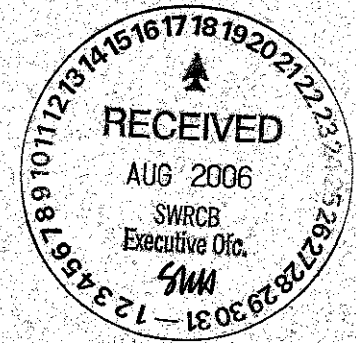




SIERRA CLUB  
CALIFORNIA

Ms. Tam Doduc, Chair  
State Water Resources Control Board  
Attention: Mr. Dominic Gregorio  
1001 I Street  
Sacramento, CA, 95814

316(b)  
Once Through Cooling  
Deadline: 8/15/06 5pm



**Subject: Proposed Statewide Policy for Once-Through Cooling**

Dear Chair Doduc:

Sierra Club California submits these comments on the Proposed Statewide Policy for Once-Through Cooling. The comments are organized by the subjects listed the scoping document table of contents.

## II. Background

### C. Coastal Power Plants in California

**Table 1.** We recommend that Table 1 be amended to include for each power plant the design power rating, number and age of each generating unit and intake structure, capacity factor for each generating unit, and if it by the California Energy Commission as an aging power plant. This information will be useful in further deliberations of the Policy.

**Section E** states, "Most impacts are to early life stages of fish and shellfish." Provide data to support this statement. The CWA 316(b) Part B, Chapter notes that aquatic life without any direct use constitutes 98% of the impingement and entrainment losses. Non-direct use aquatic lives are ecologically vital and cannot be ignored.

## III. Issues

### A. Calculation Baseline

**1. Reference Stations.** We support the formation of the Expert Review Panel and defer to them to identify a reference station. The Expert Review Panel should provide screening criteria for using historical impingement and entrainment data. The Expert Review Panel should also provide criteria for a monitoring program to obtain new data for baseline calculation in the event that the historical data fails the screening criteria.

**2. Baseline Flow.** The proposed flow would require baseline flow rates computed as the mean of the flow rates provided to the Regional Water Quality Control Board in the NPDES monitoring reports during the last NPDES permit cycle. There are tacit and questionable assumptions being made here. The first assumes that the impingement and entrainment ("I&E") losses are directly proportional to the

flow rates. It follows that the I&E losses are independent of the flow rate time series characteristics such the ratio of maximum to average value. The second assumption assumes that I&E losses are independent of the season.

In fact we have data that shows a strong seasonal effect on impingement. This data<sup>1</sup> was obtained from the San Diego Regional Water Quality Control Board during the San Onofre Nuclear Generation Station (SONGS) Units 2 and 3 NPDES<sup>2</sup> permit hearing. Attachment 1 Figures 1 and 2 are taken from the San Diego Bay Council comment letter for this hearing<sup>3</sup>. Figure 1 shows the number of fish species and number fish of impinged in 2003 for both Units 2 and 3. Figure 2 shows the weight of the impinged fish. The data reveals a strong seasonal influence, with highest fish losses in the summer months. It also shows that Unit 3 takes a much larger toll on the fishes than Unit 2; the 2.58 times more in the number of fishes and 2.88 times more in weight of the fishes. We have no explanation for this. The combined fish counts and weights are shown as the cumulative sums. The estimated total count of fishes impinged is 3,564,433. The estimated total weight of the impinged fish is 21,923 kilograms (48,231 pounds). SONGS are base load power plants so the flows would be constant.

We therefore, recommend that calculations to obtain estimates of impingement mortality entrainment from the actual flow rates must factor in the seasonal I&E losses and flow rate time series characteristics.

#### **B. Performance Standard for Reductions in Impingement and Entrainment at Phase II Facilities** **Entrainment performance standards.**

We support the proposed policy to make the §316 (b) performance more stringent. However, Page 15, option ii for entrainment applies only to all life stages of fish and shellfish. This ignores the harm to the ecologically important non-use aquatic life. The entrainment performance standard should apply to these life forms such as benthic organisms, copepods, phytoplankton, sea urchins, and bacterial organisms. EPA states in the Final rule on §316 (b) Phase II<sup>4</sup>, that none of the methods it considered were adequate for assessing non-use benefits in time for the adoption of the rule. SWRCB should support research and development to address this issue. We concur with the potential research priorities identified by CEC Jim McKinney and Joe O'Hagen in their presentation<sup>5</sup> at the September 2005 316(b) workshop. The need for and lack important scientific information also justify setting stringent performance standards in keeping with the precautionary principle.

