Salt Marsh!!

Marsh Acreage Change by Study Area Segment - 1989 to 2012

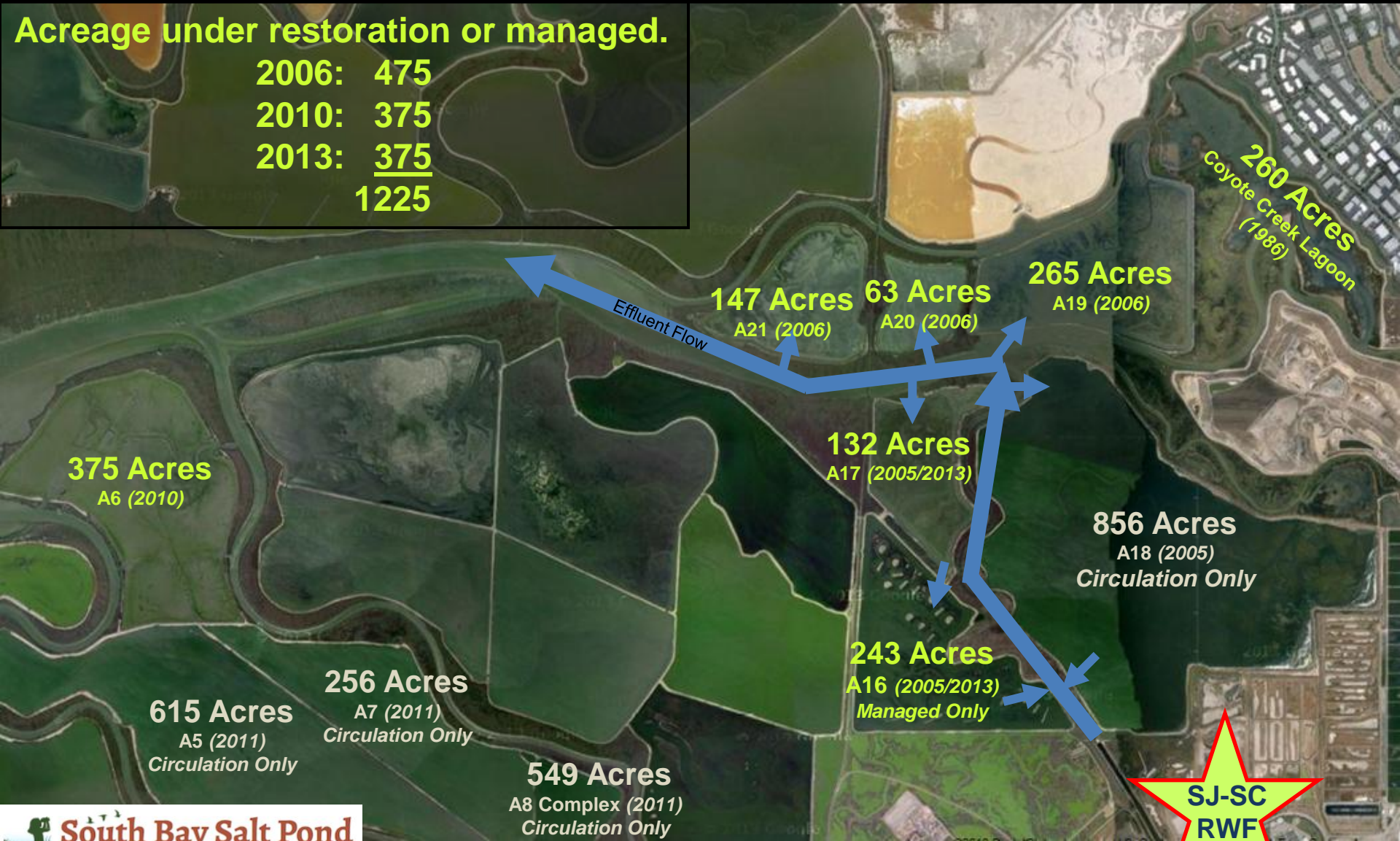


# Even More Marsh!!!

South Bay Salt Pond Restoration in vicinity of SJ-SC RWF

**Acreage under restoration or managed.**

2006:	475
2010:	375
2013:	<u>375</u>
	1225



# Even More Marsh!!!

Treated Wastewater waters much of the local marsh



# Fish Food!

*Our effluent + former salt ponds  
=  
a fish buffet*



**Mysids, Crangon, Isopods**





**2013**  
*Mysid Explosion!*



Facility Effluent

# Bird Food!

*More fish = a bird buffet*



**Sculpin & Gobies**

**Silversides  
Killifish  
Gobies  
Shrimp  
Larval Bass**



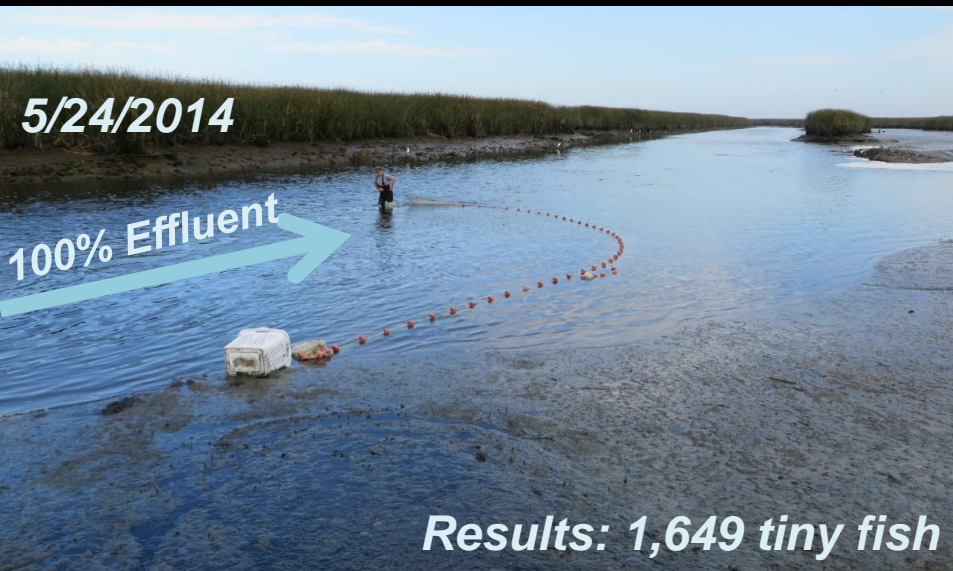
