



September 30, 2009

Charlie Hoppin, Chair and Board Members  
State Water Resources Control Board  
1001 I Street  
Sacramento, CA 95814  
Via Email: [commentletters@waterboards.ca.gov](mailto:commentletters@waterboards.ca.gov)

<b>DOCKET</b>	
<b>09-IEP-1A</b>	
DATE	SEP 30 2009
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**Re: Comments on “Water Quality Control Policy on the use of Coastal and Estuarine Waters for Power Plants” Draft Substitute Environmental Document and Draft “Statewide Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling.”**

Dear Chair Hoppin and Board Members:

The undersigned groups respectfully submit the following comments on the State Water Resources Control Board (“State Board”) and California Environmental Protection Agency Draft Substitute Environmental Document for the Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling (“Draft SED”) and the draft Statewide Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling (“Draft Policy”). We welcome the opportunity to comment on this important issue and include and incorporate by reference our previous two comment letters on this topic, dated May 20, 2008 and September 15, 2006, which are attached separately. We also include and incorporate by reference testimony that California Coastkeeper Alliance provided to the Assembly Committees on Natural Resources and Utilities and Commerce at their joint hearing regarding once-through cooling on March 2, 2009, attached separately.

We thank the State Board and staff for their dedication to this important issue. Staff has done a commendable job of coordinating with the California Energy Commission (“CEC”), the California Independent Systems Operator (“Cal ISO”), the Ocean Protection Council (“OPC”) and its member agencies, and other agencies in the continued development of this policy.

Multiple federal and state agencies, including the U.S. Environmental Protection Agency (“U.S. EPA”), CEC, OPC, and State Lands Commission (“SLC”), have recognized that once-through cooling (“OTC”) causes significant, ongoing devastation to our valuable marine resources.<sup>1</sup> Coastal power plants are permitted to withdraw more than 16 billion gallons of cooling water off of the California Coast daily and kill an estimated 79 billion fish and other marine life annually.<sup>2</sup>

These facilities, many of which have been in operation for decades, present a considerable threat to California’s coastal ecosystems. Today’s impacts are not reflective of the 40-50 years of marine life impacts due to OTC, where adjacent ecosystems have suffered a long history of entrainment and impingement. Eliminating this significant impact on marine life may allow many depleted or “overfished” species to recover to population abundance well beyond what we see in population assessments today. In other words, the reduction of entrainment and impingement goes beyond the value of saving the individuals entrained and impinged -- their survival and recruitment to maturity can have an exponential benefit in restoring robust populations that may be currently in decline or stabilized at far less than past levels of abundance.

This is especially true for once-through cooled plants located on enclosed bays and harbors, such as Haynes Generating Station and Alamitos Generating Station on Alamitos Bay. It is estimated that these power plants take in the entire volume of Alamitos Bay every five days.<sup>3</sup> It is likely that the abundance and community structure of life in Alamitos Bay and other source water areas for OTC have been significantly impacted by decades of water intake. Ecological impact assessment based on current impingement rates does not reflect true damages and rewards power plants that have caused long-term ecological impacts.

A 2005 study estimated that for the 12 power plants in the Southern California Bight, there is an overall cumulative entrainment mortality of 1.4% of larval fish in the Bight. Further, when considering only recreational fish species, impingement was somewhere between 8-30% of the number of fish caught in the Bight.<sup>4</sup> All of the federally listed and imperiled salmon species that migrate in and out of the Sacramento and San Joaquin River watersheds, including the Chinook salmon, Coho salmon, and steelhead trout, must pass the intakes for two aging power plants on the San Francisco Bay-Delta Estuary (Pittsburg and Contra Costa) on their way in and out of the Delta. Records for both of these plants demonstrate that they illegally entrain and impinge endangered species, including the Delta smelt and the Chinook salmon.<sup>5</sup> In bays such as the Santa Monica, Monterey, and San Diego, and estuaries such as the Elkhorn Slough and the Morro Bay National Estuary, the impacts from OTC can be more pronounced due to the high biological productivity of these areas and the concentration of the power plants’ impacts in light of the area affected. In Santa Monica Bay three power plants using

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<sup>1</sup> Clean Water Act Section 316(b); California Energy Commission *Issues and Environmental Impacts Associated with Once-Through Cooling at California’s Coastal Power Plants: Staff Report*. (2005) Available at: [www.energy.ca.gov/2005publications/CEC-700-2005-013/CEC-700-2005-013.PDF](http://www.energy.ca.gov/2005publications/CEC-700-2005-013/CEC-700-2005-013.PDF). Accessed 9.29.09 (“Issues and Environmental Impacts Associated with OTC”); California State Lands Commission, *Resolution of the California State Lands Commission Regarding Once-Through Cooling in California Power Plants* (adopted April 17, 2006); California Ocean Protection Council, *Resolution Regarding the Use of Once-Through Cooling Technologies in Coastal Waters* (adopted April 20, 2006). 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/> Accessed 9.29.09 (“OPC Resolution”).

<sup>2</sup> State Water Resources Control Board, *Scoping Document: Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling* (March 2008) p.1. (“2008 Scoping Document”). Available at: [http://www.waterboards.ca.gov/plans\\_policies/docs/coastal\\_estuarine/scope\\_doc031808.pdf](http://www.waterboards.ca.gov/plans_policies/docs/coastal_estuarine/scope_doc031808.pdf).

<sup>3</sup> Issues and Environmental Impacts Associated with OTC, *supra* note 1 p.37.

<sup>4</sup> *Id.*

<sup>5</sup> Environmental Protection Agency, *Case Study Analysis for the Proposed Section 316(b) Phase II Existing Facilities Rule, Part E: San Francisco Bay/Delta Estuary*, EPA 821-R-02-2002, (February 28, 2002), p. E3-15. Available at: <http://www.epa.gov/waterscience/316b/phase2/casestudy/che1.pdf> Accessed 9.29.09.