The effectiveness of a velocity cap should be questioned. On August 20, 2005, the cooling water intakes for SONGS 2 and 3, just 5 months after receiving their NPDES permit renewed, sucked in and killed 11,070 pounds of anchovies. In February 2004, SONGS ingested 7 tons of sardines<sup>6</sup>.

<sup>1</sup> SCE 2003 Annual Marine Analysis and Interpretation Report.

<sup>2</sup> NPDES Nos. CA0108073 and CA0108181

<sup>3</sup> San Diego Bay Council Additional Comments on NPDES Nos. CA0108073 and CA0108181, Tentative Orders No. R9-2005-0005 and R9-2005-0006, Southern California Edison San Onofre Nuclear Generating Stations (SONGS) Units 2 and 3 Dated March 21, 2005.

<sup>4</sup> Federal Register Vol. 69 No. 131 July 9, 2004, page 41624

<sup>5</sup> McKinney, Jim and Joe O'Hagen "California Energy Commission Experience with Power Plant Licensing and Once-Through Cooling", September 26, 2005

[http://www.swrcb.ca.gov/npdes/docs/wrkshp\\_laguna2005/pres\\_cecmckinney.pdf](http://www.swrcb.ca.gov/npdes/docs/wrkshp_laguna2005/pres_cecmckinney.pdf)

<sup>6</sup> Klawonn, Adam, "Anchovies die in nuclear plant's biggest kill since early '04". San Diego Union Tribune, Aug. 25, 2005.

[http://www.signonsandiego.com/uniontrib/20050825/news\\_1mi25fish.html](http://www.signonsandiego.com/uniontrib/20050825/news_1mi25fish.html)

**C. Restoration Measures.** We do not support restoration measures. We refer you to the article published by the Riverkeeper, Inc attorneys, Reed V. Super and David K Gordon<sup>7</sup> on minimizing the adverse environmental impacts.

**D. Habitat Production Foregone.** It appears from the scoping document that this method only addresses the fish and shellfish entrainment losses. The loss of production must account for the other life forms upon which the fish and shell fish depend for food. It is not clear how this can be estimated if the Proportional Monitoring is computed based only on fish and shellfish larvae. Understanding the role of the benthic ecosystems is important. For example, see the paper by Bradbury and Snelgrove<sup>8</sup>. The paper investigates the distribution of marine benthic and demersal fish planktonic eggs and larvae. This is a very highly complex subject. The Expert Review Panel should thoroughly review the merits of the habitat production foregone.

**G. Biological and Cumulative Impacts.** The Policy should end the historical emphasis on commercially or recreationally important species, primarily fish. We agree with the statement on page 21 that the protection of the entire community is essential for promoting a healthy ecosystem.

The meaning of cumulative impacts should be defined. There are several definitions. The cumulative impact of OTC power plants statewide is one definition and is useful in assessing the overall ecological health of the state coastal waters. A second definition is the cumulative impacts of power plants that do not have overlapping intake water sources areas but are separated at distances that are within the migratory distances of pelagic aquatic life forms. The third definition is the cumulative impacts of power plants with overlapping intake water source areas. This is definition is used in draft Policy shown in Appendix I. The fourth definition concerns the cumulative impacts of power plant(s) whose water intake body has other environmental stressors such as being 303 (d) impaired.

All four definitions of cumulative impacts of the OTC power plants on the entire community must be addressed. From a regulatory standpoint, the third and fourth definitions can be implemented. The first and second impacts should be addressed by the SWRCB.

**J. Expert Review Panel.** As noted in the comment on baseline flow, we support forming the Expert Review Panel.

**K. Sewage Treatment Plant Wastewater Used as Cooling Water.** There are a number of issues that must be addressed to use treated wastewater, some of which are discussed in this section. One that has not been mentioned is fact that wastewater contains toxic chemicals at concentrations that comply with the State Ocean Plan. However, the elevated temperature of the wastewater can increase the toxicity of many of the toxic chemicals according to the Van't Hoff's law. Not only will the buoyancy of the discharged effluent modify the plume zone of initial dilution but the acute toxicity could be increased as well.

