

Proposed Amendment to the Water Quality Control Plan for Ocean Waters to Address Desalination Facilities

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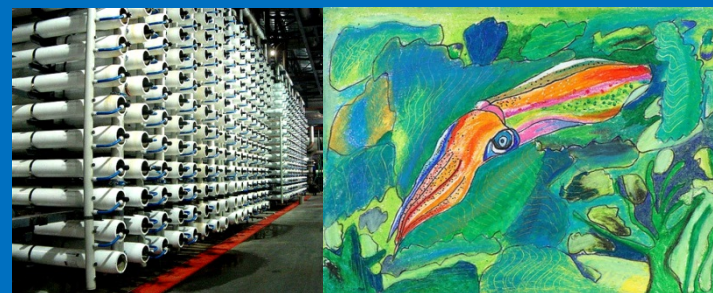
Ocean Standards Unit

Division of Water Quality

State Water Resources Control Board



**Public Hearing
August 19, 2014**



Art By: Avi Jagdish, 2nd Grade, 2012

Purpose of Public Hearing

- Listen to comments and feedback.
- Provide additional information and clarification.
- No action to be taken by the State Water Board.



Issue

- Desalination projects have been proposed along the California coastline.
- Desalination activities have the potential to negatively affect water quality and other beneficial uses of ocean waters.
- The 2012 Ocean Plan does not adequately address impact from desalination facilities.
- Regional Water Boards permit desalination facilities on a facility-specific basis.



Amend Statewide Water Quality Control Plan

- Address desalination intakes, brine discharges, and incorporate other non-substantive changes (Desalination Amendment) in the California Ocean Plan.
- Overarching goal is to ensure California has a diverse water supply portfolio while protecting marine resources.



Previous Steps



Proposed Desalination Amendment

- 1) Applicability and general provisions that include definitions of new, expanded, and existing facilities.
- 2) Direction for the Regional Water Boards regarding the determination for new, expanded, and conditionally permitted desalination facilities required by California Water Code § 13142.5(b).
- 3) Narrative receiving water limitation for salinity.
- 4) Monitoring and reporting requirements.



Considerations for Brine Discharge Technology

- Commingling brine with wastewater is the preferred alternative.
- Multiport diffusers are the next best method for diluting brine when wastewater is unavailable.
- Other technologies may be used if an owner or operator can demonstrate the technology provides a comparable level of protection.
- The Regional Water Boards' goal is to identify the best available technology for minimizing intake and mortality of marine life.



Considerations for Alternative Brine Discharge Technologies

- Section III.L.2.d.(2)(d): For the proposed alternative discharge, an owner or operator will evaluate (where applicable):
 - intake-related entrainment,
 - osmotic stress,
 - turbulence that occurs during water conveyance and mixing, and
 - shearing stress at the point of discharge.



Narrative Receiving Water Limitation for Salinity

- Applicable to all desalination facilities:
“Discharges shall not exceed a daily maximum of 2.0 parts per thousand above natural background salinity to be measured as total dissolved solids (mg/L) measured no further than 100 meters (328 ft) horizontally from the discharge. There is no vertical limit to this zone.”
- An owner or operator may submit a proposal to the Regional Water Board for approval of an alternative salinity receiving water limitation.



Alternative Receiving Water Limitation for Salinity

- Complete a study to establish baseline conditions
- Characterize composition of habitat and marine life.
- Regional Water Board may permit the use of existing data.
- Conduct Whole Effluent Toxicity (WET) tests.



Alternative Receiving Water Limitation for Salinity: WET Tests

Species	Toxicity Endpoints
Giant Kelp	Germination and Growth
Red Abalone	Development
Purple Urchin	Development and Fertilization
Sand Dollar	Development and Fertilization
Topsmelt	Larval Growth Rate
Bivalves?	
Worms? (Annelids)	

**WET test species are
representatives of other
species in their taxon**



Feedback Received at the August 6, 2014 Public Workshop

- Add clarity while preserving flexibility.
- Investigate what tools the State Water Board has to review intake technology.
- Include brackish desalination facilities discharging to the ocean.



Feedback Received at the August 6, 2014 Public Workshop

- Clarify the language regarding using wastewater for brine dilution.
- Investigate areas where staff could be more clear on mitigation assessment.
- Explore options for the City of Santa Barbara.



Define Feasibility

- CEQA definition:
“Feasible’ means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors.” (Pub. Resources Code, § 21061.1.)
- Once-through Cooling Policy definition:
“Not Feasible – Cannot be accomplished because of space constraints or the inability to obtain necessary permits due to public safety considerations, unacceptable environmental impacts, local ordinances, regulations, etc. Cost is not a factor to be considered when determining feasibility under Track 1.”

Should cost be a factor?