OTC (Scattergood, El Segundo, and Redondo Generating Stations) cycle 13% of the Bay's water every six weeks.<sup>6</sup>

In a state where the foundation of our economic activity is fueled by the health of our coastal resources, and in a state leading the nation in a strong commitment to sustainable energy, there is no question that California has the right and responsibility to move past this antiquated cooling technology.<sup>7</sup> It has been over 35 years since the Clean Water Act ("CWA") first outlined requirements for power plant cooling technology. We are long overdue for a clear, consistent statewide policy on cooling water technology that protects marine ecosystems and advances greener and more efficient energy production.

We have reviewed the Draft Policy and, although it is a step in the right direction, some important clarifications must be made in order to ensure that the final policy will actually protect the beneficial uses of the state's coastal and estuarine waters and that it will be consistently applied throughout the state. The Draft Policy follows five separate tracks that can be pursued by operators – any combination of which may or may not result in reduction in impingement and entrainment: These tracks are as follows: (1) Track 1, setting forth best technology available ("BTA"); (2) Track 2, providing an exception to BTA where Track 1 proves not feasible; (3) Nuclear exceptions; (4) Grid Reliability exceptions; and (5) a Wholly Disproportionate exception. We are concerned that the numerous loopholes in the various tracks will allow operators to comply without actually achieving the goal of protecting marine life.

In brief, we make the following key points and suggest amendments below:

- Closed-cycle cooling should be best technology available.
- All units of each OTC plant should be required to reduce impacts by at least 93%.
- Key terms including "intake flow rate" and feasibility must be defined to ensure consistent application of the policy.
- The calculation baseline should be based on generational flow.
- The wholly disproportionate demonstration is not necessary and should be removed.
- The nuclear plants should not be exempted.
- Interim requirements are important but should not distract from planning and compliance with the actual policy requirements.
- Plant owners and operators should fund restoration projects designed and implemented by government agencies rather than conduct the projects themselves.
- A statewide policy should be adopted and implemented as soon as possible.
- The Statewide Advisory Committee should be used as a streamlining tool to facilitate the various permitting processes of the multiple agencies involved.

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<sup>6</sup> Issues and Environmental Impacts Associated with OTC, *supra* note 1.

<sup>7</sup> National Ocean Economics Program, *California's Ocean Economy: Report to the Resources Agency, State of California*, (July 2005), p.1. Available at: [resources.ca.gov/press\\_documents/CA\\_Ocean\\_Econ\\_Report.pdf](http://resources.ca.gov/press_documents/CA_Ocean_Econ_Report.pdf). Accessed 9.27.09. Finding that "The total GSP of California's Ocean Economy in 2000 was approximately \$42.9 billion. California's Ocean Economy directly provided approximately 408,000 jobs in 2000, and almost 700,000 jobs when multiplier effects are included. It provided more than \$11.4 billion in wages and salaries in 2000, and more than \$24 billion when multiplier effects are included. The NOEP also evaluated the total value of all economic transactions within 19 coastal counties (mainland coast and four additional counties added within San Francisco Bay and the Sacramento River Delta) and identified approximately \$ 1.15 trillion of economic activity, (86% of total state economic activity), that is referred to as the "Coastal Economy." The natural resources of the coast and coastal ocean are a solid foundation for California's economy and these resources must be sustained to maintain the strength in the six sectors evaluated within the Ocean Economy and the much larger Coastal Economy."

## **I. TRACK 1**

### **a. The Adopted Policy Should Use the 2008 Draft Policy Language Setting Closed Cycle Cooling as Best Technology Available.**

We supported the language in the 2008 Draft Policy setting “closed cycle cooling” as the standard for best technology available.<sup>8</sup> Under that language, a plant could choose to either retrofit or repower to closed-cycle wet or air cooling.<sup>9</sup> In 1972 the United States Congress recognized that once-through cooling was creating unnecessary adverse impacts on marine life and consequently enacted CWA section 316(b). Congress intentionally drafted language in the CWA to force improvements in technology by requiring the best technology available to minimize adverse impacts.<sup>10</sup> As the court articulated in *Riverkeeper, Inc. v. U.S. EPA*, 475 F.3d 83 (2d Cir. 2007) (“*Riverkeeper II*”), Section 316(b) of the CWA does not allow “second best” technology to the best technology available requirement. As currently written, the Draft Policy sets closed-cycle wet cooling as the best technology available and does not mention that in some cases closed-cycle air cooling could be the better option. We urge the State Board to change the language in the policy to “closed-cycle cooling” as it was in the 2008 version of the policy to allow for inclusion of both wet and air cooling for compliance.

Further, the Draft SED does not provide a complete analysis of why dry cooling was rejected as BTA, nor does it provide a complete analysis of why Track 1 alone (without Track 2) was rejected as the best alternative.<sup>11</sup> This latter point is particularly important given the State Board’s previous acknowledgement that the type of alternative technologies available under Track 2 “to meet the required reduction in entrainment are unproven.”<sup>12</sup> We do not believe anything has changed in the last six years and believe the State Board should explain any change in its opinion.

### **b. “Intake Flow Rate” Should be Clarified.**

Track 1 of the Draft Policy sets a standard for reducing “intake flow rate” and highlights the definition of this term. However, there is no clear guidance defining when the reduction of intake flow rate is applicable. We assume from the prohibitions in the “Immediate and Interim Requirements” that prohibit seawater intakes during times when the generating unit is not generating electricity (with the limited exception for “critical system maintenance”) that the definition and regulation of intake flow rate in Track 1 is applicable to times when the units are generating electricity. A minor clarification of

<sup>8</sup> 2008 Scoping Document, *supra* note 2 at p.84.