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<sup>7</sup> Super, Reed V, and David K. Gordon, "Minimizing Adverse Environmental Impacts: How Murky the Waters", The Scientific World Journal, June 2, 2002, pp 219-239 [http://riverkeeper.org/document.php/128/Minimizing\\_Adve.pdf](http://riverkeeper.org/document.php/128/Minimizing_Adve.pdf)

<sup>8</sup> Bradbury, I.R. and P.V.R. Snelgrove, "Contrasting larval transport in demersal fish and benthic invertebrates: the roles of behavior and advective processes in determining spatial pattern" Canadian Journal of Fish and Aquatic Sciences, 58:811-823 (2001) <http://article.pubs.nrc-cnrc.gc.ca/ppv/RPViewDoc?handler=HandleInitialGet&journal=cjfas&volume=58&calyLang=eng&articleFile=f01-031.pdf>

**L. Alternatives to OTC.** For your information, LS Power South Bay LLC proposes to repower of the South Bay Power Plant with an air-cooled gas fired combined cycle power plant<sup>9</sup>. NRG Energy owner of the Encina Power Station has announced that they are replacing this power plant with gas fired turbine generators and later add an air cooled combined cycle power plant.<sup>10</sup>

**M. Flow Reduction.** The Policy should require power plant operators to reduce flow during periods when the power plant is operating at reduced loads or not on line.

**N. Desalination and Power Plants.** The issue is not straightforward to decouple a co-located desalination plant from OTC power plant from a regulatory standpoint. If and when a desalination plant operates as a stand-alone unit that extracts seawater in the same manner as OTC then it would have to address the 316(b) requirements in our view and require an NPDES discharge permit. On August 16, the San Diego Regional Water Quality Control Board is holding a hearing for the Poseidon Resources desalination plant revised NPDES discharge permit. The 50 MGD desalination plant is co-located at the Encina Power Station and uses the OTC effluent provides the source water. One of several issues requires that the discharger prepare a flow, impingement and entrainment minimization plan when the power station effluent flow goes below the required flow required to produce 50 MGD. For example, reduced flow would occur during operation and maintenance periods and when the plant load demand is reduced or is off line. The minimization plan would have to address range of flows. If the desalination plant elects to maintain operation when the power plant is off line, then it would be operating temporarily as a stand alone unit and assume the full responsibility for the impingement and entrainment losses. To allow this would go counter with the 301(b) Policy proposal to require flow reduction during periods when the power plant is not producing electricity.

#### **IV Appropriate Location for Proposed State Policy**

The fact that the Thermal Plan is in need of the triennial review, we concur with staff that Policy should be located here, as this would expedite its adoption.

#### **Other issues.**

**Need for improved aquatic life monitoring.** The Policy source water body monitoring only samples the target species in the source water. Wastewater treatment plant NPDES permits require to conduct receiving water monitoring program that include benthic monitoring because of the potential harm to benthos from the pollutants in the wastewater. Likewise, the harm to the marine life from impingement and entrainment mechanical, thermal and biocides should be evaluated by a well designed monitoring program. Source water sampling should include benthic larvae if technically feasible.

#### **Appendix I**

#### **Proposed Statewide Policy on Clean Water Act Section 316(b) Regulations**

**Section 2 b) iii a.** We object to this section as stated in the prior comments that the entrainment reduction requirement is for all life stages of fish and shellfish and excludes all other life forms present in the intake water. Provide data and rationale that the restricting entrainment reduction to all life stages of fish and shellfish will assure adequate protection of all life stages and life forms present in the intake water. The conflict with Section 7 should be resolved.

<sup>9</sup> California Energy Commission South Bay Replacement Project Documents Page (06-AFC-3)  
<http://www.energy.ca.gov/sitingcases/southbay/index.html>

<sup>10</sup> Burge, Michael, "Power Plans Could Change Desalination" San Diego Union Tribune, July 23, 2006  
[http://www.signonsandiego.com/uniontrib/20060723/news\\_lz1mi23desal.html](http://www.signonsandiego.com/uniontrib/20060723/news_lz1mi23desal.html)

**Section 2 b) iii b.** We do not support using restoration methods.

**Section 2 g).** We concur with this requirement. However, as discussed above, we recommend adding another requirement to conduct a cumulative ecological study of power plant(s) with overlapping intake water source areas that have other environmental stressors such as being 303 (d) impaired.

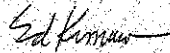
**Section 7.** We support this policy statement.

Thank you for the opportunity to comment on the scoping document for the proposed statewide 316(b) policy.

