

Salton Sea Public Meetings

- Department of Fish and Game
 - Kim Nicol – Environmental Program Manager I
- Department of Water Resources
 - Jerry Boles – Environmental Program Manager I

December 3, 2008

El Centro

1:00 to 3:00 p.m.

El Centro Community Center

375 South First Street

December 3, 2008

Bombay Beach

6:00 to 8:00 p.m.

Bombay Beach Community

Services District

9590 Avenue C

December 4, 2008

Palm Desert

1:00 to 3:00 p.m.

U.C. Riverside Palm Desert

Graduate Center

75080 Frank Sinatra Drive

December 4, 2008

Salton City

6:00 to 8:00 p.m.

West Shores Senior Center

1375 Borrego Salton Seaway

(S-22)

Salton Sea Public Meetings

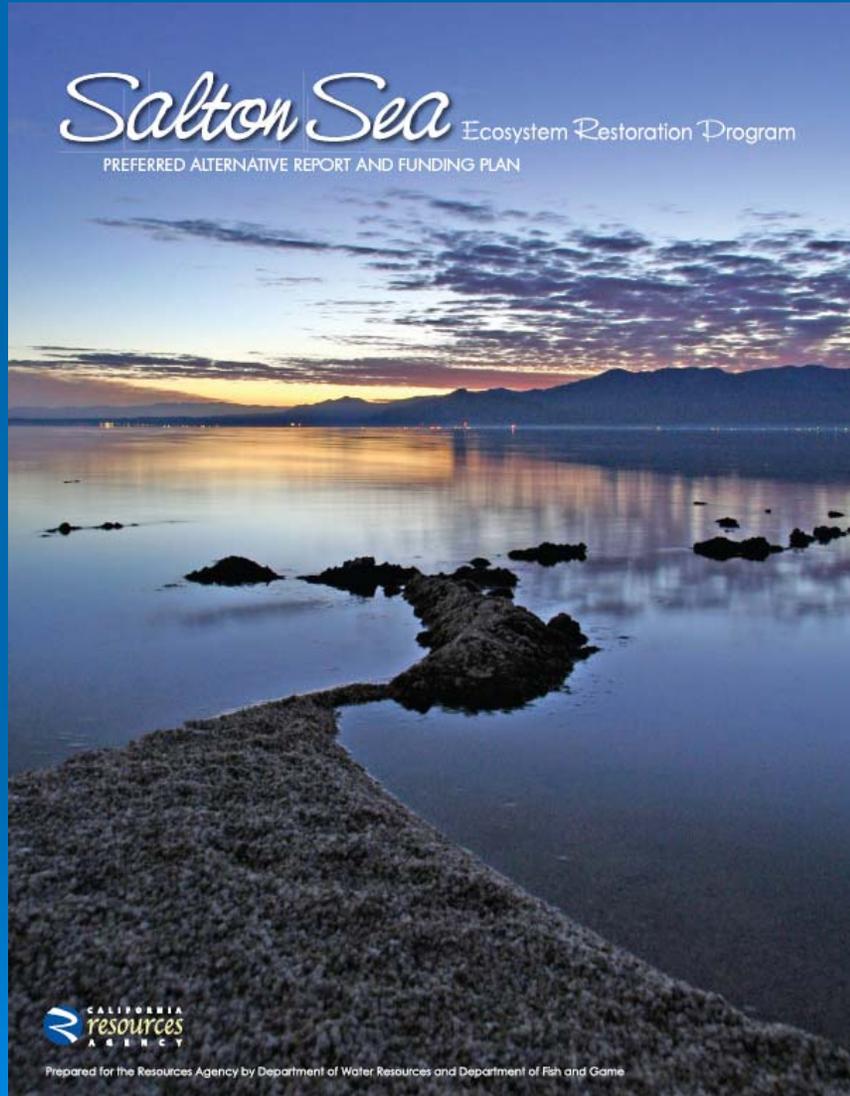
Agenda

- Purpose of meeting
- Status of Salton Sea Restoration Program
- SB 1256
- SB 187
- Status of Salton Sea
- Monitoring and Assessment Plan
 - Air Quality MAP
- Species Conservation Habitat

Status of Salton Sea Restoration Program

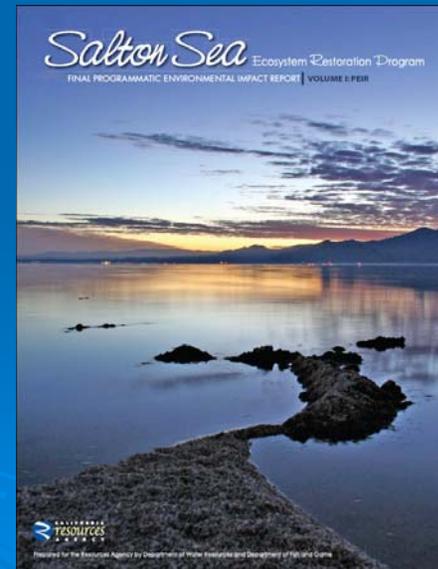


Status of Salton Sea Restoration Program



Salton Sea Ecosystem Restoration Program Preferred Alternative Report and Funding Plan

- Presented to the Legislature by the Secretary for Resources in May 2007



Final Programmatic Environmental Impact Report completed June 2007

Status of Salton Sea Restoration Program

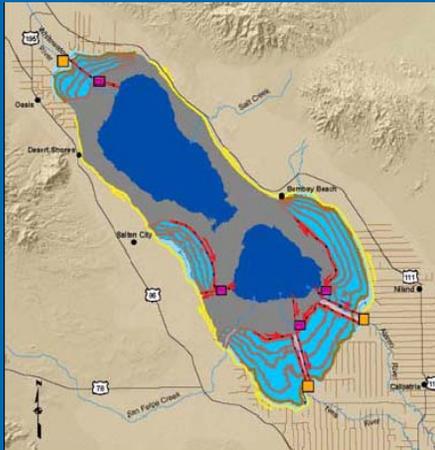
Salton Sea Ecosystem Restoration Program Preferred Alternative Report and Funding Plan

- Describes eight alternatives considered for restoration of the Salton Sea

Alternative 1: Saline Habitat Complex I



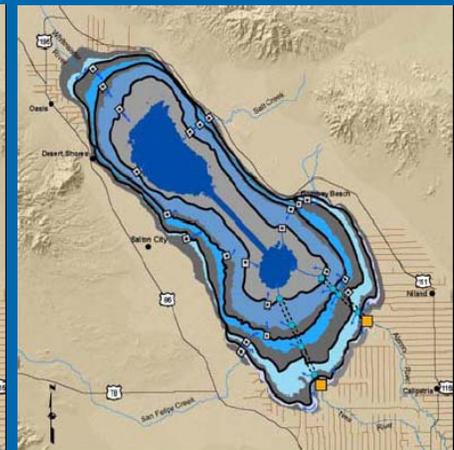
Alternative 2: Saline Habitat Complex II