<sup>9</sup> The Ocean Protection Council commissioned a feasibility study that found in most cases retrofitting to closed-cycle wet cooling is feasible, and some power plant operators have shown that in some cases repowering with air cooling is preferable. See Tetra Tech, Inc., *California’s Coastal Power Plants: Alternative Cooling System Analysis*, prepared for the California Ocean Protection Council (February 2008), p. ES-1. Available at:

[http://www.waterboards.ca.gov/water\\_issues/programs/npdes/docs/cooling/fullreport.pdf](http://www.waterboards.ca.gov/water_issues/programs/npdes/docs/cooling/fullreport.pdf) Accessed 9.27.09.

(“Alternative System Analysis”); and Petition to Amend Final Commission Decision for the El Segundo Power Redevelopment Project, CEC-800-2005-001-CMF, June 2007.

<sup>10</sup> *Kennecott v. United States EPA*, 780 F.2d 445, 448 (4<sup>th</sup> Cir. 1985) found that it was the intention “of Congress to use the latest scientific research and technology in setting effluent limits, pushing industries toward the goal of zero discharge as quickly as possible.”

<sup>11</sup> State Water Resources Control Board and California Environmental Protection Agency, *Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling Draft Substitute Environmental Document*. (July 2009), p. 55-61. Available at:

[http://www.waterboards.ca.gov/water\\_issues/programs/npdes/docs/cwa316/draft\\_sed.pdf](http://www.waterboards.ca.gov/water_issues/programs/npdes/docs/cwa316/draft_sed.pdf) Accessed 9.27.09 (“Draft SED”).

<sup>12</sup> State Water Resources Control Board, *Comments on National Pollution Discharge Elimination System Proposed Regulations to Establish Requirements for Cooling Water Intake Structures at Phase II Existing Facilities*, letter to U.S. Environmental Protection Agency (August 2002), p. 3 (attached) (“State Board Letter to US EPA”).

the definition would eliminate any confusion. The definition for “intake flow rate” should be clarified to read “refers to the instantaneous rate at which water is withdrawn through the intake structure, expressed as gallons per minute per kilowatt hour generated.”

## II. TRACK 2

### a. All Plants Should Reduce Entrainment and Impingement Consistent with Track 1.

The current phrasing of the policy suggests that plants that fall under Track 2 will have to achieve a 90% reduction of the reduction that could be achieved under Track 1; in other words, 90% of 93%, which is 83%. We urge the State Board to require that all plants reduce entrainment and impingement consistent with the Track 1 standard.

In 2004 the California Legislature passed the California Ocean Protection Act (“COPA”) to protect and restore state coastal waters. Through COPA the Legislature created the OPC and charged this body with the responsibility to “coordinate activities of state agencies, that are related to the protection and conservation of coastal waters and ocean ecosystems, to improve the effectiveness of state efforts to protect ocean resources...” in a manner “consistent” with the stated goals of COPA.<sup>13</sup> The OPC exercised its responsibility under COPA in 2006 by passing a resolution regarding OTC, which officially resolved to

urge the State Water Resources Control Board to implement Section 316(b) and more stringent state requirements requiring reductions in entrainment and impingement at existing coastal power plants and encourages the State to implement the most protective controls to achieve a **90-95 percent reduction in impacts**.<sup>14</sup>

Track 2 in this Draft Policy falls short of this clear guidance set by the OPC by allowing plants to only reduce 83% of their total impacts. According to the 2008 OPC funded study evaluating the feasibility of impingement and entrainment control technologies that can meet the 90-95% reduction goal in the most cost effective manner, “the most effective technology that can meet [these criteria] is closed-cycle cooling, commonly referred to as “wet” or “dry” cooling towers.”<sup>15</sup>

Maintaining Track 2 so separate technologies may be used from Track 1 to comply with the ultimate policy is understandable, but the percent reduction targets should be equivalent in both Tracks. As the court articulated in *Riverkeeper, Inc. v. U.S. E.P.A.*, 358 F.3d 174 (2<sup>nd</sup> Cir. 2004) (*Riverkeeper I*), there is a reasonable margin of error in the actual performance records given the complexities of monitoring dynamic physical processes and seasonal, annual or decadal changes in fish abundance and location. However, allowing for a margin of error in the performance monitoring should not be confused with allowing a margin for the targeted reduction in entrainment. The court noted that a “facility must aim for 100 percent, and if it falls short within 10 percent, that will be acceptable. It may not, however, aim for 90 percent and achieve only an 89 percent reduction in impingement and entrainment.”<sup>16</sup> We urge the State Board to avoid actions that conflict with the *Riverkeeper cases*, and to instead follow the guidance sent by the OPC to reduce entrainment by at least 93% at all plants with no exceptions.

<sup>13</sup> California Public Resources Code section 35615(a)(1).

<sup>14</sup> OPC Resolution, *supra* note 1 (emphasis added).

<sup>15</sup> Alternative System Analysis, *supra* note 8.

<sup>16</sup> *Riverkeeper, Inc. v. U.S. E.P.A.*, 358 F.3d 174, 189 (2<sup>nd</sup> Cir. 2004).

**b. Reduction of Intake Should be Required For each Unit of a Plant.**

While Track 1 would apply to each unit of a plant, Track 2 currently allows for the plant “as a whole” to achieve reductions in impingement and entrainment, thereby creating a loophole where a plant could convert some of the units away from OTC and still run OTC on the remaining units. This loophole is significant because the remaining OTC “peaker” plants would likely run during times of peak energy demand – during the summer – when peak larval abundance for most species in Southern California is at its highest.<sup>17</sup> So while a power plant in Southern California might be able to reduce its annual water intake at an OTC unit by only running it in the summer, this would not result in the desired reduction of entrainment and impingement impacts. This loophole undermines and is contradictory to the “technology based” and “technology forcing” policies in the Clean Water Act. We urge the State Board to require impingement and entrainment reductions for each unit of a plant.