Sincerely,



Jim Metropulos  
Legislative Representative  
Sierra Club California



Ed Kimura  
Sierra Club  
San Diego Chapter



Number of Fish Impinged in 2003, Units 2 & 3

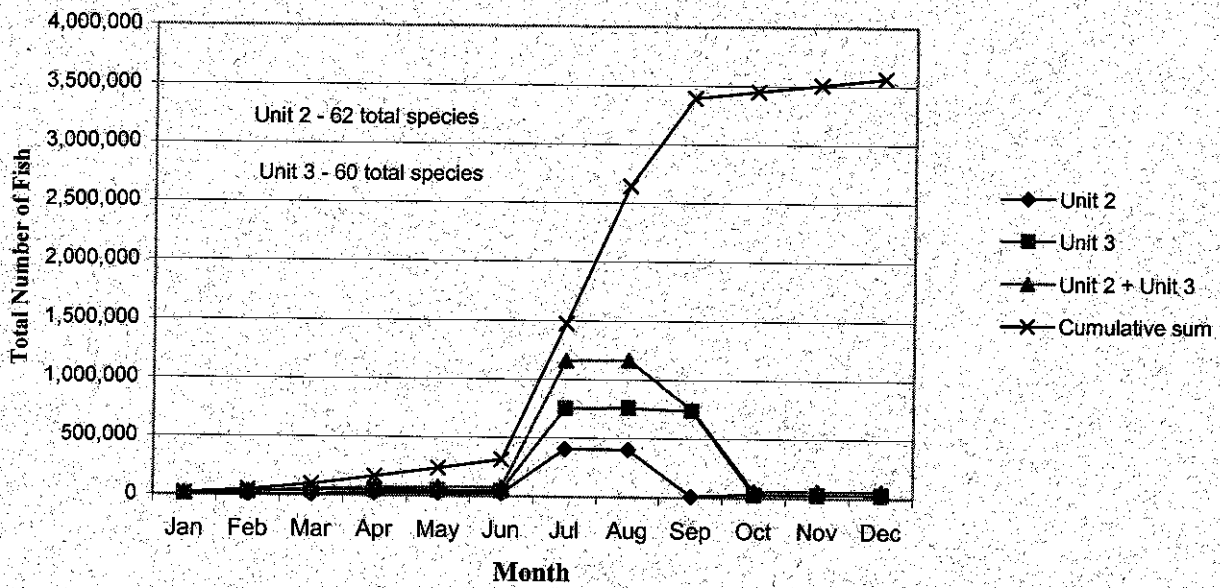


Figure 1

Weight, Kilograms, Impinged Fish in 2003, Units 2 & 3

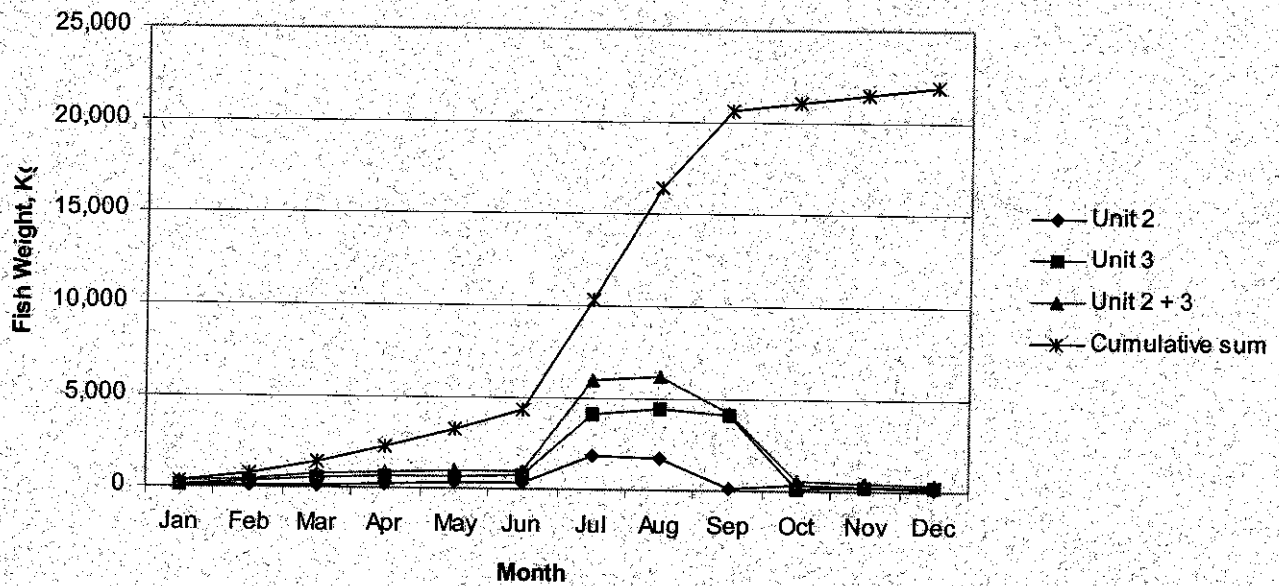


Figure 2