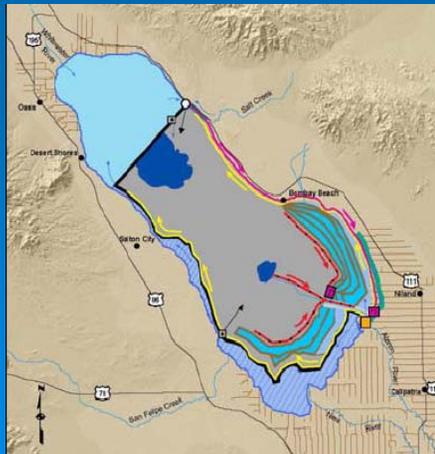
Alternative 3: Concentric Rings



Alternative 4: Concentric Lakes



Alternative 5: North Sea



Alternative 6: North Sea Combined

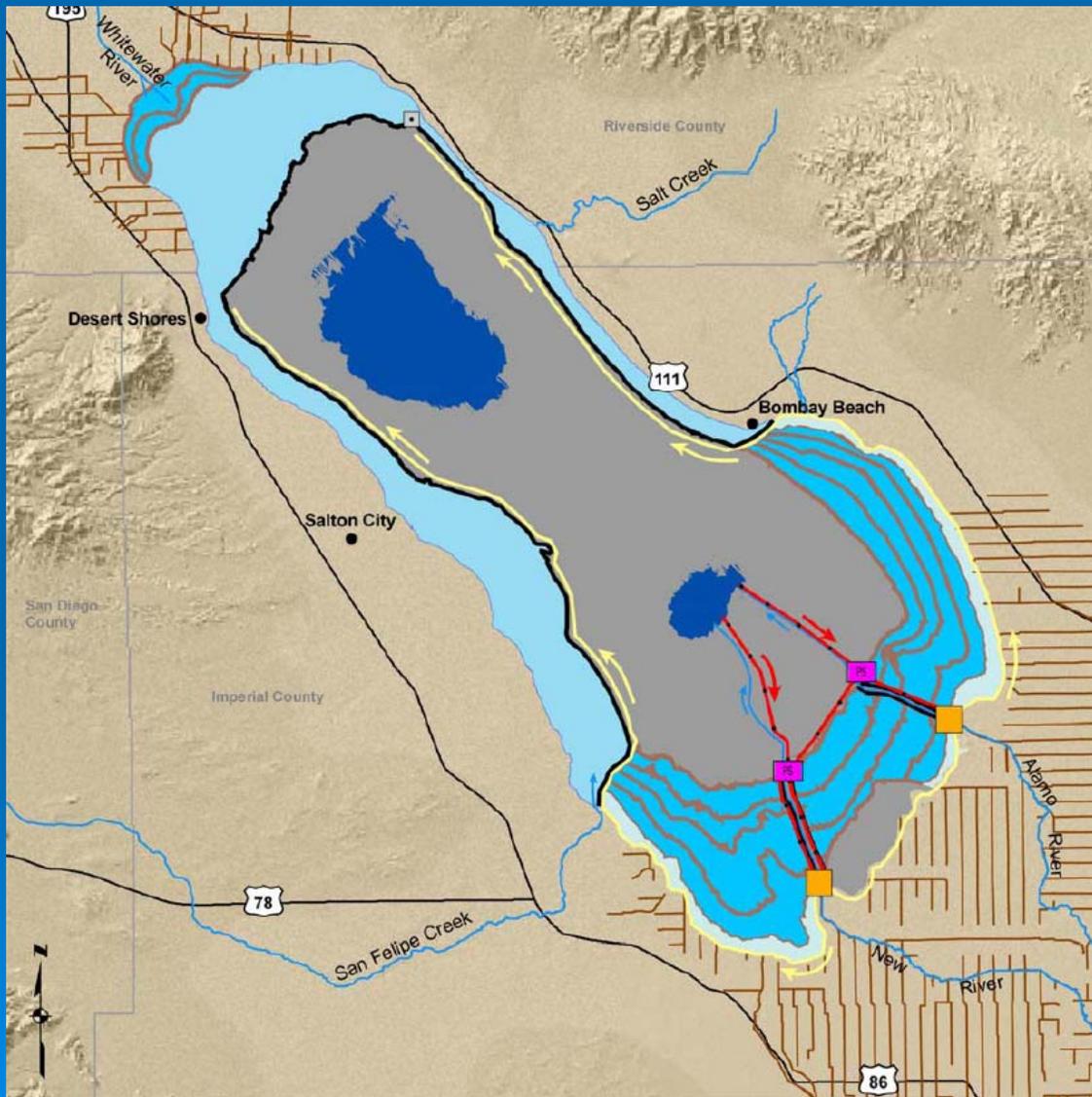


Alternative 7: Combined N & S Lakes



Alternative 8: South Sea Combined

Status of Salton Sea Restoration Program



Salton Sea Ecosystem Restoration Program Preferred Alternative Report and Funding Plan

- identified Preferred Alternative
 - Marine Sea
 - 45,000 acres
 - Salinity < 40,000 mg/L
 - Completed by 2022
 - Saline Habitat Complex
 - 62,000 acres
 - Air quality management
 - 106,000 ac Exposed Playa
 - Sedimentation basin
 - Distribution canals
 - Brine Sink
 - 17,000 acres

Status of Salton Sea Restoration Program

Cost estimates for Preferred Alternative (in million dollars; 2006 dollars)

Items	Pre-Construction Period	Major Construction Period		Construction Completion Period		Operations and Maintenance Period
	2008-2013	2014-2020	2020-2025	2025-2030	2030-2035	2035-2078
Demonstration Project, Investigations, and Administration	\$25.9	—	—	—	—	—
Design & Environmental for "Major Construction Period"	\$395.8	—	—	—	—	—
Early Start Habitat	\$76.4	—	—	—	—	—
Barriers	—	\$5,720.1	—	—	—	—
Saline Habitat Complex	—	\$63.3	\$462.5	\$382.1	\$170.6	—
Water Conveyance ^a	—	\$146.9	\$10.2	\$58.3	\$32.2	—
Air Quality Management	—	—	\$218.3	\$192.6	\$950.3	—
Total Study and Capital Costs^b	\$498.1	\$5,930.3	\$691.0	\$633.0	\$1,153.1	—
Annual Operations and Maintenance	\$3.9	\$4.8	\$52.2	\$70.9	\$141.9	\$141.9

Note: Costs do not include cost of permits, land or easement acquisition for Preferred Alternative, or the cost to borrow funds.

^a Water Conveyance costs includes Sedimentation/Distribution Basins, Air Quality Management Canals, Saltwater Conveyance, Marine Sea Outlet, and roads associated with conveyance facilities.

^b Capital costs include 5% for unlisted items, 30% for contingences, and 12% for engineering, administration, and legal.

Status of Salton Sea Restoration Program

Restoration Status

- Legislature “accepted” Preferred Alternative Report
- Legislature has not yet taken any action to approve or deny any restoration alternative
- Recent legislation
 - SB 1256 - Ducheny. Salton Sea Restoration Council
 - SB 187 - Ducheny. Salton Sea Restoration Fund: restoration project

SB 1256



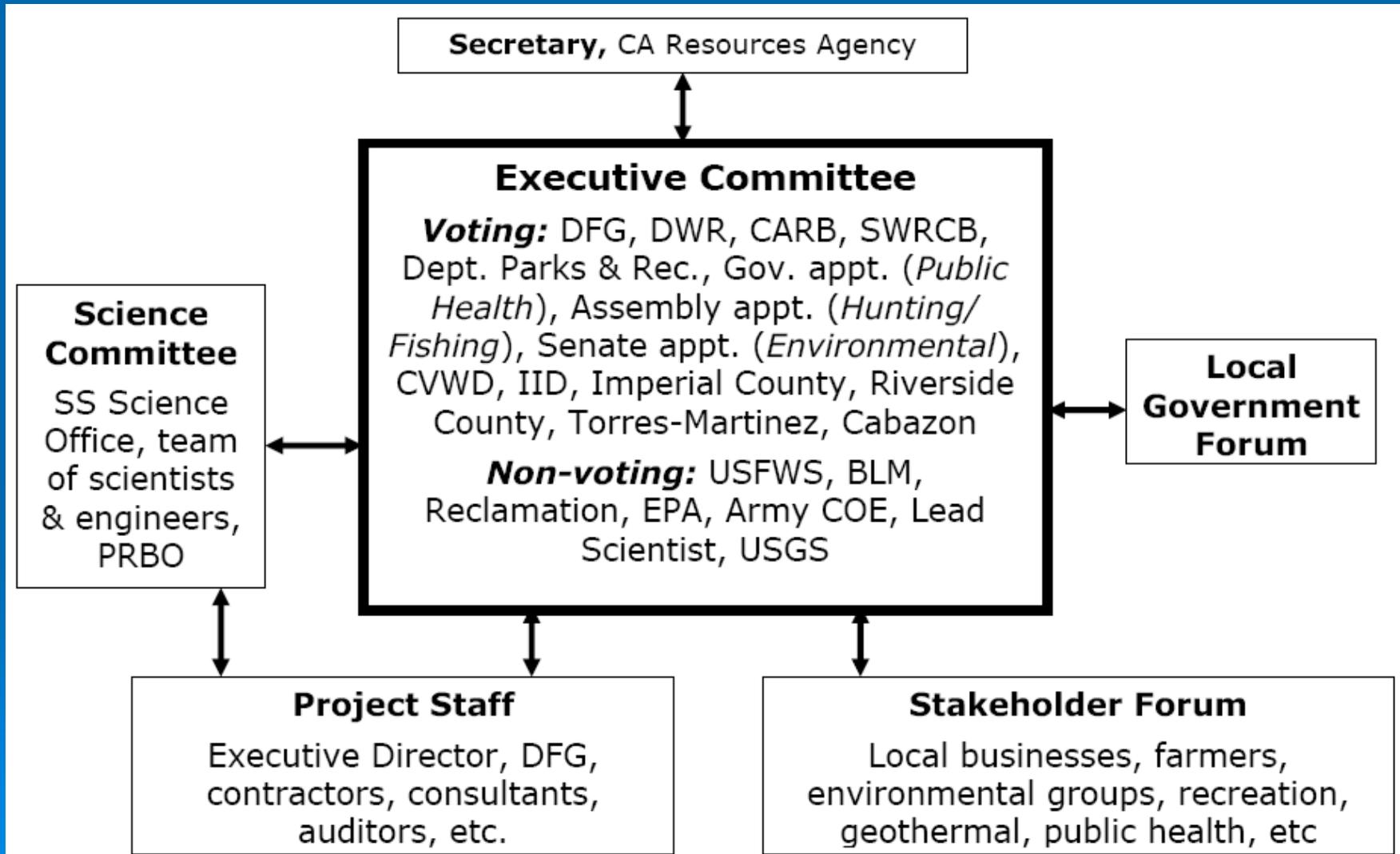
SB 1256

SB 1256 - Ducheny. Salton Sea Restoration Council

- Introduced in Senate in February 2008
- Would create Salton Sea Restoration Council as a State agency within Resources Agency
 - Executive Committee
 - Science Committee
 - Local government forum
 - Stakeholder forum

SB 1256

Salton Sea Restoration Council



SB 1256

Salton Sea Restoration Council

- Responsible for implementing, as a first priority, the Salton Sea Ecosystem Restoration Program Preferred Alternative "Period I" activities
- Implement remaining priorities as funding is made available
 - pilot or demonstration projects to improve water quality of the Salton Sea
 - Controlled eutrophication projects
 - Upper Basin selenium reduction projects
 - implement the Salton Sea Ecosystem Restoration Program Preferred Alternative, as revised
- The council shall also carry out actions, to the extent compatible with the restoration activities
 - implement project components that promote the sea as a tourist destination and recreational area
 - promote economic development associated with the restoration plan

SB 1256

Salton Sea Restoration Council

- Senate Appropriations Committee hearing on May 22, 2008
 - Held in Committee - did not pass
- Senator Ducheny plans to re-introduce legislation in January 2009

SB 187



SB 187

SB 187, Ducheny. Salton Sea Restoration Fund: restoration project

- Introduced by Senator Ducheny on February 6, 2007
 - Passed by the Assembly on August 13, 2008
 - Passed by the Senate on August 19, 2008
 - Approved by the Governor on September 27, 2008
- 

SB 187

Salton Sea Restoration Fund: restoration project

- Adds Section 2932.3 to the Fish and Game Code
 - The Resources Agency shall act as the lead agency until legislation is enacted establishing a new governance structure for restoration of the Salton Sea
 - assisted by designated staff from
 - Department of Water Resources
 - Department of Fish and Game
 - State Air Resources Board
 - State Water Resources Control Board

SB 187

Salton Sea Restoration Fund: restoration project

➤ Section 2932.3 of Fish and Game Code

- Funds from Proposition 84 that are deposited in the Salton Sea Restoration Fund shall be used, upon appropriation by the Legislature, for a restoration project at the Salton Sea that is consistent with a preferred alternative that provides the maximum feasible attainment of:
 - Restoration of long-term stable aquatic and shoreline habitat for the historic levels and diversity of fish and wildlife that depend on the Salton sea
 - Elimination of air quality impacts from the restoration projects
 - Protection of water quality