# Measuring Beneficial Uses in Artesian

## Otter Trawls



# Measuring Beneficial Uses in Artesian

## Beach Seines



# Fish Diversity - winter



Bat Ray



White Sturgeon



Longfin Smelt



Staghorn Sculpin



American Shad



California Halibut



Striped Bass

Cold Freshwater Habitat (COLD)

Rare & Endangered Species (RARE)

# Fish Diversity - summer



Bat Ray



Plainfin Midshipman



Striped Bass



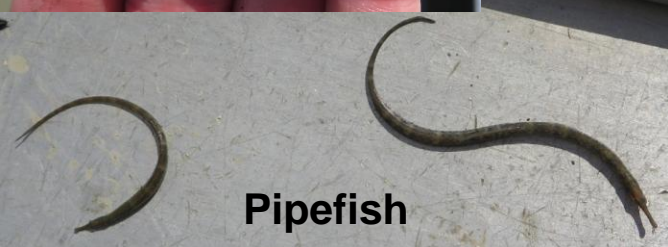
Starry Flounder



Gobies – Various Types



Sanddab



Pipefish



Northern Anchovy



Warm Freshwater Habitat (WARM)

# Baby Fish & Eggs



Shiner Surfperch



Larval gobies & anchovies



Inland Silversides & Rainwater Killifish



Inland Silversides with eggs



Fish Spawning (SPWN)