Further, as written, Track 2 violates the clear mandate in Section 316(b) by allowing a change in “operation” of the plant as a substitute for “best technology available” to reduce adverse impacts. Allowing a reduction or other juggling of the operation of one or more units at a power plant is not the same as meeting the mandate to improve the technology itself.

Staff has suggested that allowing Track 2 as a compliance alternative for limited types of facilities rewards these owners that have invested in more efficient generating units. While encouraging greater efficiency in our overall generating capacity is a laudable goal, it is not a factor in crafting guidance for full enforcement of the CWA. Further, these facilities have obviously found a financial incentive to greater efficiency and re-powered some of their units without any incentive provided by an unrelated exception to the rule.

**c. “Feasibility” Must be Defined to Ensure Consistent Implementation Among Regional Boards.**

Under the current language of the Draft Policy for Track 2, plants can avoid meeting the best technology standard under Track 1 if they can show to a Regional Board’s satisfaction that it is “not feasible” for them to do so. Of great concern is the fact that “feasibility” is not defined. Without a definition, there is risk that interpretations of “feasible” by Regional Board staff are likely to be extremely divergent. Implementation of the policy will result in a hodgepodge of compliance measures determined mainly by the persuasiveness of industry representatives at the regional level, rather than by consistent and fair application of the performance standards across the state.

The policy must include a definition for the term “feasibility” in order to achieve the stated goal of the Draft SER of providing “clear standards and guidance to permit writers to ensure consistent implementation across Regional Water Boards.”<sup>18</sup> State Board Staff indicated at the September 16, 2009 hearing in Sacramento that their intention was not to include economic considerations in the definition of feasibility, but rather physical and technological feasibility. As noted above, economic considerations were already built into the rule by allowing wet cooling towers, along with the lower end of the performance range, as compliance in Track 1.

We strongly urge the State Board to define feasibility in the final policy that articulates clear physical, and technological standards for the Regional Boards to use. A better definition of “feasible”

<sup>17</sup> AES Huntington Beach L.L.C., *Generating Station Entrainment and Impingement Study Final Report*, (April 2005), prepared by MBC Applied Environmental and Tenera Environmental, see Section 4.3.1 Entrainment Results; “Southern California Time Series: SCOR WG125: Global Comparisons of Zooplankton Time-Series” (May 19, 2008), available at [http://planktondata.net/time-series/calcofi-sc\\_us/index.html](http://planktondata.net/time-series/calcofi-sc_us/index.html).

<sup>18</sup> Draft SED, *supra* note 10 at p.14.

would follow the generally-accepted definition of “capable of being done or carried out.”<sup>19</sup> This is the definition being applied in New York State, which defines “feasible” as “capable of being done” with respect to the physical characteristics of the facility site but does not involve consideration of cost.”<sup>20</sup> Application of this accepted definition of “feasible” allows Regional Board staff to apply objective technical knowledge and focus on technological infeasibility.

We also encourage the State Board to direct Regional Boards to consider the state funded feasibility studies already completed on behalf of the State Board and the OPC when evaluating technical feasibility.<sup>21</sup> Although the OPC study assumes that transition from OTC to closed-cycle cooling would only occur by retrofit, it finds this scenario feasible for many of the coastal power plants in California, including San Onofre Nuclear Generating Station and Diablo Generating Station.<sup>22</sup> In reality, most of the coastal generators would likely repower to transition away from OTC. Long Beach Generating Station transitioned to dry cooling in 2007 through repowering. The El Segundo Generating Station and Encina Power Plant in Carlsbad have submitted permit requests to the CEC to repower some of their units to dry cooling – with the plan to eventually retire the remaining units. In fact, it is possible that the El Segundo Generating Station may retire its remaining units in the near future to receive air quality credits necessary to finish the repower project -- and Encina’s remaining OTC units should be retired within the Implementation Plan timeframe. All of the properties for these plants are relatively limited in space, but are evidence that repowering with dry cooling is a feasible, efficient option.

**d. Calculation Baseline Should be Based on Generational Flow and Take into Account the Seasonal Variability of Larvae to Ensure Actual Reduction in Entrainment.**

The goal of the policy is to minimize actual damages to marine life. We are concerned that the ambiguity in the Draft Policy for calculating impact reductions could result in little-to-no operational change for many of the plants, in direct contravention of the Clean Water Act and the intent of this policy to minimize marine impacts. It is unclear how reductions in marine life mortality will be measured and a calculation baseline for Track 2 reductions will be determined. Track 2 requires reduction in “impingement mortality and entrainment of all life stages of marine life for the facility, as a whole, to a comparable level to that which would be achieved under Track 1;” however it does not specify how reductions will be measured. Ironically, in 2002 the State Board raised with EPA during comments on the federal Phase II Rule similar concerns about measuring reductions. In particular, the State Board stated:

“The Proposed Rule is unclear as to how to measure the required reduction in impingement and entrainment. Do you measure the reduction by counting the organisms impinged and entrained? Do you weigh the organisms impinged and entrained? If so, do you use dry weight over wet weight? Do you have to measure the reduction for each life stage, or do you lump all life stages together and use a combined count or weight?”<sup>23</sup>

We see the same problems with the State Board’s proposal and the challenges of measuring impact reductions. For that reason, we urge the State Board to set flow as a proxy for entrainment by using

<sup>19</sup> Merriam-Webster OnLine, <http://www.merriam-webster.com/dictionary/feasible> Accessed 9.29.09.

