

# California Coastal Act Permitting for Seawater Desalination

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# What I'll Cover:

- Coastal Commission perspective on seawater desalination.
- Suggestions on the review process – the easy way or the hard way...
- Examples of approved projects.
- Compare two most recent approved full-scale facilities.

# Water Issues in California –

History of:

- Complexity
- Controversy
- Contentiousness
- Connections  
between water and  
growth, quality of  
life, environment,  
etc.



– Desal is no different.

# Coastal Commission Perspective on Seawater Desalination:

- **Commission recognizes seawater desalination as part of California's water portfolio:** has already approved over 30 projects – including full-scale facilities, test and pilot projects, geotech and hydrogeologic studies for site selection, etc.
- **Commission recognizes that some desalination methods and locations are better than others:** key question is whether a proposed project is consistent with the Coastal Act.

# Approved Desal Projects Include:

- **Full-scale facilities:** in Carlsbad, Marina, Sand City, Catalina.
- **Intake Research Studies:** infiltration galleries, screening systems, slant wells, in Long Beach, West Basin, Orange County, Santa Cruz, etc.
- **Feasible locations:** geotech/hydrogeo studies in Orange County, Santa Cruz, Monterey, Cambria, to determine suitability of subsurface intakes.
- **Pre-treatment/Treatment/Corrosion Studies:** to evaluate membranes, water conditions, filters, etc., at many locations.

# Key Applicable Coastal Act Policies:

- Marine Biology/Water Quality: avoid/mitigate effects of intake and discharge.
- Determine “least environmentally harmful feasible alternative”.
- Ensure public access.
- Is a project “coastal-dependent”?
- Will it induce growth beyond capacity?
- Energy use / Greenhouse Gas emissions
- Protect coastal scenic and visual qualities

# Key Considerations for Facility Design & Review












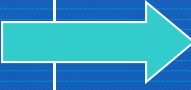




| "Easier" review:   | "More difficult" review:   |
|--|--|
| Away from shoreline.   | On or next to shoreline.   |
| Subsurface intake.   | Open-water intake.   |
| Public facility.   | Private facility.  |
| Defined service area with known level of build-out.  | Unknown or extensive service area.   |
| Part of local/regional plan in area where significant part of water portfolio is conservation. | Not part of a local/regional plan; in an area without much effective conservation. |
| Early, extensive coordination w/agencies & stakeholders.                                       | Poor or little coordination.   |

# Key Considerations for Review Process

- Use Coastal Act policies/regulations/guidelines like any other design element.
- Provide requested information to allow Commission to make legally-defensible findings.
- Coordinate – pre-application.
- Coordinate – throughout review.
- Coordinate, coordinate, coordinate.

# Regulatory Timelines

2003 2004 2005 2006 2007 2008 2009 2010

|                                     |   |  |   |  |                |  |  |  |
|-------------------------------------|---|--|---|--|----------------|--|--|--|
| Long Beach Test Facility            |   | (CCC 2 months)   |   |  |                |  |  |  |
| Sand City Municipal Supply Facility |   |     | (CCC 3 months)  |  |                |  |  |  |
| Orange County Subsurface Intake     |   |     | (CCC 3 months)  |  |                |  |  |  |
| Santa Cruz Test Facility            |   |  |       | (CCC 5 months)   |                |  |  |  |
| Monterey County Test Facility       |   |  |    | (CCC 20 months)  |                |  |  |  |
| Long Beach Subsurface Intake        |   |  |   |  | (CCC 7 months) |  |  |  |
| Poseidon Carlsbad                   |   |     |   |  |                |  |  |  |
| West Basin Test Facility            |   |  |   | (CCC 4 months)   |                |  |  |  |

CEQA review:  (from initial notice to certification)

CCC review:  (from application to approval)

# Compare Poseidon and Sand City:

## Poseidon (56,000 afy):

- Municipal supply.
- **Issues:** marine life impacts, growth inducement, GHG, co-location.
- No local permit appeal.
- **Total CEQA and CCC review: 3 1/2 years, so far, with more CEQA review to come...**

## Sand City (300 afy):

- Municipal supply
- **Issues:** coastal erosion, growth inducement, sensitive habitat, urban service area, public access.
- Included local permit appeal.
- **Total CEQA and CCC review: One year.**

# Poseidon Timeline

## (or, what took so long??):

### Two Main Reasons:

- Created its own inefficient process:
  - Re-ordered the review process.
  - Provided partial information to get partial approvals that had to be added to later.
  - Took months or years to provide necessary information.
  - Found to have provided inaccurate, incomplete, and misleading information.
  - Still needs additional reviews and approvals.
- Project plans based on an out-of-date and out-of-favor technology – power plant open water once-through cooling intakes.