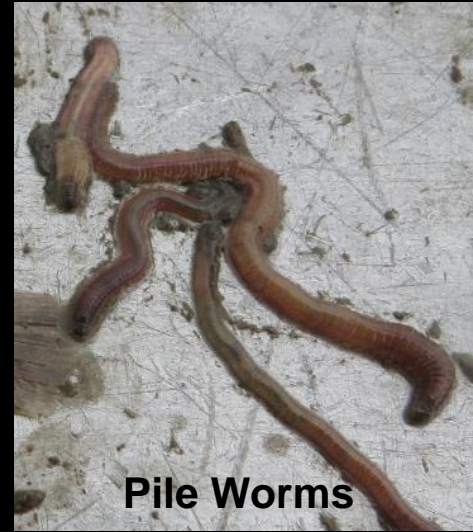
# Other Critters



Crabs



Mysids



Pile Worms



Clams



More Shrimp

# Lots of Birds



**Wildlife Habitat (WILD)**

# Fishing & Hunting



✓ REC-1: Water Contact Recreation

✓ Commercial & Sport Fishing (COMM)

# Hiking & Sightseeing



*Artesian Slough*

*SJ-SC Outfall Channel*

**Don Edwards  
National Wildlife Refuge  
Alviso Ed. Center**

# Hiking & Sightseeing





# Are we sustaining beneficial uses in Artesian Slough?





# Net Environmental Benefit

 **Yes!**

1. Wildlife Habitat (WILD) - Enhanced!
2. Fish Spawning (SPWN) - Enhanced!
3. Warm Freshwater Habitat (WARM) - Enhanced!
4. Cold Freshwater Habitat (COLD) - uninterrupted protection
5. Fish Migration (MIGR) - uninterrupted protection
6. Non-Contact Recreation (REC-1) - Enhanced!
7. Contact Recreation (REC-2) - Enhanced!
8. Commercial & Sport Fishing (COMM) - Enhanced!
9. Rare & Endangered Species (RARE) - Enhanced!



# Would you like to know more?

1

Google

Web Images Maps Shopping More Search tools

About 3,000,000 results (0.14 seconds)

2

[San Jose, CA - Official Website - Environmental Services](#)  
[www.sanjoseca.gov](#) > ... > [Departments & Offices DH](#)  
 San José is dedicated to providing a sustainable environment for its residents and ... that prevent **pollution** from entering the storm sewer system and waterways.

sanjoseca.gov Home City Services Departments Follow Us Sign up

Environment

Community Business Visitors Government Environment

3

Environmental Services Home > Government > Departments & Offices > Departments & Offices D-H > Environmental Services

I Want To...

- Find my collection schedule
- Find water conservation rebates
- Pay my utility bill
- Receive an energy audit in my home
- Report storm drain dumping

4

Regulatory Reports

Sustainable Environment in San José  
 San José is dedicated to providing a sustainable environment for its residents and businesses while preserving its beautiful and unique natural habitats. The Environmental Services Department enables San José to respond quickly to new regulations and initiatives while improving customer services such as recycling and garbage collection, wastewater treatment, and the sale of drinking and recycled water.

Our Core Services

San José-Santa Clara Regional Wastewater Facility

2013 ANNUAL SELF MONITORING REPORT

Reporting Period: January 1 – December 31, 2013

**Answers here!!**

Environmental Services Home > Government > Departments & Offices > Departments & Reports

Regulatory Reports

- A18 Annual Self Monitoring Plan (SMP) Reports
- Avian Botulism Reports
- Clean Bay Strategy Reports
- Industrial User Pretreatment Compliance Reports
- Marsh Studies of South San Francisco Bay Includes Comparative Studies, GIS Datasets and Related Reports
- Stormwater Management Plan Annual Reports
- Water Pollution Control Plant Annual Reports

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