Initial comments for Monday's Desalination Policy workshop

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Subject: Initial comments for Monday's Desalination Policy workshop
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Hi Dominic,

Thank you for convening the State Board desalination workshop scheduled for Monday, April 18, 2011. Coastal Commission staff will not be able to attend, so we are instead providing these initial comments for consideration during the workshop. We understand that there will be additional future opportunities to provide more formal comments.

In summary, our key comments regarding a proposed State Board desalination policy are:

1) The policy should be consistent with applicable provisions of the California Coastal Act.
2) It should be consistent with the approach taken in the Board's Once-Through Cooling Policy to phase out the use of open water intakes.
3) Desalination discharges should ensure maximum protection of water quality and marine life.

These are described in more detail below.

1) The adopted State Board desalination policy should be consistent with applicable provisions of the California Coastal Act.

Consistent with our respective jurisdictional roles and our shared obligation to implement Section 13142.5 of the State Water Code, we recommend any State Board desalination policy conform to provisions of the Coastal Act meant to protect water quality and marine life and that apply to most proposed desalination facilities. These include:

> Section 30230: "*Marine resources shall be maintained, enhanced, and, where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.*"
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> Section 30231: "*The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference w surface waterflow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*"
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> Section 30260 (applicable to some, but not necessarily all proposed desalination facilities): "*Coastal-dependent industrial facilities shall be encouraged to locate or expand within existing*

sites and shall be permitted reasonable long-term growth where consistent with this division. However, where new or expanded coastal-dependent industrial facilities cannot feasibly be accommodated consistent with other policies of this division, they may nonetheless be permitted in accordance with this section and Sections 30261 and 30262 if (1) alternative locations are infeasible or more environmentally damaging; (2) to do otherwise would adversely affect the public welfare; and (3) adverse environmental effects are mitigated to the maximum extent feasible."

We recommend that the developed policy specifically incorporate key elements of these provisions, including minimizing, to the extent feasible, adverse effects of waste water discharges and entrainment, and selecting the least environmentally damaging feasible alternative location for any development associated with a proposed desalination facility.

2) **The policy should be consistent with the approach taken by the Board's Once-Through Cooling Policy to phase out the use of open water intakes:** Open water intakes used for desalination can cause the same type and extent of impacts as when those intakes are used for once-through cooling. In adopting its 2010 Once-Through Cooling Policy, the Board clearly acknowledged the extensive harm to marine life resulting from using this type of seawater intake. We recommend any desalination policy adopted by the Board similarly acknowledge these types of impacts and require desalination facilities, when feasible, to use alternatives to open water intakes. This approach would also be consistent with the efforts of other state agencies – for example, the Ocean Protection Council in April 2006 a resolution acknowledging the significant adverse impacts caused by these intakes and urges state agencies to adopt measures that will reduce the impacts and phase-out these intakes where feasible (resolution available at: http://www.opc.ca.gov/2006/04/resolution-of-the-california-ocean-protection-council-regarding-the-use-of-once-through-cooling-technologies-in-coastal-waters).

There are several examples along the California coast of successful research and test facilities using various types of subsurface intakes. Properly designed and sited, these types of intakes completely avoid or significantly reduce the intake of marine life, and although they may result in relatively short-term impacts during construction or intake maintenance, those impacts are generally far less than those caused by ongoing operations of an open water intake. Additionally, subsurface intakes are likely to have far fewer mitigation requirements than open water intakes. The policy may also recognize that a number of research efforts are underway to determine whether there are feasible methods for screening open water intakes to reduce marine life entrainment; however, currently available information suggests screening may not be feasible and effective for significantly reducing impacts in the marine environment.

3) **Desalination discharges should ensure maximum protection of water quality and marine life:** We recommend the policy address three key components of desalination discharges – salinity, acidity, and opportunities for combined discharges.

Regarding salinity, there have been relatively few studies studying the effects of increased salinity in California's marine environment, though there is clear evidence of harm to some species. We therefore recommend that any policy be based on a conservative approach that requires discharge salinities outside a Zone of Initial Dilution (ZID) remain within the range of naturally-occurring ambient salinities at the discharge site. In most coastal areas, this would allow about a 10% change from ambient conditions, although we recommend that the actual allowable range be based on at least one year's continual monitoring at the site to determine the range of ambient conditions. ZIDs established for such discharges should also be relatively small and should not include areas of benthic habitat. The policy should also ensure that mitigation is required for any increase beyond the ambient range outside the ZID.

Regarding acidity, it appears that many desalination discharges have a lower pH than ambient seawater. With increased ocean acidity resulting from globally increased greenhouse gas emissions, it is important that desalination discharges not add to the already excessive ocean acidification occurring along California's shores. While the current Ocean Plan requires that a discharge's pH level not vary more than 0.2 units from naturally-occurring pH levels, we recommend the policy establish a more stringent standard to help slow the rate of acidification in the state's nearshore waters. We note, too, that desalination is a relatively energy-intensive water source, and depending on a facility's source of electricity, it may result in relatively high indirect greenhouse gas emissions, which further exacerbate the ocean acidification process. The Board may also wish to address through this policy some of desalination's indirect effects on ocean acidity by encouraging the use of non-greenhouse gas emitting energy sources for desalination.

Regarding opportunities for combined discharges, the policy should encourage that desalination discharges be blended with existing wastewater discharges where feasible. A blended discharge is likely to result in more rapid mixing than either discharge could achieve on its own. This step could also result in a desalination discharge more readily achieving the first two of the steps above and may allow for a larger ZID than a stand-alone discharge.

Again, thanks very much for the opportunity to provide comments. We will look forward to continued coordination as the Board moves forward with development of this policy.

Tom Luster

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