12 September 2006

**To:** Dominic Gregorio, State Water Resources Control Board
**From**: Mike Foster, Professor Emeritus, Moss Landing Marine Laboratories

**Subj**: Comments on: State Water Resources Control Board. 2006. "Scoping Document: Proposed Statewide Policy on Clean Water Act Section 316(b) Regulations." June 13, 2006

My comments are listed in order from the beginning of the document.

**MAIN TEXT**

1. p. 9, E. first paragraph: It is not necessarily true that more organisms will be affected by entrainment when the water vol. withdrawn is large relative to the flow or size of the source water body. Just as many organisms can be affected if water comes from a large source water body versus a small one. I think what is meant is that a higher proportion of organisms in the source water body may be affected if the source water body is small, with perhaps greater consequences for local populations. Should be stated this way.

2. p. 10, b.: Through screen velocity reduction has no impact on impingement related mortality if the screen is inside a fore bay or some other structure that attracts/traps fish. While maybe not killed by impingement, they are killed during heat treatment (i.e., Huntington Beach) unless there is an effective fish return system. Some wording to indicate this problem would present a more realistic picture.

3. p. 13, 2.: I recommend calculating baseline flow as NY does; full flow at maximum generating capacity. This makes sense since it is what the plants are currently permitted to do. If the plant owners want to get "credit" for flow reductions below this "baseline" based on actual operation for, say, the past 5 years (NPDES permit cycle), fine, but the reduced flow rate should then become the maximum flow rate ON ANY PARTICULAR DAY allowed in the new NPDES permit. If economics or politics causes the owner to want to exceed this maximum at some later time, the State and/or Regional Boards should have a policy in place that specifies the technology that will be used to prevent additional impacts, or "compensation" for increased environmental impacts due to exceeding the maximum. That way the owners can figure the "compensation cost" into their decision to exceed the maximum. If this is done after the fact, it will be mostly lawyers who are compensated.

The proposed policy of using the past 5 yrs. as baseline and revisiting that at each permit cycle gives the plant owners a "free pass" for five years after the first permit issued under Phase II; after receiving the permit they could immediately go back to maximum possible flow for 5 yrs. with no "compensation" or technology fixes needed for that five years. At the beginning of the next 5 years there would be endless discussions about what to do for the next permit cycle. Seems best for the environment to sort this all out now.

4. p. 14, (1):

a. As suggested at the State Board Training Session, this impingement standard may be based largely on East Coast power plants that often have high impingement but very bad entrainment studies. So, they focus on impingement and presumably the EPA was influenced by this in their rule writing. Many West Coast plants have very low impingement. It would be another example of regulatory rigidity, unreasonable cost to the plant owner with little environmental benefit to hold all CA plants to this standard. In my opinion CA policy should allow decisions about the need for impingement reduction and how much reduction to be made based on impingement at each power plant. This would be a good decision for a Technical Working Group (TWG) to weigh in on.

b. The word "shellfish" is used here and elsewhere. Would be very useful to define what this means.

5. p. 18:

a. Achieving at least a 60% reduction of entrainment through technology or operational controls is, in my opinion, and excellent idea.

b. I also think it is very good to use Habitat Production Foregone as a basis for "compensation." This has a fairly good scientific basis, compensates for organisms impacted other than those assessed in 316b studies, provides a useful metric for compensation (area) and most directly (without doing things that usually don't work like fish hatcheries) addresses population compensation (versus carbon based approaches).

c. p. 23: Also very good that a determination of cumulative effects is required. This, however, is very difficult to do accurately. Yet another reason for TWGs, or Expert Review Panels (ERPs) as they are called on p. 25.

6. p. 23-24, H: While I appreciate the concern over endangered/threatened species, in my experience this often becomes another example of regulatory rigidity with little thought about the actual population consequences. The NMFS "concerns" over the <u>possible</u> effects of the previously proposed new discharge for the Potrero Power Plant on the <u>possible</u> movements of salmonids were truly unreasonable and silly. Here sea otters etc. are also mentioned. Would be nice to see the data. How many of these animals have ever been "trapped?" Of these, how many of those extracted did not survive? How was survival determined? Stories can make one cry, but can also be very misleading - would nice to see some data.

7. p. 27, M: Excellent idea, although plant owners have argued high flow when little or no power is generated is somehow necessary to "maintain the system." I have never seen data either way on this. But, they might be right, and it would be good to know one way or the other before imposing this 10% rule.

**APPENDIX I**

1. p. 1, a.: See comment 4. above. And, again, "shellfish" should be defined.

2. p. 2, d.: See comment 7. above.

3. p. 2, e.: See comment 3. above.

4. p. 2, h.: See comments from the Coastal Conservancy. This is another area where TWGs should play a large, plant specific role.

5. p. 3, 4.: Might add that an ERP review and advise Regional Boards on compensation decisions.

6. p. 3, 6.: It is good to include that impacts to all species and communities should be considered, but this will be largely a qualitative consideration for most species and communities. Should the policy recognize that this may, because of lack of knowledge, be a qualitative assessment?

7. p. 4, ETM definition:
   a. Think you mean "model," not mode.
   b. While ETM uses some of the same data used for AEL and FH, it does not use AEL and FH results as the definition implies. See Raimondi's presentation at the Training Session, and the Steinbeck et al. draft report.

8. p. 4, Zooplankton definition: Zooplankton are defined as all animals that occur in the plankton, either part time or full time. They are not just "planktonic invertebrates > 200 microns." To be consistent with scientific terminology and to avoid confusion, I would call these Invertebrate Zooplankton, or just Invertebrate Plankton. Similarly, including icthyoplankton under Plankton Organism when you already include phyto- and zooplankton confuses levels of definition. Then there are planktonic procaryotes and viruses.

9. p. 5, Impingement impacts 2.: This periodic sampling requirement is vague, and like some such sampling done now and much of the current periodic water quality sampling, will be a waste of time and money with little environmental benefit unless Regional Boards clearly state why such sampling is required, sampling design such that it will actually be possible to test stated hypotheses with the resulting data, how the tests will be done, and what action will be taken if the tests reveal some problem. Another area for TWGs to review???

10. p. 5, Entrainment impacts 2.: It is unreasonable and not environmentally useful to require sampling of "all zooplankton species." This would radically alter how even modern entrainment studies are done, greatly increase study costs, and be of little benefit to assessing impacts. Given the life histories and fecundities of many zooplankton (e.g., copepods), there is no reason to expect they are importantly impacted by entrainment. On the other hand, there are situations where things like the larvae of certain invertebrates such as clams, abalone, lobster, etc. might be importantly impacted and entrainment studies should consider these impacts. This is another example of a site-specific question. Consider saying:
"Entrainment impacts must be based on sampling for all icthyoplankton, and larval invertebrates of similar size such as those of some echinoderms and crustaceans. If it is likely that larvae of other invertebrates (e.g., clams, abalone) are importantly impacted by

entrainment, entrainment studies must include an estimate of these impacts. These special studies and their interpretation shall be designed and interpreted with advice and recommendations from TWGs. Sampling must -----

That's all I have. Overall, there is no question that this policy will greatly improve the assessment of and compensation for environmental impacts cause by coastal power plants using once-through cooling. The State Board is to be commended for their efforts.