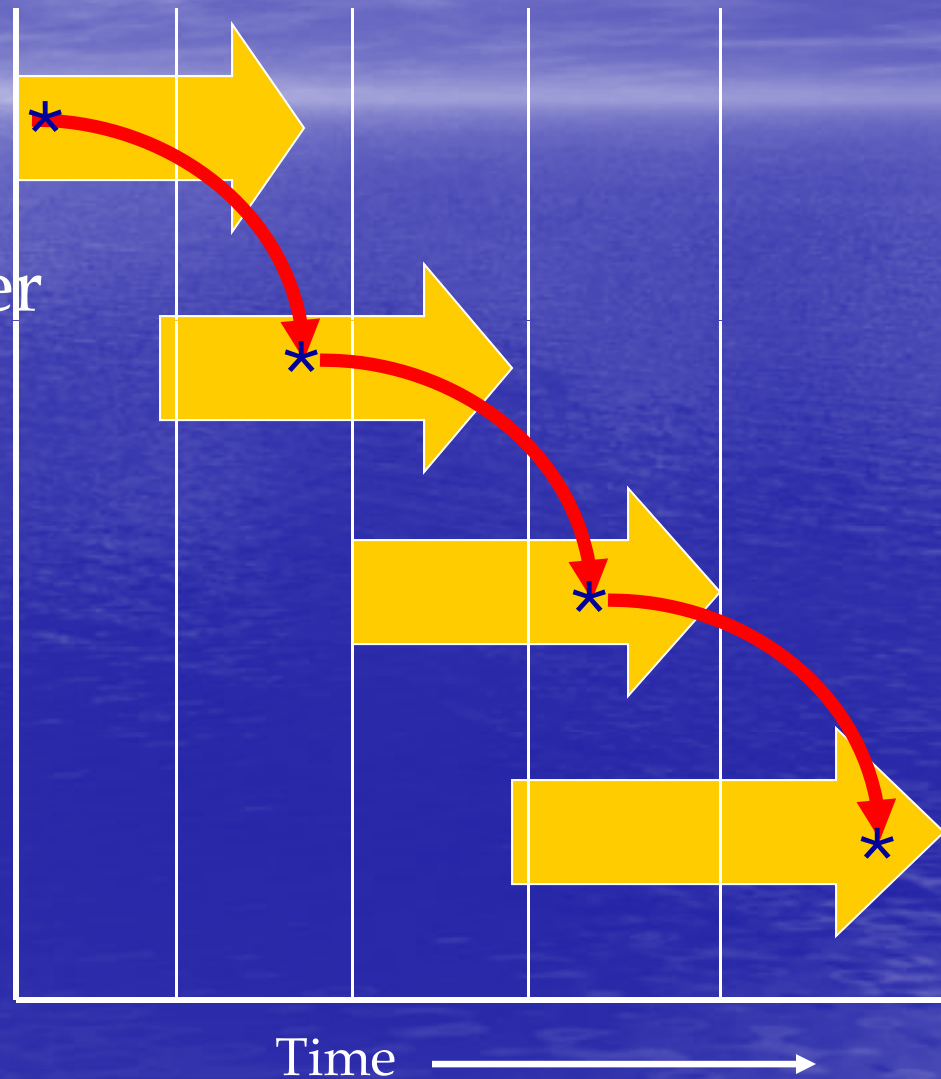
# Flow of Project Review & Permitting

CEQA Review