SB 187

Salton Sea Restoration Fund: restoration project

- Section 2932.3 of Fish and Game Code
 - Limits expenditures of funds deposited in the Salton Sea Restoration Fund from Proposition 84 to those activities identified in the Resources Agency report entitled "Salton Sea Ecosystem Restoration Program Preferred Alternative Report and Funding Plan" for completion in the first five years of implementation identified as "Period I"

Five-Year Plan Activities

Demonstration Project

Early Start Habitat

Geotechnical Investigations

Water and Sediment Quality Studies

Surveys

Preliminary Design & Environmental Document

Final Design & Permitting

Bid and Construct

Biological Investigations

Inflow Investigations

Water and Sediment Quality Investigations

Air Quality Investigations

Geotechnical and Hazards Investigations

Construction Methods/Materials Investigations

Coordination with Torres Martinez Tribe

Access and Utility Agreements

Pre-Design and Environmental Documentation

Final Design and Permitting

Bidding Period

SB 187

Salton Sea Restoration Fund: restoration project

- Proposition 84 provides up to \$47 million to the Salton Sea Restoration Fund
 - 5% of fund may be used for administration
 - 10% of fund may be used for monitoring
 - 85% of fund must be used for project development and implementation
- Period 1 activities total cost about \$500 million

Items	Pre-Construction Period
	2008-2013
Demonstration Project, Investigations, and Administration	\$25.9
Design & Environmental for "Major Construction Period"	\$395.8
Early Start Habitat	\$76.4
Barriers	—
Saline Habitat Complex	—
Water Conveyance ^a	—
Air Quality Management	—
Total Study and Capital Costs^b	\$498.1
Annual Operations and Maintenance	\$3.9

SB 187

Salton Sea Restoration Fund: restoration project

- Priorities for implementation
 - shallow saline habitat
 - monitoring
 - biological resources
 - hydrologic resources
 - elimination of air quality impacts associated with habitat project
 - coordination with Tribal, governmental, and other interests

Five-Year Plan Activities

Demonstration Project

Early Start Habitat

Geotechnical Investigations

Water and Sediment Quality Studies

Surveys

Preliminary Design & Environmental Document

Final Design & Permitting

Bid and Construct

Biological Investigations

Inflow Investigations

Water and Sediment Quality Investigations

Air Quality Investigations

Geotechnical and Hazards Investigations

Construction Methods/Materials Investigations

Coordination with Torres Martinez Tribe

Access and Utility Agreements

Pre-Design and Environmental Documentation

Final Design and Permitting

Bidding Period

SB 187

Salton Sea Restoration Fund: restoration project

- This section is not legislative approval or denial of the preferred alternative identified in the Secretary of the Resources Agency's recommendations contained in the "Salton Sea Ecosystem Restoration Program Preferred Alternative Report and Funding Plan," dated May 2007 and submitted to the Legislature.

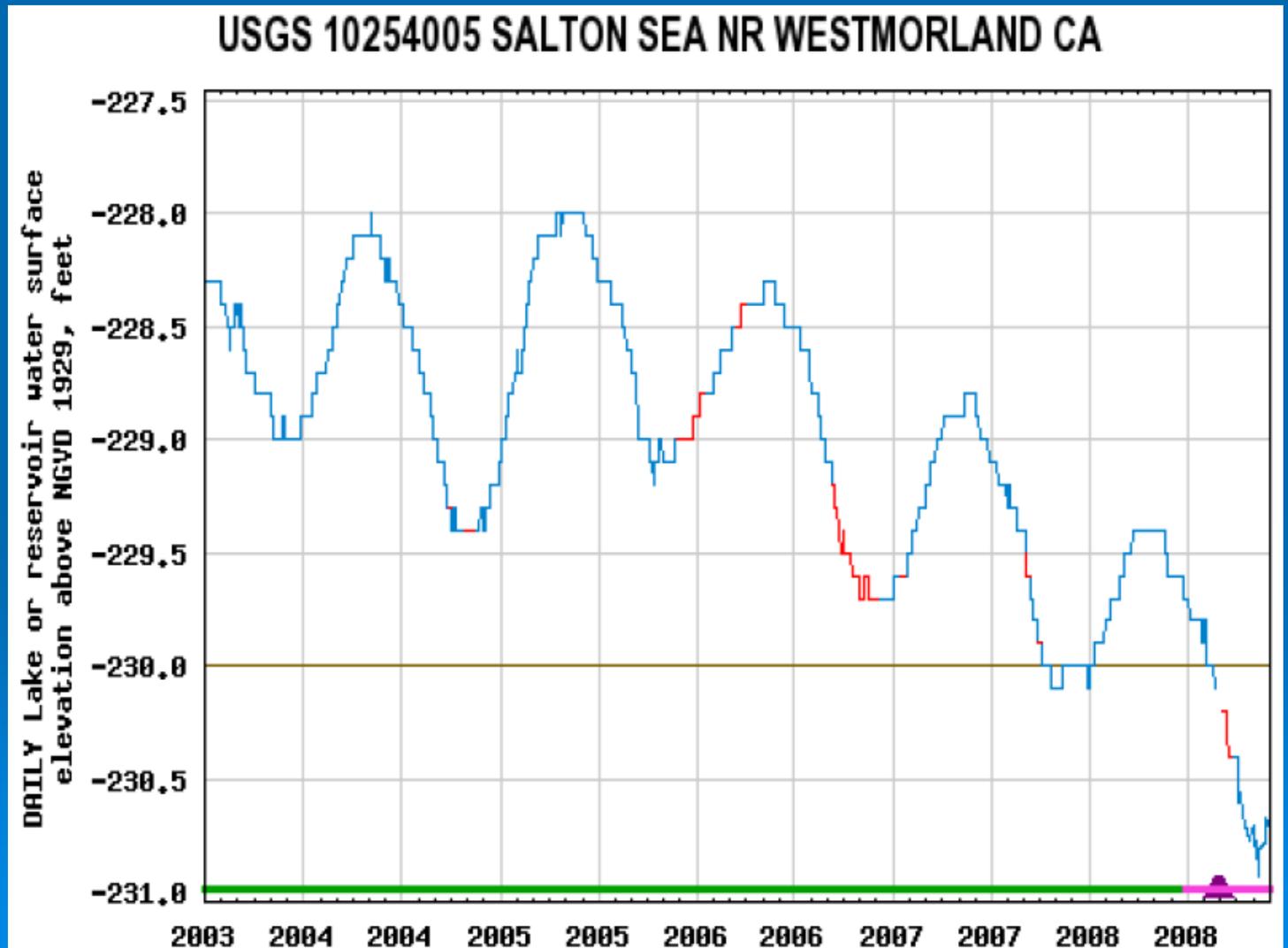
Status of Salton Sea



Status of Salton Sea

➤ Sea Level

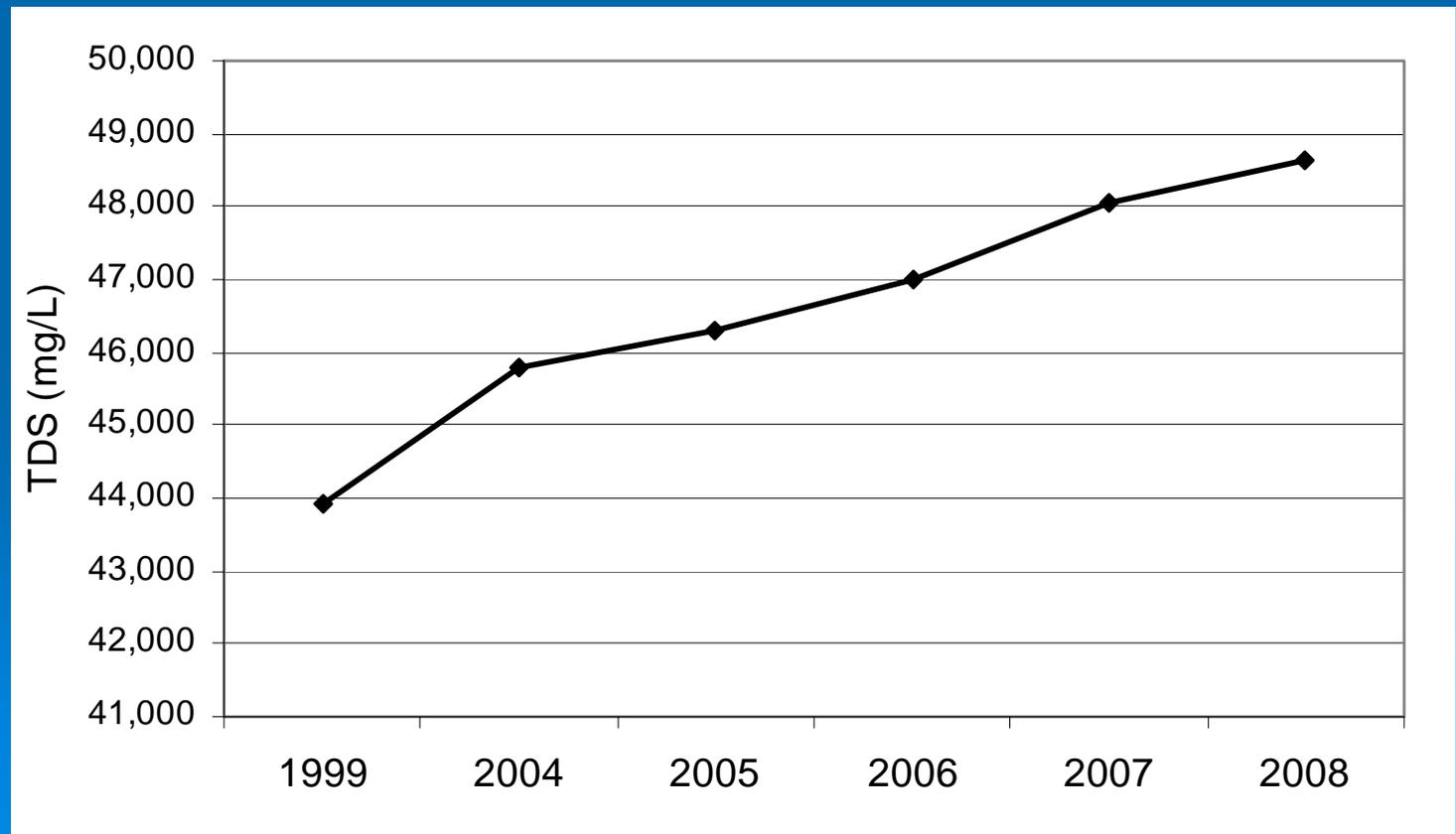
- Minimum elevation of -230.93 (provisional) on November 9, 2008
- Current elevation of -230.68 (provisional) as of November 30, 2008