<sup>20</sup> State Water Resources Control Board, *Scoping Document: Proposed Statewide Policy on Clean Water Act Section 316(b) Regulations*, (June 13, 2006), Appendix II, at p.4. Available at: [http://www.waterboards.ca.gov/water\\_issues/programs/npdes/docs/cwa316b/316b\\_scoping.pdf](http://www.waterboards.ca.gov/water_issues/programs/npdes/docs/cwa316b/316b_scoping.pdf) Accessed 9.27.09 (“2006 Scoping Document”).

<sup>21</sup> Alternative System Analysis, *supra* note 8.

<sup>22</sup> *Id.*

<sup>23</sup> State Board Letter to US EPA, *supra* note 11 at p. 3.

generational flow as a baseline. The approach of using flow as a proxy for entrainment is supported by the OTC Expert Review Panel and is a simple and clear method of calculating entrainment reductions.

State Board staff has considered various options for establishing a baseline on flow, including permitted maximum flow (also known as design flow), actual flow and generational flow. Generational flow is an appropriate metric to achieve actual reductions in marine life mortality, as it reflects the flow actually required to generate electricity, and would not allow compliance to be based on elevated intake during periods of non-generation. Reductions based on permitted maximum or actual flow raise further concern.

Simply reducing flows based upon the permitted maximum flow will not truly achieve entrainment reductions at many OTC plants in California, as most facilities operate well below their permitted maximum flows at what is commonly called, actual flow. Furthermore, at some coastal power plants, the actual flow is significantly greater than the generational flow. For example, generating Units 1 & 2 at El Segundo Generating Station ceased producing electricity in 2002; however the mean annual flow at Intake 001 (which draws in cooling water for Units 1 & 2) from 2002-2004 continued at or above the level prior to 2002 in order to prevent biofouling.<sup>24</sup> Therefore, if the State Board chooses to base entrainment reductions on permitted maximum flow or actual flow instead of generational flow, actual entrainment reductions may not be achieved.

If flow is used as a proxy for entrainment, the policy should also specify a time period for the determination of baseline flow from which to establish entrainment reductions. Otherwise, if facilities are given discretion to independently establish their baseline flow and actual flow is used as the metric, they may elevate their actual flow levels beyond the necessary amount for generation to augment the baseline (yet still remain within their permitted flow levels). This would make it easier for generators to comply with the policy without actually achieving true entrainment reductions. Such an approach echoes similar problems with early efforts to reduce residential water use in the face of droughts – those overusing water when the baseline was set were “rewarded” while conservers were punished. There has been a steady decline in the use of cooling water at coastal power plants over the past decade. It is critical that recent flow information be used to establish a calculation baseline to best reflect current conditions. Therefore, we recommend that average generational flow over the 5-year period preceding this policy (2004-2009) be used as the baseline.

#### **e. Impingement and Entrainment Impact Monitoring Provisions Should be Strengthened.**

The Draft Policy only requires 12 consecutive months for facilities to determine past impingement and entrainment impacts to use as a basis for future impingement and entrainment reductions under Track 2. This design fails to account for annual variability and source water depletion in the determination of baseline impingement impacts. It also gives discretion to power plant operators to choose an advantageous 12-month period that would potentially create a scenario where impingement and entrainment reductions are easier to meet. As mentioned above, we recommend generational flow be used as a proxy for entrainment. We further recommend that current source water monitoring be used to help provide a basis for compliance monitoring of Track 2 controls. Most facilities have conducted impingement monitoring (species impinged and impingement rates) for the last decade or more; this data should be used to help determine baseline impingement impacts to minimize any bias due to annual variability and provide a reference for Track 2 compliance monitoring.

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<sup>24</sup> El Segundo Power, LLC, *El Segundo Generating Station flow data 1996-1999 & 2000-2004*, El Segundo Power GS, CA0001147, CI-466. Available at [http://www.waterboards.ca.gov/losangeles/water\\_issues/programs/power\\_plants/index.shtml](http://www.waterboards.ca.gov/losangeles/water_issues/programs/power_plants/index.shtml). Accessed 9.29.09.

Section A.1(b) of the monitoring provisions requires that impingement and entrainment be measured during “different seasons” when the cooling system is operating. This requirement is overly general and may provide the power plant operator discretion to choose monitoring times that reflect select impingement and entrainment reductions, but do not accurately reflect true reductions. Periods of peak use (such as the summer months when energy is in high demand) and biofouling maintenance should be included in the monitoring provisions to ensure accurate reflection of impingement and entrainment impacts and reductions.

**f. After Track 2 Controls are Implemented, Permittees Should be Required to Perform Regular (Monthly) Impingement and Entrainment Monitoring.**

The monitoring provisions in the Draft Policy currently require 12 consecutive months of monitoring after Track 2 controls are implemented. As previously discussed, this limited time frame will not reflect annual variability. It will also fail to reflect any changes in the effectiveness of Track 2 controls (e.g. increased impingement due to biofouling or other complications). Regular (such as monthly) monitoring should be required to accurately reflect the ability of Track 2 controls to meet impingement and entrainment reduction requirements. Regular monitoring by permittees is not a new concept under the State Water Board; NPDES waste water dischargers are required to perform continuous monitoring of constituents in their discharges for the entire lifespan of their permit. Likewise, once through cooling permits should require impingement and entrainment monitoring throughout the permit lifecycle to capture seasonal and annual variability, and to ensure that accurate information is provided regarding the effectiveness of Track 2 controls at meeting marine life mortality reductions.

### **III. WHOLLY DISPROPORTIONATE DEMONSTRATION**

**a. The Wholly Disproportionate Demonstration Exception is not Necessary and Should be Removed.**

The inclusion of an exception for a Wholly Disproportionate Demonstration presents a host of problems and provides industry with yet another unneeded exception in this important policy. For the reasons explained below, this exception should be removed.