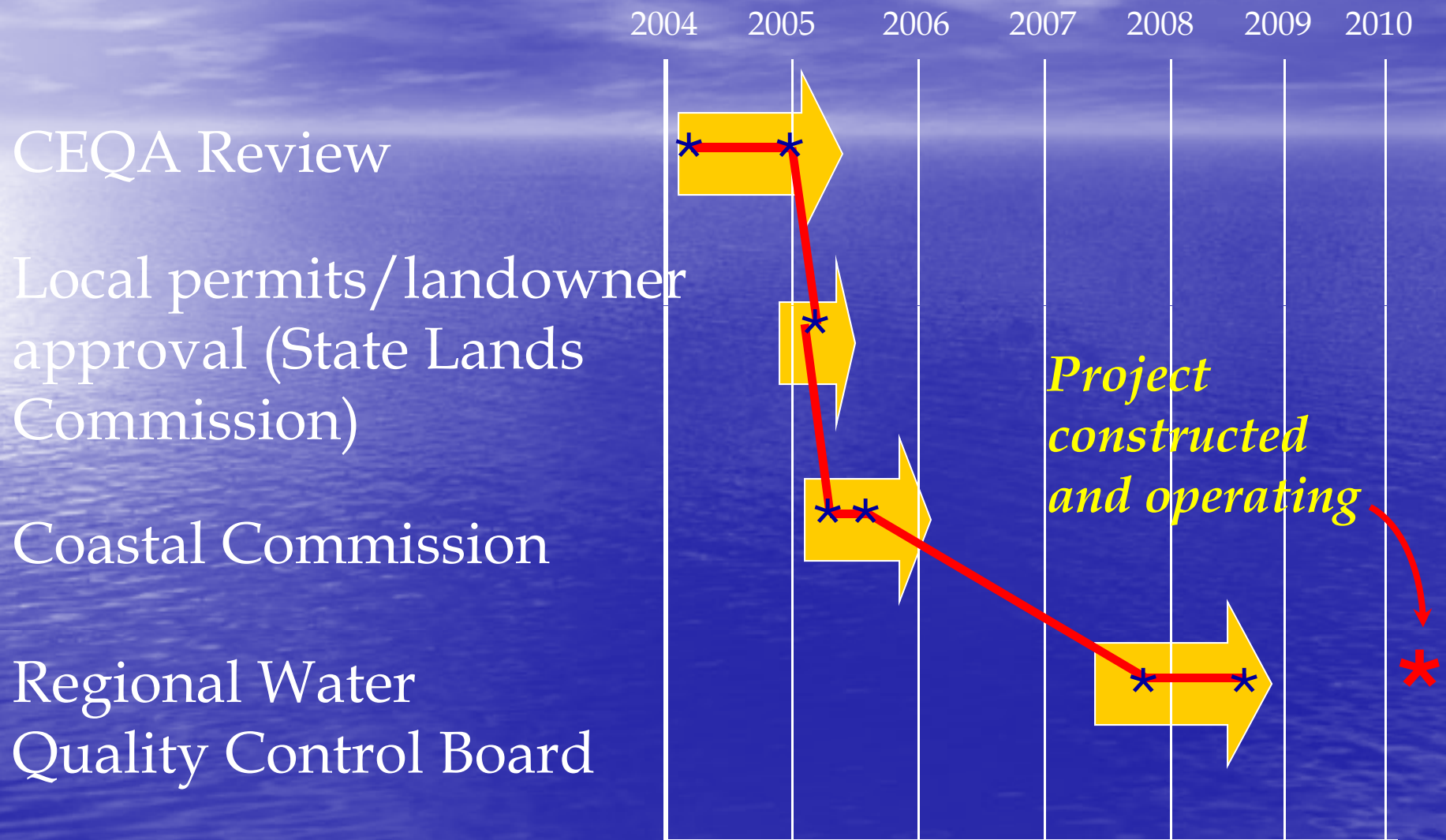
Local permits/landowner approval (State Lands Commission)