Status of Salton Sea

➤ Salinity

- DFG recorded salinity as high as 50,000 mg/L TDS in 2008
- Ocean salinity ~ 33,000 mg/L TDS

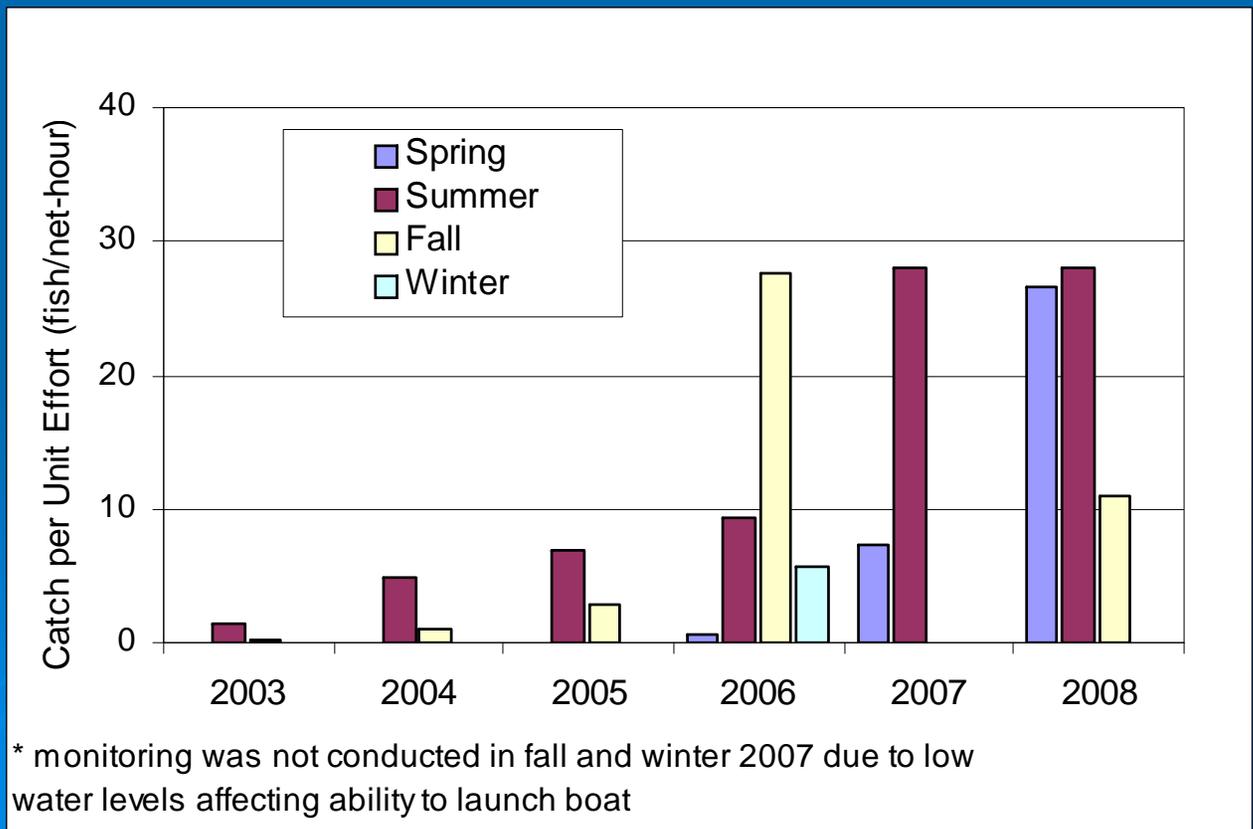


Data from
USBR

Status of Salton Sea

➤ Fish

- marine fish species (orangemouth corvina, sargo, and gulf croaker) not found from monitoring in the past five years
- tilapia fishery in the Sea has rebounded
 - lack of huge summer fish kills past two years contributed to the strength of the tilapia fishery



Status of Salton Sea

➤ Birds

- improving tilapia fishery seems to have facilitated increased numbers of fish-eating birds in the last few years
 - highest peak numbers since 2001 recorded by DFG in 2008 for
 - American white pelicans
 - brown pelicans
 - double-crested cormorants
- huge increase over recent years in nesting by hundreds of pairs of Caspian terns
- also, a significant botulism event occurred in 2008 that had not occurred in the last six years
 - 300 bird mortalities noted at the sea during late summer/early fall
 - 120 American white pelicans, brown pelicans, and gulls rehabilitated

Monitoring and Assessment Plan



Monitoring and Assessment Plan

Salton Sea Ecosystem Restoration Program Preferred Alternative Report and Funding Plan identified need for additional environmental data

- Fill critical data gaps
- Provide information on evolving status of the Salton Sea ecosystem
- Evaluate biologic, hydrologic, sediment, and air quality resources
- Critical to provide information for management of restoration activities

Monitoring and Assessment Plan

DFG and DWR, in coordination with USGS, are developing plans for long-term monitoring to assess the environmental conditions at the Salton Sea

- Overarching goal of the Monitoring and Assessment Plan (MAP) is to implement a data collection, analysis, management, and reporting system to inform and guide management actions

- Objectives of the MAP are to:
 - Determine the existing conditions of the Salton Sea ecosystem
 - Establish standards against which data gathered during long-term monitoring can be compared
 - Identify and prioritize existing data gaps and collect data to fill this void
 - Store, manage, and make publicly available monitoring data in a timely manner

Monitoring and Assessment Plan

Focused Technical Groups comprised of technical experts provided input into monitoring plan development

- governmental agencies
- academia
- local agencies and districts

➤ Focused Technical Groups

- determined goals and objectives
- identified historic and current monitoring
- provided general guidance toward developing long-term monitoring plans

Monitoring and Assessment Plan

Components of MAP

- Biologic MAP includes comprehensive bird, fish, plankton, and invertebrate surveys
- Hydrologic MAP includes stream and sea level gaging, groundwater level and quality monitoring, and surface water and sediment quality monitoring
- Air Quality MAP includes ambient air quality, meteorologic, and playa analyses
- Documentation of environmental conditions associated with episodic and unpredictable events and their impacts on fish, birds and other resources is also included in the MAP

Monitoring and Assessment Plan

MAP also includes

- Geologic and Geographic resources
 - land use
 - seismic/fault analyses
 - Subsidence
- Socio-economic component
 - characteristics of the human population affected by future changes of the Salton Sea
 - social
 - economic
 - demographic

Monitoring and Assessment Plan

- MAP completion anticipated early 2009
- Incorporate into USGS-State Science Plan
 - Monitoring and Assessment
 - Focused Studies
 - Modeling
 - Data synthesis and management
 - Public Outreach

Air Quality MAP



Air Quality MAP

➤ IID-SDCWA Water Conservation and Transfer Project

- approved in 2002
- IID developed a four-step mitigation and monitoring plan to address air quality impacts
 - restrict access on the exposed seabed
 - conduct a meteorological, PM10, and toxic air contaminant monitoring and research program as the Sea recedes
 - create or purchase offsetting emission reduction credits
 - implement direct emission reductions at the Sea

Air Quality MAP

“Research and monitoring” requirement includes implementation of monitoring near the shoreline and populated areas beginning under existing conditions and continuing as the Water Transfer Project is implemented. Constituents to be monitored include:

- Meteorological parameters
- particulate matter (PM10)
- toxic air contaminants

The goal of air quality monitoring is to provide a basis for mitigation of impacts associated with increased exposure of the sea bed due to:

- particulate matter (PM10) impacts
 - incremental increases in toxic air contamination concentrations
- 

Air Quality MAP

DWR, IID, Imperial County APCD, South Coast AQMD, and the Torres Martinez Indian Tribe are collaborating, as part of the Salton Sea Air Quality MAP and the Water Transfer Project requirements, to install a meteorological and ambient air quality monitoring network around the Salton Sea. The monitoring network will:

- Collect and analyze background meteorological conditions
- Measure levels of fine particulates generated by:
 - existing conditions
 - future sea bed exposure
 - restoration activities
- Could be augmented with the installation of specialized air quality monitoring instrumentation in the future, including monitors for:
 - hydrogen sulfide
 - ammonia
 - ozone
 - other toxic air pollutants (as necessary)
- Provide data to support air quality modeling and assessments for mitigation of possible air emission sources

Air Quality MAP

Monitoring network will consist of six sites at or near the Sea



Air Quality MAP

The air quality monitoring network will be:

- installed during spring 2009
- funded by the Joint Powers Authority established to administer the IID-SDCWA Water Transfer Project
- operated and maintained (under contract) by:
 - Imperial County Air Pollution Control District
 - Torres Martinez Indian Tribe

DWR is coordinating activities and providing technical assistance

Data management and network oversight will be conducted by:

- California Air Resources Board

Species Conservation Habitat



Species Conservation Habitat

Variety of species dependent on Salton Sea ecosystem

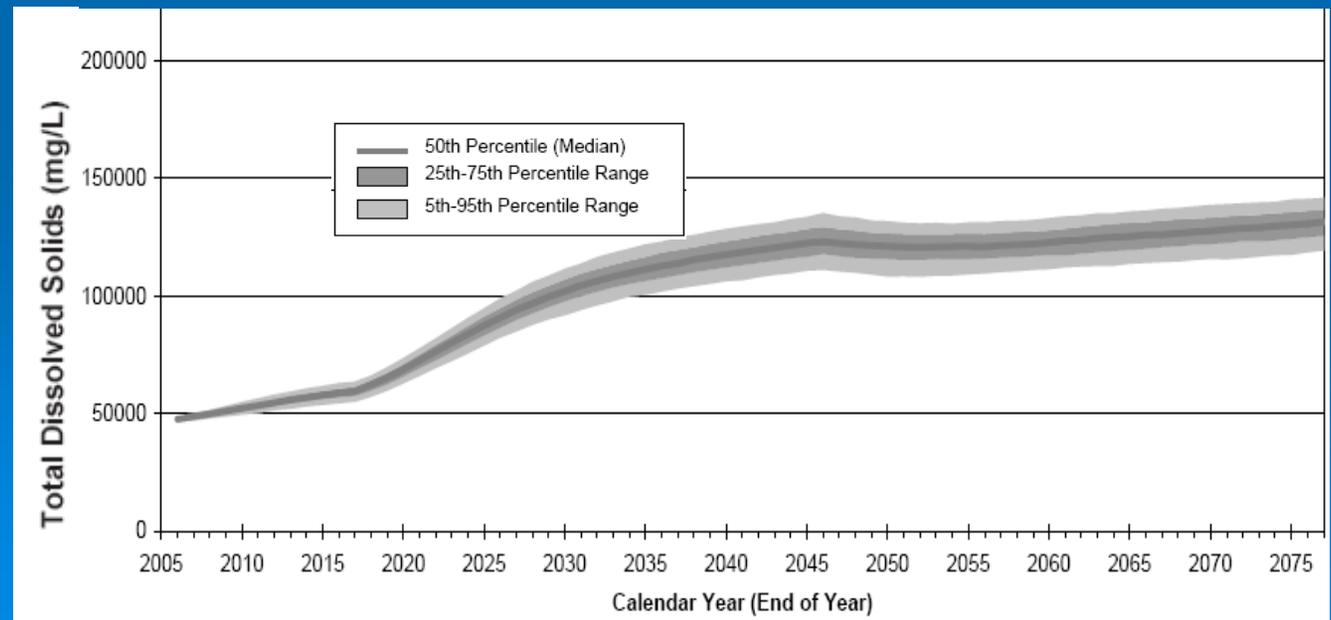
- Invertebrates
- Fish
- Birds



Species Conservation Habitat

Salinity of Salton Sea expected to increase in future while the Sea level will decline

- reduced inflows
 - evaporation
- Increasing salinity will eventually result in loss of habitat and dependent fish and bird species at the Sea



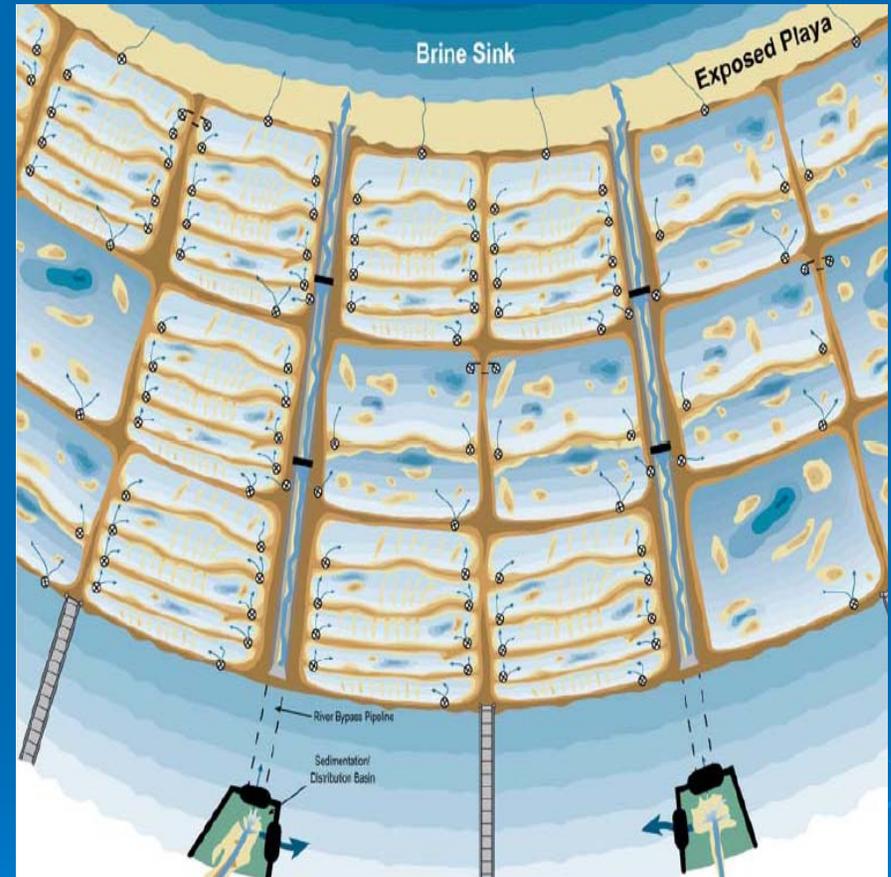
Species Conservation Habitat

DFG & DWR developing Species Conservation Habitat

- compensate for some of the habitat lost as salinity of the Sea increases
- Section 2932 of the California Fish and Game Code
 - upon appropriation by the Legislature, funds from the Salton Sea Restoration Fund shall be expended for ... “implementation of conservation measures necessary to protect the fish and wildlife species dependent on the Salton Sea”

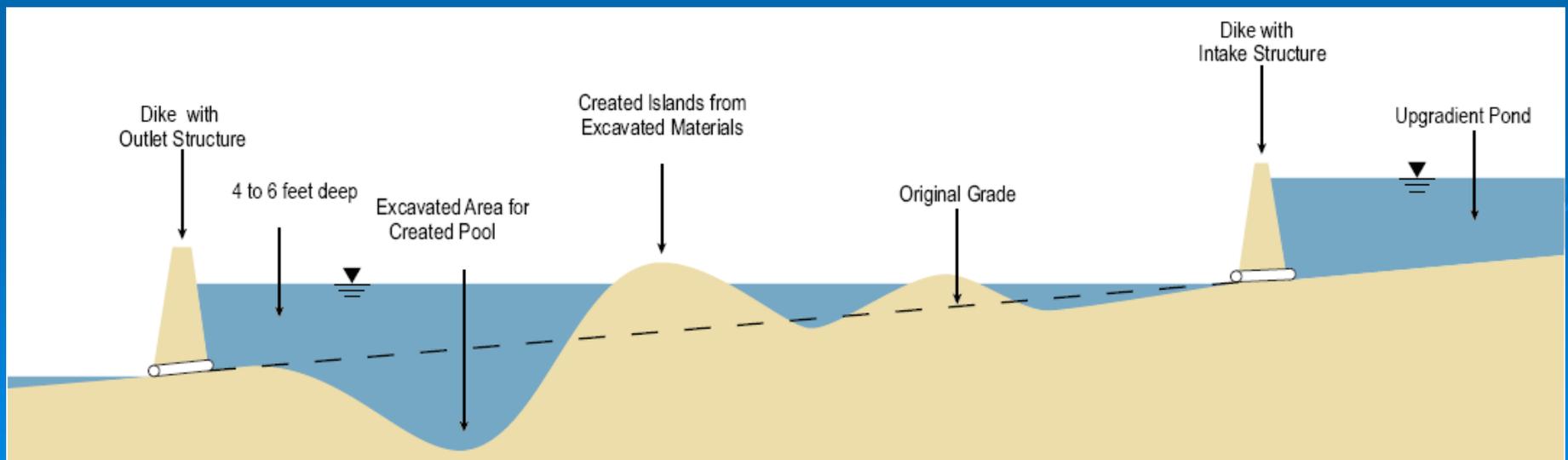
Species Conservation Habitat

- Series of shallow saline ponds
 - 100 to 500 acres in size
- Range up to 4 to 6 feet in depth near the down-gradient dike, depending on the slope of sea bed
- Salinity will increase as water flows from pond to pond
 - range from 20 to 60 parts per thousand (ppt)



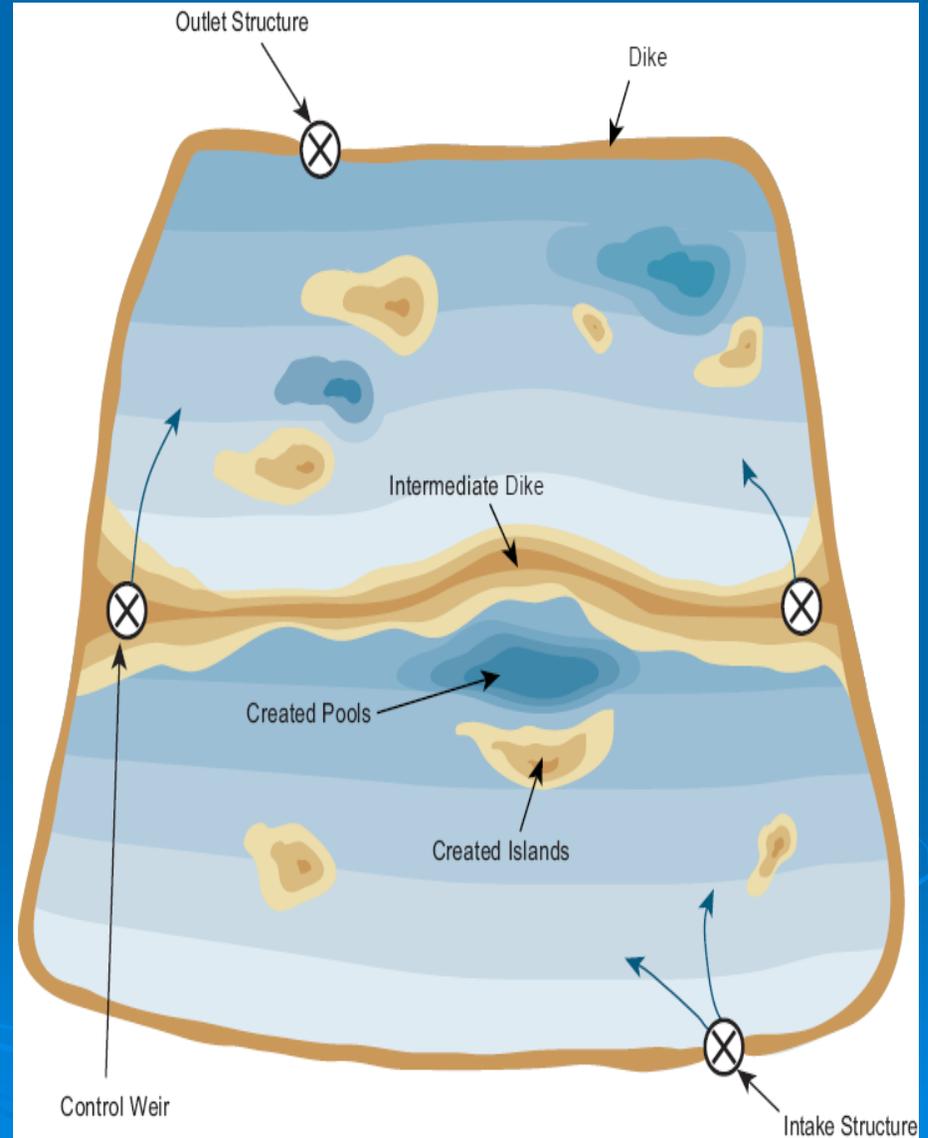
Species Conservation Habitat

- Constructed by excavating material from exposed sea bed
 - Excavated material used for
 - dikes
 - islands



Species Conservation Habitat

- Habitat diversity will be created
 - excavating deeper pools
 - forming islands
 - placing artificial snags
 - varying the bottom substrate to include gravel and rock
- Diverse habitat will support a variety of fish and invertebrate species
 - provide foraging, nesting, loafing, and roosting opportunities for birds.