First, there is no valid reason for the State Board to provide more excuses for continued harm to our waterways than even the U.S. Supreme Court says is required.<sup>25</sup> The Draft SED properly notes that this exception is not required<sup>26</sup> and that at the state level, cost-benefit approach is “not a common practice.”<sup>27</sup> Moreover, unlike the federal rule, which attempted to regulate more than 500 facilities nationwide, California is faced with a relatively small number of facilities using once-through cooling. Given the work already performed by various state agencies to address this problem, it seems the State Board should be able to adopt a policy without this exception. Indeed, based on available information, it is far easier for the State Board to conclude that the economic benefits of our coasts make closed cycle cooling worth the costs to retrofit. Moreover, public policy based on sound economic principles dictate the internalization of environmental externalities such as those caused by once through cooling.

Second, the Policy as drafted already contemplates economic considerations. For example, the Draft SED recognizes that dry cooling has not been chosen as BTA because of some cost considerations.<sup>28</sup> Moreover, notwithstanding a recognized range of 93-97% achievable reduction in intake through closed cycle cooling, the Draft Policy chooses the low end of that performance range –

<sup>25</sup> *Entergy Corporation v. Riverkeeper* (2009) 556 U.S. \_\_ [129 S.Ct. 1498].

<sup>26</sup> Draft SED, *supra* note 10 at p. 80.

<sup>27</sup> *Id.* at p. 79.

<sup>28</sup> *Id.* at p. 57.

93% reduction – rather than the high end of the range, 97% reduction. While not completely clear in the Draft SED, the basis for this also seems to be economic in nature. Finally, economic considerations also appear inherent in the grid reliability exception.

Third, inclusion of a Wholly Disproportionate Demonstration does not promote the stated goals of the Draft Policy, namely producing clear guidance and reducing the burden placed on the Regional Boards as well as migrating away from case-by-case best professional judgment application.<sup>29</sup> Indeed, by deferring to the Regional Boards on one of the more significant and intensive portions of the Policy, the State Board is essentially leaving the most difficult decisions to the Regional Board. Intensive economic studies will be required and even then Regional Boards will still be left determining what the remaining “extent practical” standard will be if a facility qualifies for the exception. This will not save time, create consistent permits nor reduce the burden on the Regional Boards.

Fourth, the Wholly Disproportionate Demonstration invites litigation at both the State Board and Regional Board level. At the State Board level, industry has already expressed a desire that the exception apply to all facilities, not just those identified in the Draft Policy. This could lead to litigation instead of a shift to modernizing California’s power plants. Litigation will be pursued at the Regional Board level because of the disparity in resources and inconsistent approaches. The numerous difficulties of accurately measuring both the benefits and the costs lend itself to extensive dispute – resulting in extensive litigation. As discussed in the *Riverkeeper* cases and analysis of the State Board itself, benefits also are typically undervalued and subject to inconsistent approaches, especially when compared to costs.<sup>30</sup> For example, industry already disputes any non-use valuation methodologies and likely will continue to do so at the Regional Board level. Further, this approach moves the debate away from technology and more towards water impacts –which often is more contentious and more difficult. Moreover, “Congress rejected a regulatory approach that relies on water quality standards, which is essentially what [industry] argues in focusing on fish populations and consequential environmental harm.”<sup>31</sup>

Finally, as is discussed more fully below, we agree with the rationale and ruling of the Second Circuit Federal Court in the *Riverkeeper* cases<sup>32</sup> that benefit/cost analyses are unworkable. Accurately quantifying the impacts of entrainment and impingement from an ecosystem-wide perspective is beyond the abilities of the current state of marine sciences. Further, the numerous difficulties of accurately measuring both the benefits and the costs lends itself to unlimited dispute – resulting in unlimited litigation. In contrast, eliminating this unworkable exemption to the rule eliminates any potential for the inevitable disputes, disparities between Regional Boards’ decisions and the resulting litigation and unpredictable final results.

In 2002, the State Board expressed uncertainty about the usefulness of a wholly disproportionate analysis in the U.S. EPA’s draft Phase II rule. In a letter from then Executive Director Celeste Cantu (attached), the State Board stated that:

Our experience is that it is difficult to obtain agreement on costs or benefits. The result is a long series of arguments involving dueling cost/benefit analyses. Cost estimates vary widely between estimates generated by the applicant and those generated by independent consultants. Estimates of biological impacts are even more variable, and the applicant often asserts that

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<sup>29</sup> *Id.* at p. 14.

<sup>30</sup> *See, infra* p.10 and notes 32, 33.

<sup>31</sup> *Riverkeeper, Inc. v. U.S. E.P.A.*, 358 F.3d 174, 196 (2<sup>nd</sup> Cir. 2004).

<sup>32</sup> *Id.*; *Riverkeeper, Inc. v. U.S. EPA*, 475 F.3d 83 (2<sup>nd</sup> Cir. 2007).

there will be no net impact. Even if agreement could be obtained on the benefits to a biological community of meeting the performance standards, agreeing on the monetary value on this benefit would still be difficult. If U.S. EPA decides to adopt this portion of the Proposed Rule, we request that the Proposed Rule require the applicant to fund an independent analysis. We also request that "wholly disproportionate" be substituted for "significantly greater" to ensure that site-specific determinations will only be used in unusual circumstances. A rule that requires cost/benefit analyses for most decisions will be difficult to administer.<sup>33</sup>

The inevitable disputes invited by this exemption has the potential to undermine the Implementation Schedule. In contrast, the removal of this exemption is consistent with the US Supreme Court ruling in *Entergy*,<sup>34</sup> because it would significantly reduce potential litigation, and eliminates an unnecessary loophole that undermines otherwise clear guidance for compelling use of the best technology available.