Coastal Commission

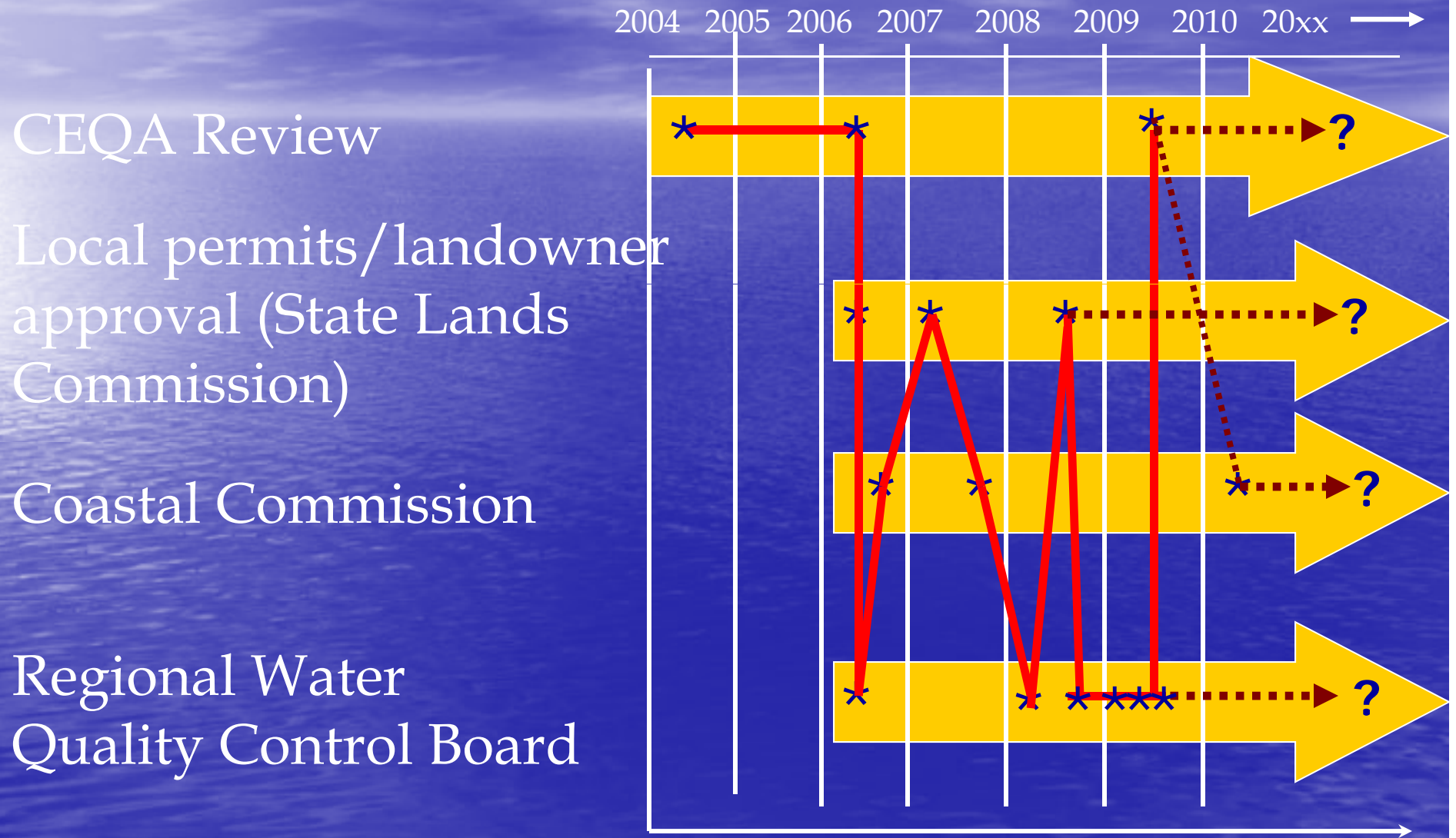
Regional Water Quality Board



# Permit Flow for Sand City



# Poseidon's Selected Process



# Desal, Marine Biology, & Open-water Power Plant Intakes

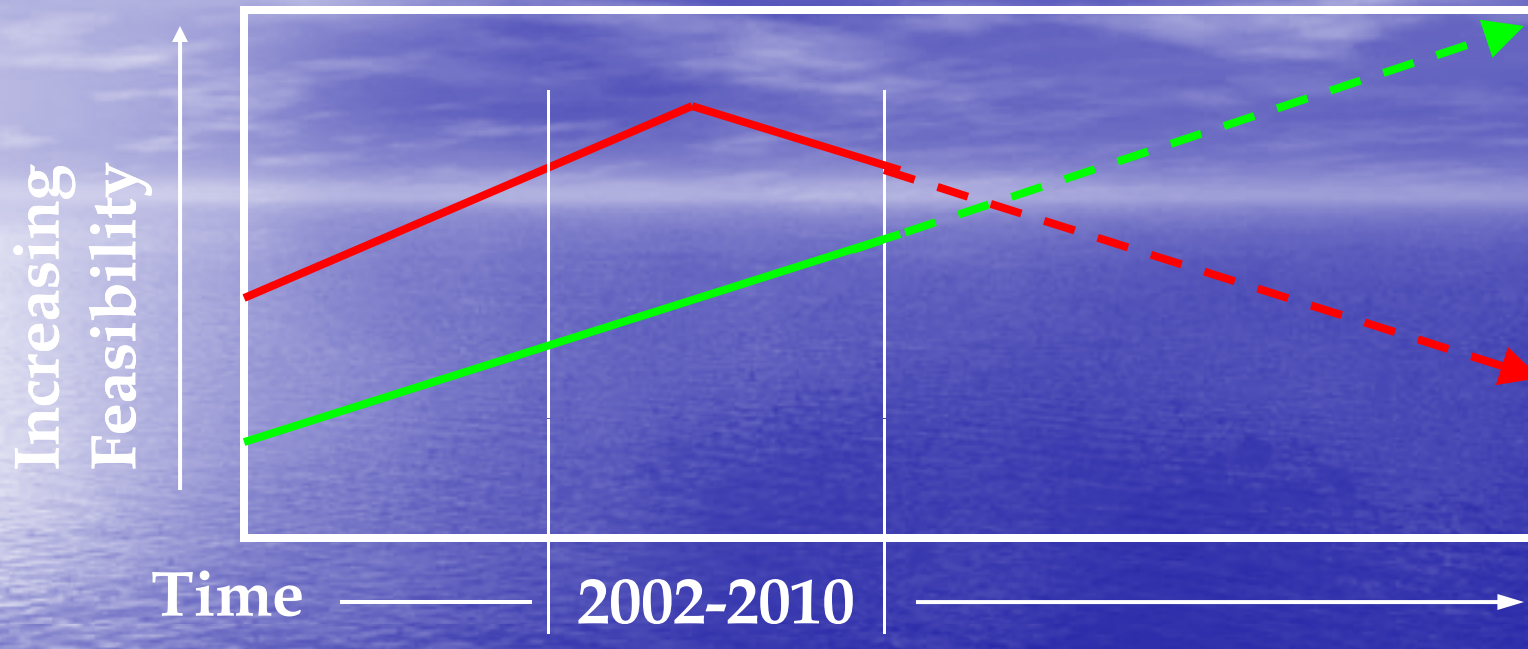
## Key Coastal Act policies:

- “Maintain, enhance, and where feasible, restore” marine biology and water quality.
- Minimize effects of entrainment.

## Co-location at power plants:

- **Pros** – existing structure, can combine discharges to reduce effects.
- **Cons** – Out-of-date and harmful designs and locations; often feasible and less damaging alternatives, can be more costly to operate.

# Feasibility of Intake Methods



**Co-location:** declining due to court decisions, regulatory changes, increased understanding of impacts, power plant upgrades, etc.

**Subsurface:** increasing due to improved designs, success of research and installed systems, and in response to above co-location problems.

# Extent of marine life impacts



# Extent of marine life impacts



# Extent of cumulative impacts



# Add marine reserves/protected areas:



# What took so long, continued...

## Headlines from May 2010:

NATURE | Vol 465 | 20 May 2010

**Robust warming of the global upper ocean**

Reuters

**“Double trouble” in acidic, warming oceans**

The Independent

**Fall in fish stocks far worse than feared, study shows**

Los Angeles Times

**National Academy of Sciences urges strong action to cut greenhouse gases**

# Helpful Links

## Coastal Commission Report

- Seawater Desalination and the California Coastal Act (2004): [www.coastal.ca.gov](http://www.coastal.ca.gov)

## State Desalination Task Force

- Water Desalination Findings and Recommendations:

[www.owue.water.ca.gov/recycle/desal/desal.cfm](http://www.owue.water.ca.gov/recycle/desal/desal.cfm)

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