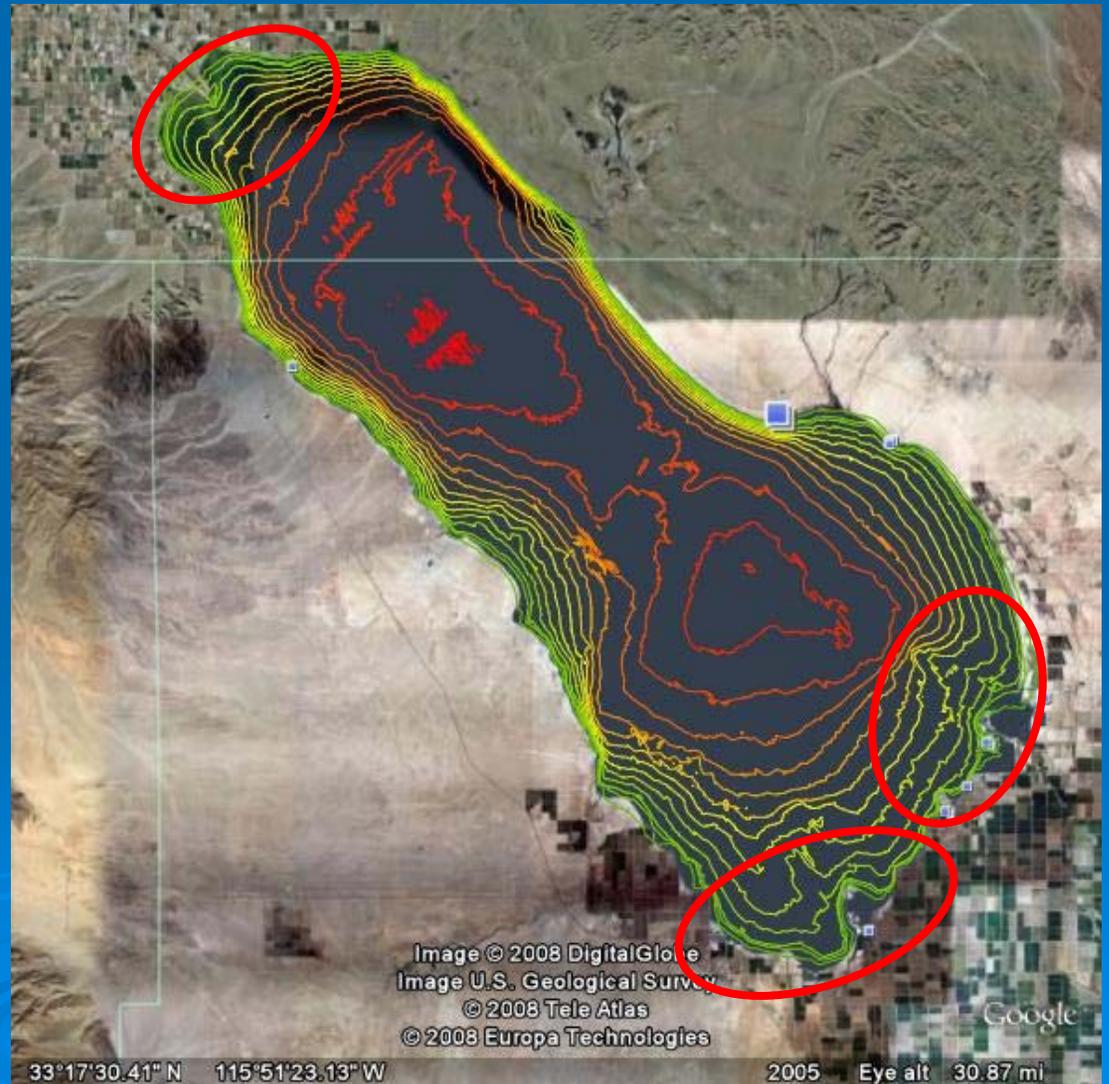


Species Conservation Habitat

- SCH will be developed and monitored over a period of five years
 - About 2,400 acres of SCH are planned for this project
 - sufficient sea bed exposed by 2010 to allow initial development of about 800 acres
 - additional SCH will be constructed in future years as the Sea recedes
 - Performance of the ponds will be monitored as they are constructed
 - provide information to develop adaptive strategies for continued development of SCH
 - evaluate the ability of the ponds to provide habitat for species dependent on the Salton Sea
 - Creation of SCH in addition to the 2,400 acres planned for this project is dependent on
 - success of SCH
 - availability of fiscal resources in future years
- 

Species Conservation Habitat

- Reconnaissance phase
 - completed in 2008
 - identified alternative sites for SCH based on
 - water availability
 - bathymetry
 - alternative sites include
 - Whitewater River delta area
 - New River delta area
 - Alamo River delta area



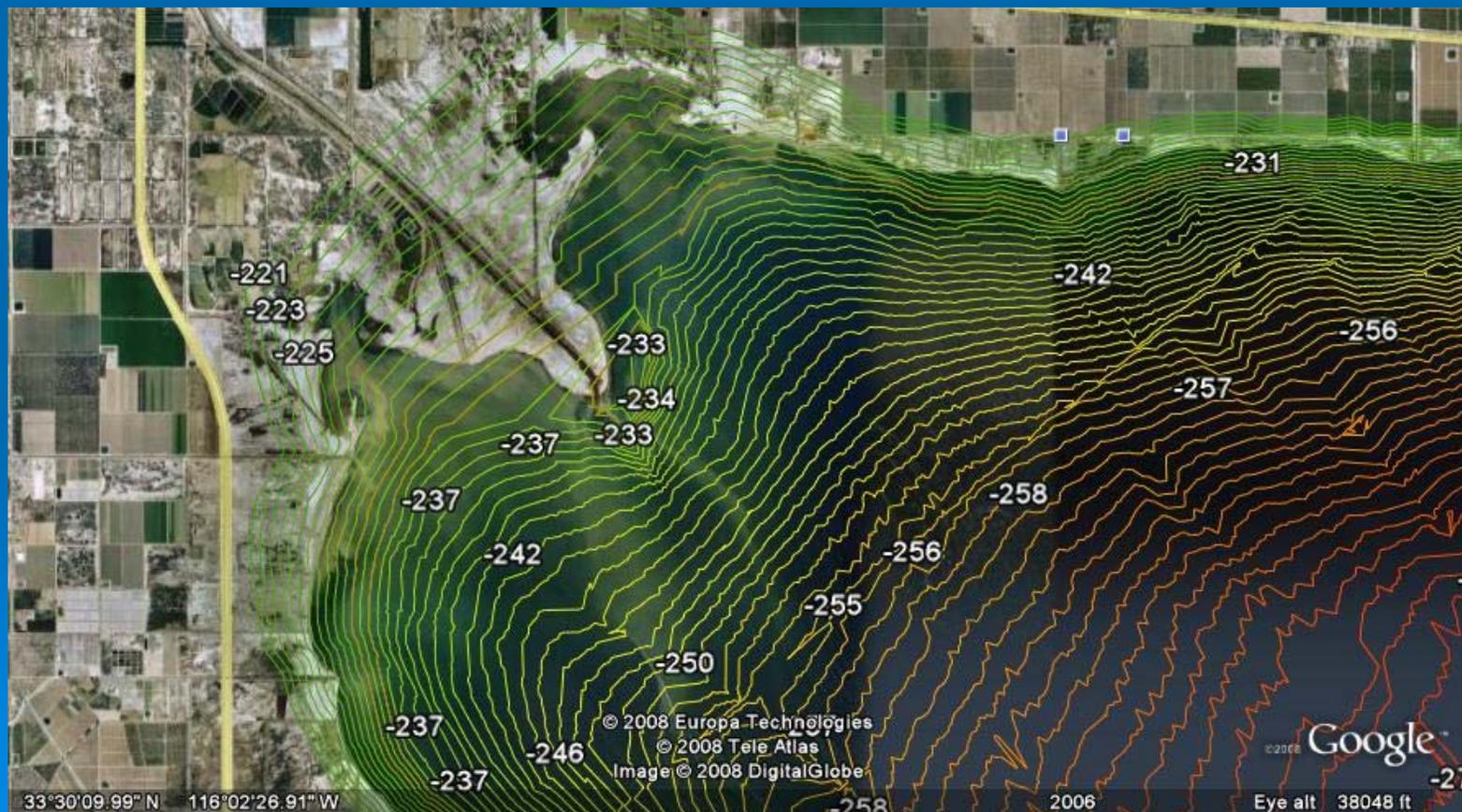
Species Conservation Habitat

- Preliminary design investigations will be completed in 2009
 - refine the alternative site information
 - develop detailed designs and cost estimates
 - initiate negotiations for land access
 - conduct environmental studies for an environmental impact report
 - identify the preferred site for SCH