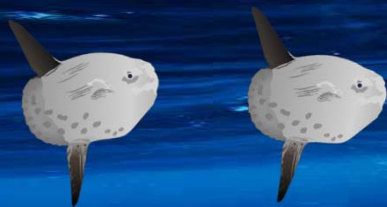


Screen Slot Size

Slot Size (mm)	Facility	Location	Intake capacity (MGD)
0.5	Tampa Bay Seawater Desal	Tampa Bay, FL, USA	58
0.5	Barney Davis Seawater Cooling Station	Corpus Christi, TX, USA	467
0.5	Big Bend Florida Power and Light Station	Apollo Beach, FL, USA	1500
0.5 – 1.0	Brunswick Seawater Cooling Power Plant	Southport, NC, USA	1428
0.5 – 3.0	Chalk Point Generating Station	Eagle Harbor, MD, USA	360-734
1.0	Logan Generating Station	Swedesboro, NJ, USA	2
1.0 – 2.0	Seminole Generating Station	Palatka, FL, USA	>34
0.5 – 1.0	EPRI 2005 Studies	Narragansett Bay, RI, USA	NA
0.5 – 1.0	EPRI 2005 Studies	Lake Erie, OH, USA	NA
2.0	Swansea Desalination Facility	Hudson River, NY, USA	10
3.0	Gold Coast Desalination Plant	Tugun, Queensland, Australia	90
75	Adelaide Desalination Project	Lonsdale, South Australia	80-160
Subsurface	Wonthaggi Desalination Plant	Dalyston, Victoria, Australia	219



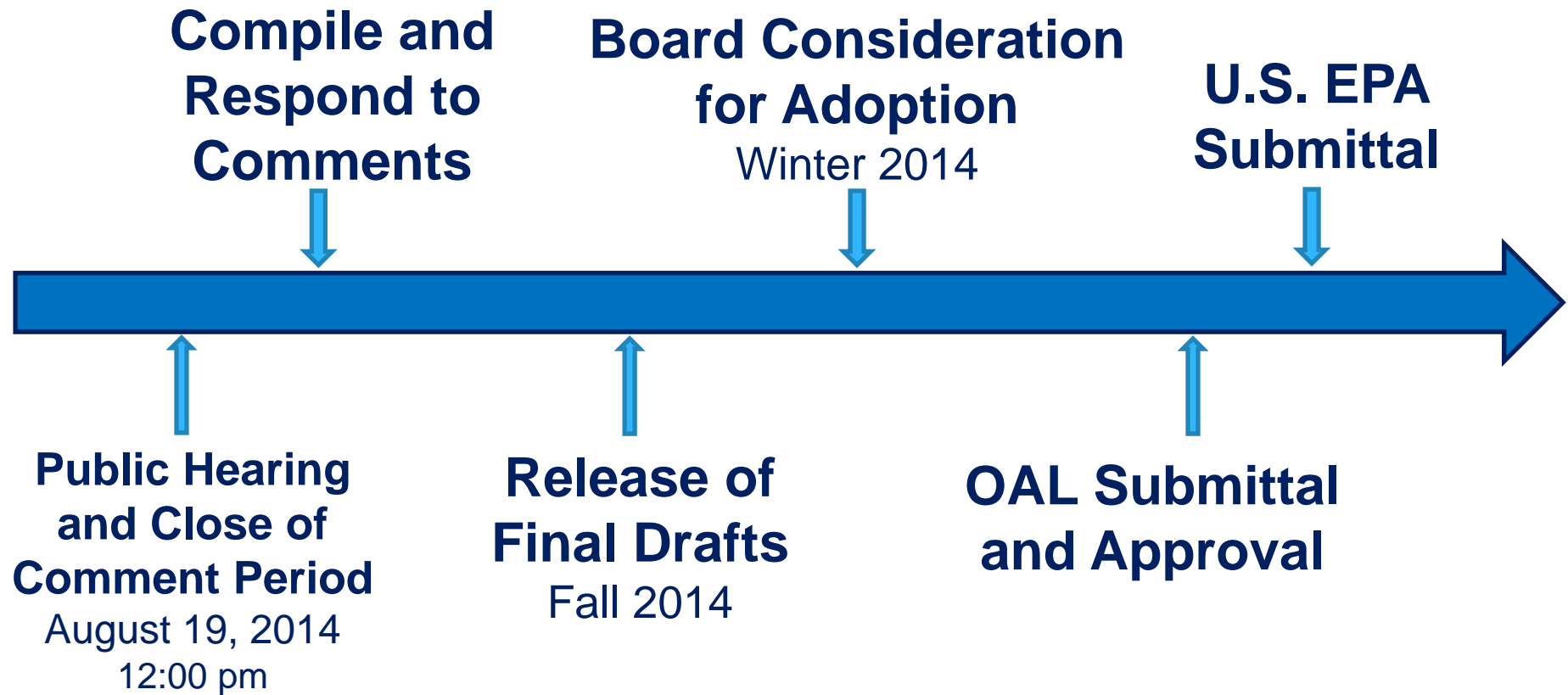
Screen Slot Size



Intake Screens, Inc.

<http://intakescreensinc.com/>

Next Steps





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