### **i. Calculating Benefits**

First, it is currently impossible to accurately determine what is considered a "sustainable yield" for the majority of species controlled under fishery management plans.<sup>35</sup> Compounding this problem is that the data on non-commercial species is, for the most part, equally poor, if not more so. Further, there is limited information about the role of both commercially valuable species and non-commercial species in the marine ecological system and impossible to quantify in any discrete conclusions. Finally, the complexities of an ever-changing ocean physical environment results in unreliable data for long-term ecosystem based management. Not only is the ocean a physically dynamic place involving El Nino events, oscillating regime shifts, and other factors that have limited understanding, knowledge about these complex dynamics is complicated by the on-going effects of climate change.

Simply put, we currently do not adequately understand the numerous complexities of the ocean environment, including the marine living resources and the physical processes, to accurately determine the impacts of entrainment and impingement either in an immediate "snap shot" -- or more importantly in the long-term. Moreover, traditional benefit analysis also tends to reward facilities in degraded waterways because the benefits are more difficult to accurately calculate due to the long term degradation of the resource.

Second, given the limits of science to accurately determine the adverse impacts on the environment, quantifying the impacts in monetary or any other comparable terms to compare the benefits of reducing entrainment and impingement to the cost of improved cooling technology is simply impossible. Indeed, "neither statute, regulation, nor guidance memorandum dictates how benefits should be assessed."<sup>36</sup> Moreover, "EPA does not believe that [it is] necessarily required to prepare any monetized assessments at all."<sup>37</sup> Further, in order to avoid an underestimate of benefits, "care should be taken to assure that quantitative factors do not dominate important qualitative factors

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<sup>33</sup> State Board Letter to US EPA, *supra* note 11.

<sup>34</sup> *Entergy Corporation v. Riverkeeper* (2009) 556 U.S. \_\_ [129 S.Ct. 1498] (cost-benefit considerations allowed but not required).

<sup>35</sup> California Department of Fish and Game, *California's Living Marine Resources: A Status Report*, (December 2001).

<sup>36</sup> U.S. Environmental Protection Agency "Response to Comments: Public Review of Brayton Point Station, NPDES Permit No. MA0003654 (Oct. 3, 2003) at IV-18-31" Available at <http://www.epa.gov/region01/braytonpoint/pdfs/finalpermit/sectionIV.pdf> Accessed 9.28.09 ("Brayton Point Response to Comments").

<sup>37</sup> *Id.* at p. IV-24.

in decision-making.”<sup>38</sup> The complexity of the issue is showcased by the fact that the State Board Draft SED fails to mention benefits at all in the Economic Analysis section.<sup>39</sup>

## ii. Calculating Costs

It is also important to note that there is an assumption that the calculation of the cost to implement BTA is relatively straightforward in comparison to calculating the benefits. While it is true that estimating costs has the advantage of calculating variables that are “monetized” in the market, that relative ease of calculating costs does not eliminate disputes. Efforts at estimating the cost of compliance are a source of controversy amongst experts.<sup>40</sup> For example, estimates are dramatically impacted by choice of discount values as well as terms of amortization (e.g. 20 or 30 years<sup>41</sup>) for capital projects of this nature. It is also important to put costs in perspective. Hundreds of millions of dollars in capital expenses—once spread out over time and across the population—equal a change of 6-18 cents a month in terms of household costs, for example.<sup>42</sup> Moreover, as EPA noted in the adoption of the Brayton Point power plant in Massachusetts, the courts have been clear that under the analogous BPT wholly disproportionate cost test, environmental controls might be required where costs could cause some “economic dislocation” and even plant closures to achieve the stated environmental objective.<sup>43</sup> While this approach is generally supported by the environmental community, this also leads to debate with industry. In addition, there is another benefit that is often overlooked when viewing costs: costs drive conservation as well as the more efficient use of resources.

There has been a great deal of effort already invested in trying to craft a benefit-cost rule for enforcing CWA Section 316(b). This considerable effort has not resulted in a standard formula that is workable—nor would it benefit the industry with clear guidance for future planning or investment. Arguably, efforts to craft a benefit/cost exemption to the rule compelling the use of best technology available stand as a clear example of why a mandate passed by Congress in 1972 remains unenforced. We strongly agree with the *Riverkeeper* decisions that this exemption is simply unworkable and should be removed from the final Guidance Document.

## b. The Wholly Disproportionate Demonstration Fails to Articulate the Benefits of Reducing OTC.

The Draft Policy currently relies on calculating the benefits of compliance in several ways and raises several concerns:

### Entrainment:

First, the Draft Policy requires documentation of the benefit of reducing entrainment “...in terms of ‘habitat production foregone’, or some other appropriate method approved by the Regional Board.” This language explicitly invites disparity and inconsistency by the several Regional Boards in determining what methodology to use. Again, this type of ambiguity results in inconsistent enforcement of the rule, costly disputes and implementation, and the strong likelihood of resorting to the judicial system to enforce the law.

<sup>38</sup> *Id.* at p. IV-21.

<sup>39</sup> Draft SED, *supra* note 10 at pp. 108-110.

<sup>40</sup> For example, the State of New York has applied a very different attempt to calculate costs after comments from experts in economics.

<sup>41</sup> See e.g. *Id.* at IV-34 (“EPA believes that 30 years is a reasonable estimate of the useful life of fiberglass cooling towers.”)

<sup>42</sup> U.S. Environmental Protection Agency, *Brayton Point Station Fact Sheet*, Available at <http://www.epa.gov/region01/braytonpoint/pdfs/finalpermit/braytonpointfactsht2003.pdf>. Accessed 9.29.09.

<sup>43</sup> Brayton Response to Comments, *supra* note 32 at p. IV-16.