Species Conservation Habitat

Issues to be addressed for SCH

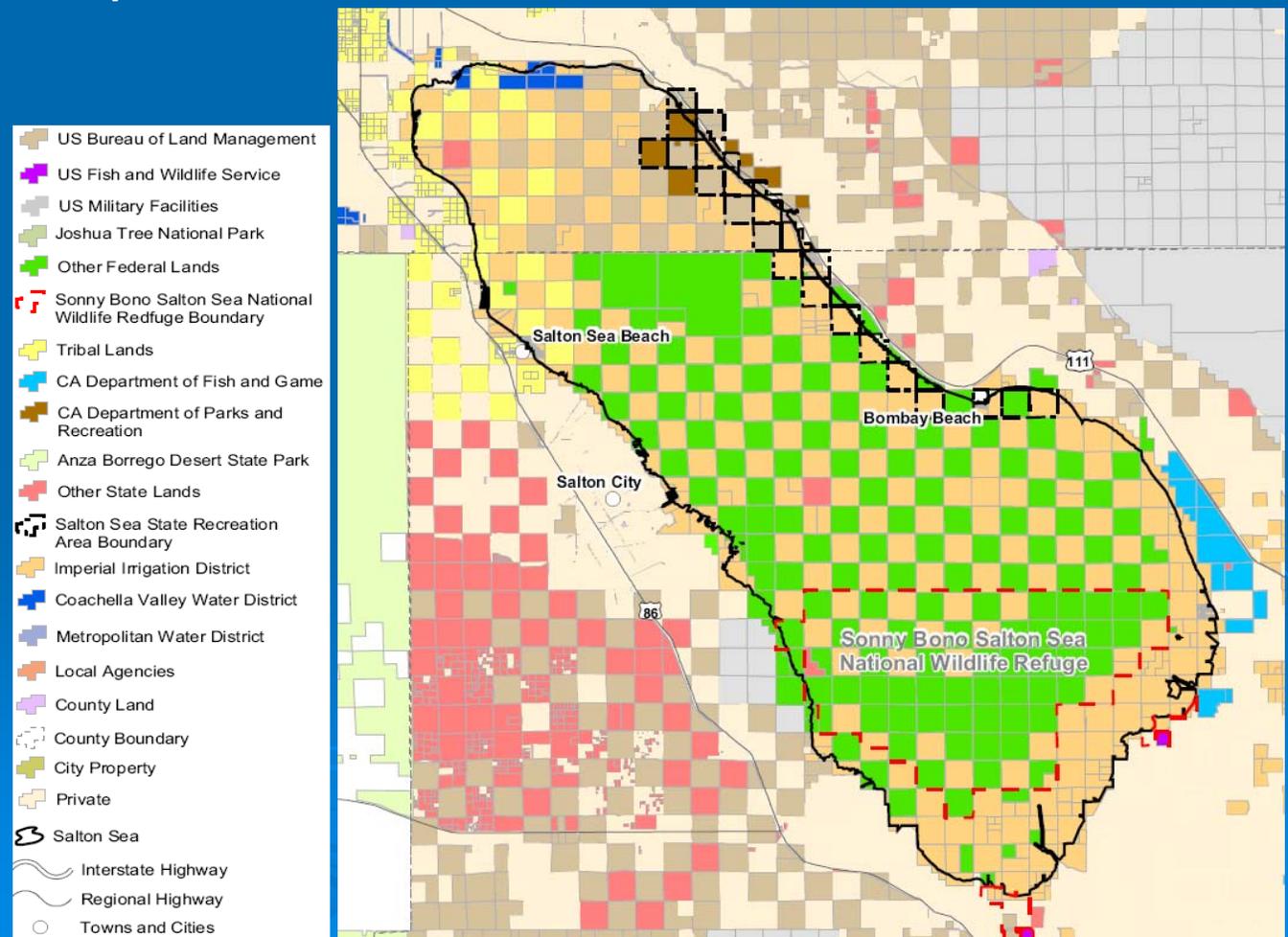
- Bathymetry and land available by 2010



Species Conservation Habitat

Issues to be addressed for SCH

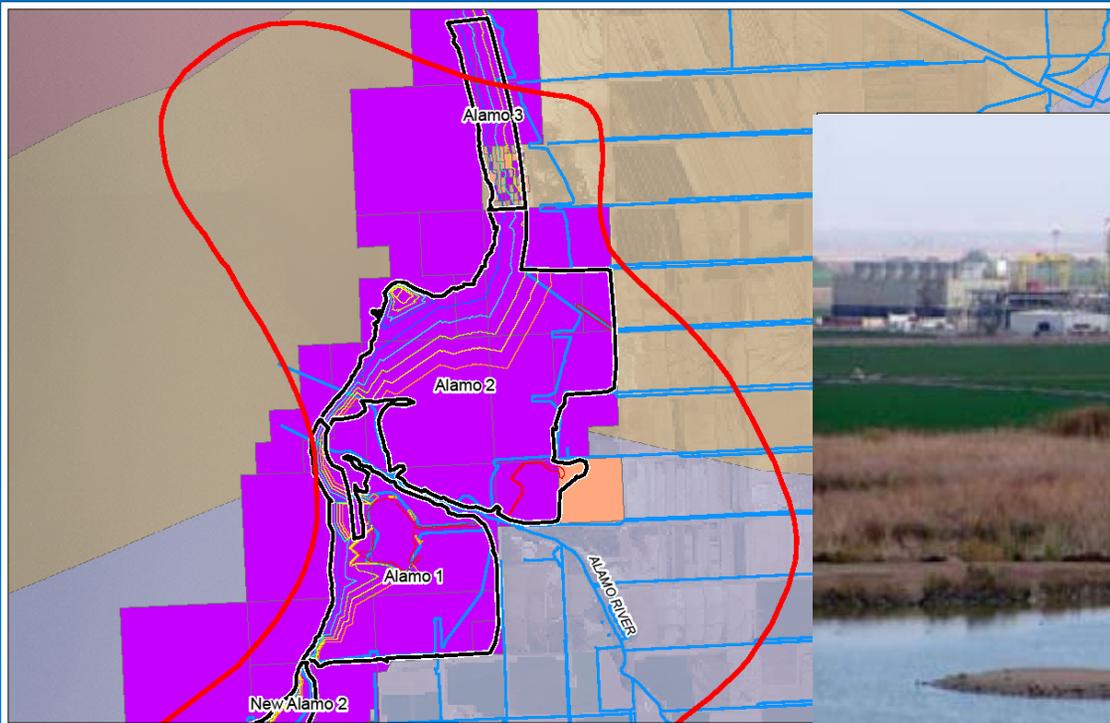
- Land ownership and access



Species Conservation Habitat

Issues to be addressed for SCH

- Geothermal compatibility



Species Conservation Habitat

Issues to be addressed for SCH

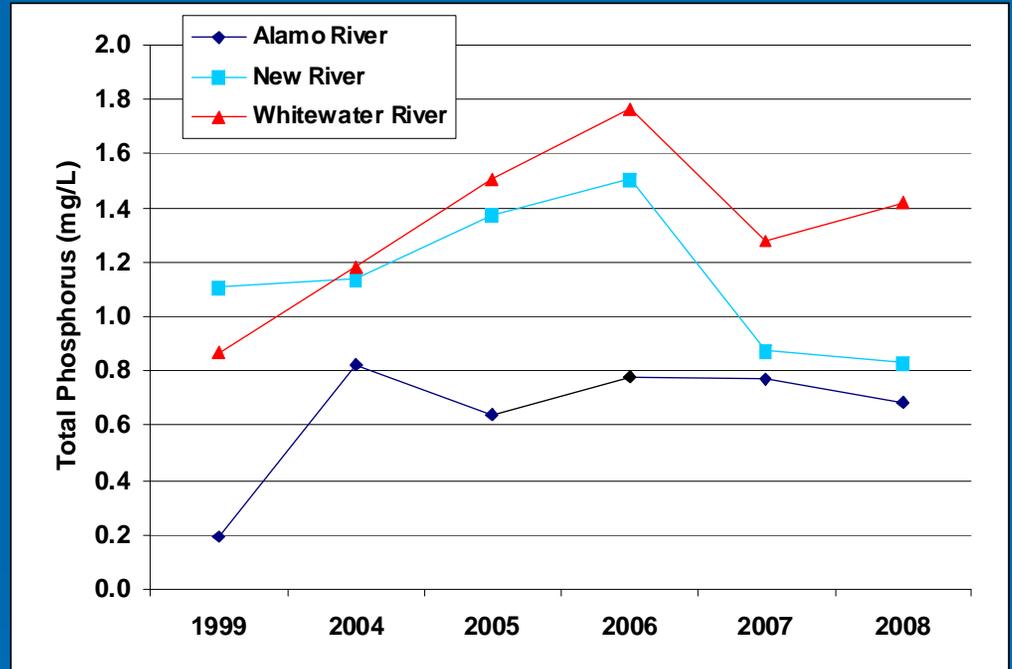
- Design and construction criteria for dikes



Species Conservation Habitat

Issues to be addressed for SCH

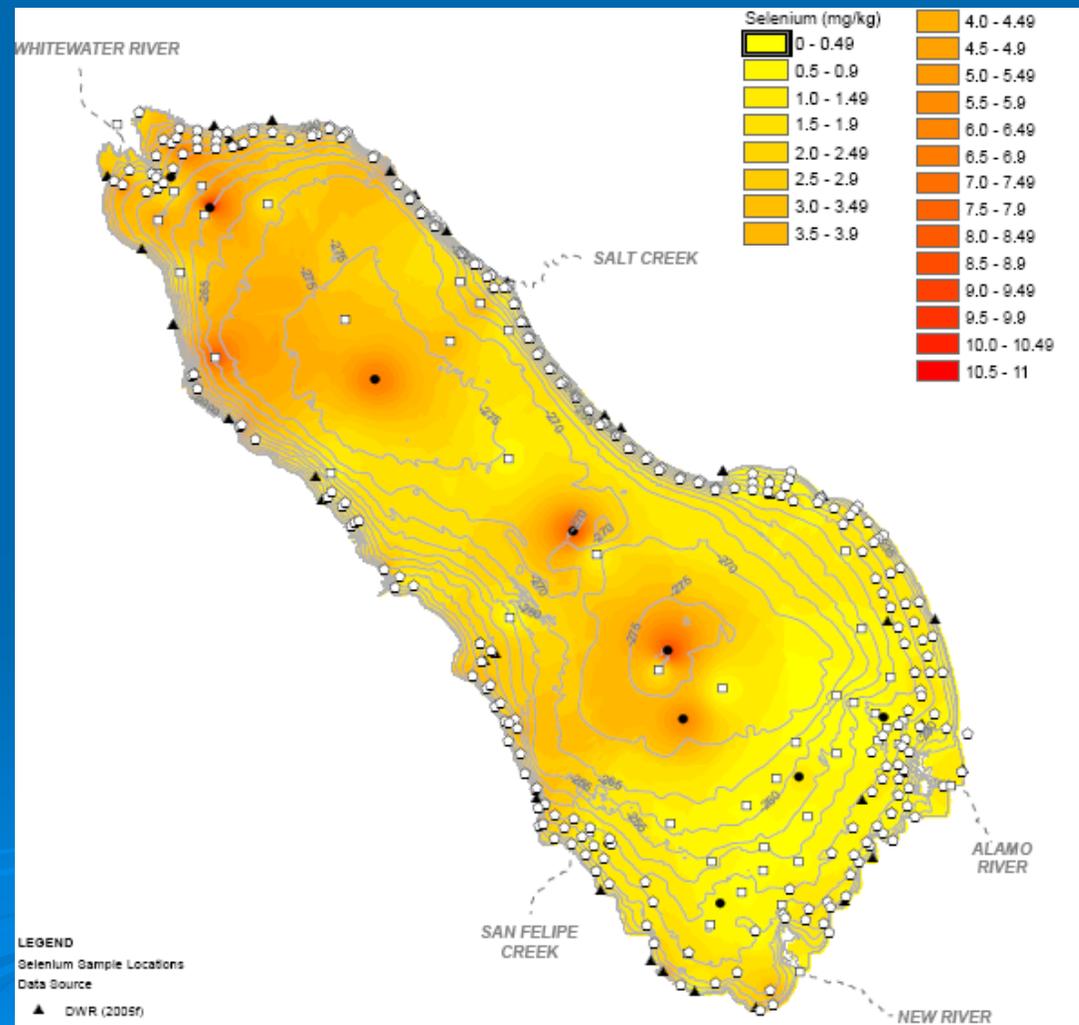
- Nutrients (phosphorus)



Species Conservation Habitat

Issues to be addressed for SCH

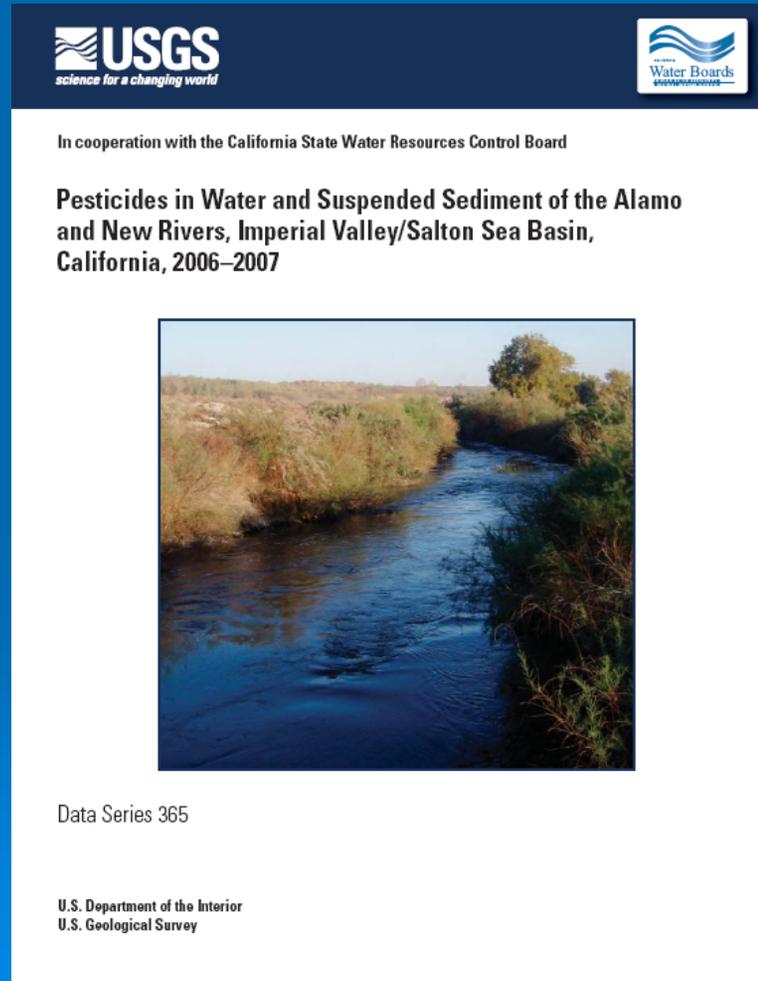
- Selenium risk and management



Species Conservation Habitat

Issues to be addressed for SCH

- Pesticides



Species Conservation Habitat

Issues to be addressed for SCH

- Temperature tolerance of fish

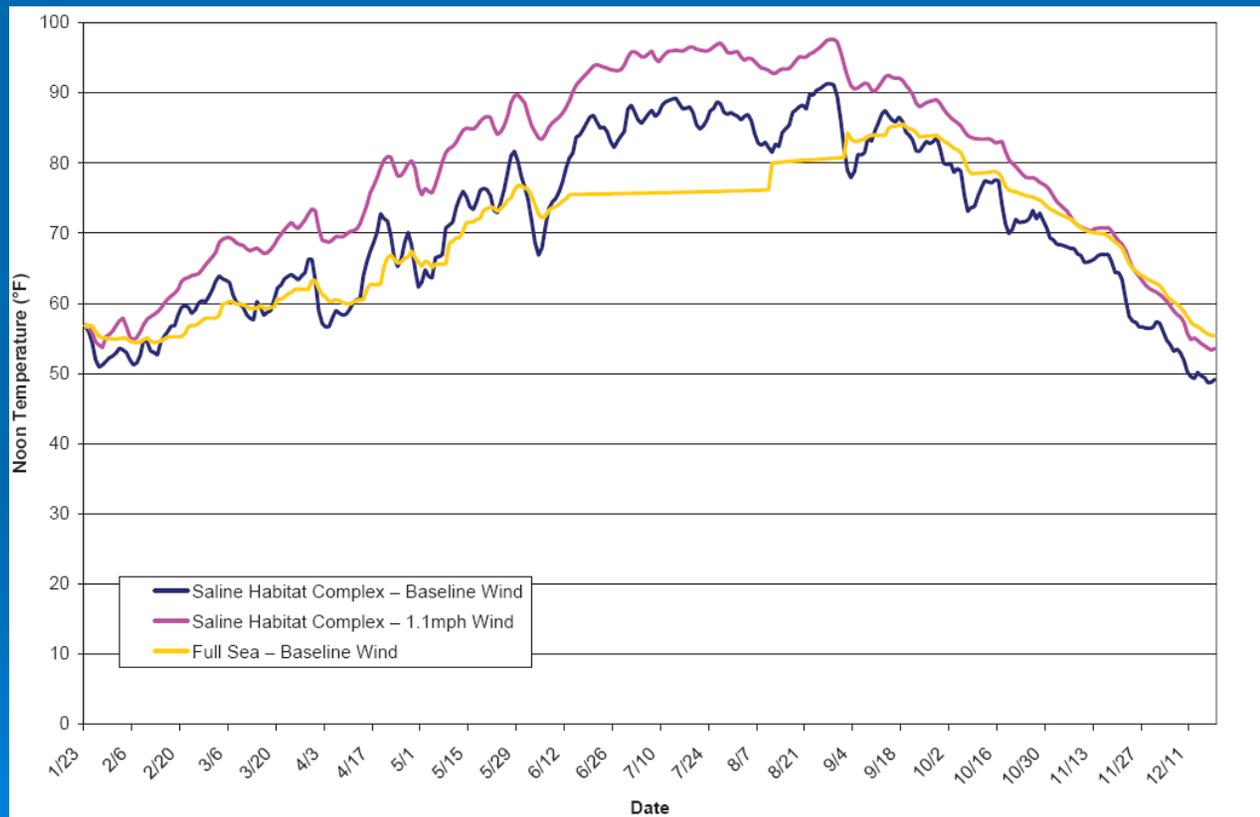


FIGURE H1-13
PREDICTED NOONTIME WATER TEMPERATURES IN
2-METER (~6 FOOT) DEEP SALINE HABITAT COMPLEX
CELLS AND AT THE SURFACE OF THE SALTON SEA



Species Conservation Habitat

Issues to be addressed for SCH

- Desert pupfish



Species Conservation Habitat

Shallow Saline Habitat Projects

- USGS Experimental Ponds



Species Conservation Habitat

Eden Landing Ecological Reserve - SF



Species Conservation Habitat

Eden Landing Ecological Reserve - SF



Species Conservation Habitat

Eden Landing Ecological Reserve - SF



Species Conservation Habitat

Eden Landing Ecological Reserve - SF



Species Conservation Habitat

Eden Landing Ecological Reserve - SF



Species Conservation Habitat

- Next steps for first phase
 - Preliminary Design
 - November 2008 through September 2009
 - Environmental Compliance
 - CEQA/NEPA
 - Permits
 - December 2008 through December 2009
 - Final Design
 - October 2009 through June 2010
 - Agency approvals
 - Land Acquisition
 - SCH Construction
 - Contract bid and preparation – March 2010 to January 2011
 - Construction – February 2011 to January 2012

Questions



Contact Information

- Department of Fish and Game
 - Kim Nicol
78078 Country Club Drive, Suite 109
Bermuda Dunes, CA 92203
(760) 200-9158
FAX: (760) 200-9358
email: KNICOL@dfg.ca.gov

- Department of Water Resources
 - Jerry Boles
1416 Ninth Street, Room 1148-5
Sacramento, CA 94236
(916) 654-7128
FAX: (916) 653-9745
email: bolesj@water.ca.gov