We strongly urge the Board to first and foremost set the clear standards for any attempt to calculate the benefits of reducing entrainment, including:

- the methodology must be the “best science available”;
- given the unavoidable complexities of calculating the eco-system impacts, the method should include the “precautionary principle”;
- the method should calculate “full replacement”; and
- opportunity for public comment.

Given these standards, the use of “habitat production foregone” (HPF) will fall short and should not be a suggested methodology. We strongly urge the Board to consider a “restoration scaling” methodology in an effort to more accurately reflect “full replacement” value.<sup>44</sup> Additionally, the policy should incorporate a strict and definitive margin of error to compensate for the lack of certainty inherent in calculating the benefits to a natural ecological system that is so poorly understood. Further, in order to avoid an underestimate of benefits, care should be taken to assure that quantitative factors do not dominate important qualitative factors in decision-making. It also should be clear that it is perfectly appropriate for the Regional Boards to include non-monetized and qualitative benefits in their consideration.<sup>45</sup>

### Impingement

It is not clear why the sub-section 4(A)(2)(b) concerning impingement is not similar in detail to the section on entrainment. We strongly urge the Board to include the recommendations above regarding entrainment reduction benefit calculations in the sub-section on attempting to calculate the benefits of reducing impingement.

### **c. There is No Basis For Giving Gas-Fired Facilities a Wholly Disproportionate Exception.**

The Economic Analysis in the Draft SED essentially concedes that based on capacity on a cost per MWh basis, all of the gas-fired facilities experience similar and only modest costs associated with phasing out once-through cooling. To the extent that the final policy retains the wholly disproportionate exemption, it should do so on a more limited basis. Based on data in the Draft SED, the two nuclear plants are the most likely facilities to face real retrofit cost and downtime constraints.<sup>46</sup> When these two facilities are taken out of the equation, statewide costs of retrofit drop significantly.<sup>47</sup> It is also not clear why the gas-fired facilities that repowered over the last several years using antiquated and environmentally destructive cooling technology should now be given a competitive advantage over similar plants that will repower over the next several years.

Although new gas turbine units are more efficient than older facilities and, therefore, tend to use somewhat less intake water per kilowatt of output, they nevertheless consume hundreds of millions of gallons of intake water per day and destroy billions of marine organisms in the process. Moreover, because these units are very new, unlike the nuclear plants, they will continue to wreak environmental destruction for many decades to come. Had these facilities properly employed BTA at the time of their recent repower, they would now be amortizing those costs. There is no legitimate reason for allowing them to avoid BTA compliance for the next several decades.

<sup>44</sup> Peterson, Charles H, et al: *Scaling restoration actions in the marine environment to meet qualitative targets of enhanced ecosystem services*; Marine Ecological Press Services, Vol. 264, 173-175, (December 15, 2003).

<sup>45</sup> Brayton Point Response to Comments, *supra* note 32 at p. 18-31.

<sup>46</sup> Draft SED, *supra* note 10 at p. 110.

<sup>47</sup> Without the nuclear facilities, the costs on page 110 of the Draft SED drop from staff’s estimated 0.45 cents per kWh to 0.157 cents per kWh and drop from a range of 3.5%-8.7% to a range of 1.2%-6.9%.

Accordingly, we urge the Board to exclude the gas-fired facilities from any available wholly disproportionate exemption. At the very least, older units at the same plant that have not yet been repowered clearly should not be entitled to utilize a cost exemption, either as part of a permit renewal or as part of a permit for a repower.

#### IV. NUCLEAR PLANTS

##### a. Nuclear Plants Should Not Be Exempted

The two nuclear plants, Diablo Canyon and San Onofre Nuclear Generating Station (SONGS), each use 2.5 billion gallons per day of seawater<sup>48</sup> and account for nearly two-thirds of the once-through cooling water utilized by the state's combined population of coastal nuclear and natural gas-fired steam boiler plants.<sup>49</sup> Because of the enormous amount of water withdrawn from the nuclear plants, their impacts on the local marine ecosystem are quite significant. For example, it has been documented that SONGS has destroyed over two hundred acres (59,000 kelp plants) of kelp forest. This, in turn, caused the displacement or death of thousands of individuals from numerous other species. In total it is estimated that the kelp fish population in the area has declined by 80%, all due to that single plant.<sup>50</sup> Also, the argument that SONGS has already mitigated environmental harm does not hold up because of the court ruling prohibiting mitigation as a substitute for compliance with Section 316(b). Although SONGS restoration efforts have been important, additional restoration is required to make up for the impacts caused by the nuclear power plant until they comply with requirements.

Despite these clear harms from the nuclear plants, these facilities are given numerous exceptions. Most notably, the nuclear facilities are given an exception for nuclear safety and one if special studies result in "alternative" recommendations. These exceptions are in addition to the Track II and Wholly Disproportionate exceptions, which are also available to the nuclear facilities.

Although the safety of nuclear power plants should always be an important concern, in *Riverkeeper II* the court found that there was "adequate consideration by the EPA of the nuclear plants concerns" and upheld that Section 316(b) does apply to nuclear facilities and that additional exceptions beyond safety were not required.<sup>51</sup> Yet, leaving the compliance determination solely to the operator is inappropriate in providing a safety exception. The Nuclear Regulatory Commission, the State Board and the plant owner/operator should all be part of any safety exception in order to ensure accountability, and the decision and information leading to it should be made available to the public. Furthermore, the State Board should clarify in its final policy what information that is required for "appropriate documentation" to make any decision about safety and nuclear plant requirements under the policy. A formal recommendation or requirement from the NRC is an important and necessary part of any such safety consideration.

##### b. Special Studies on Nuclear Plants Should be Conducted by a Third Party and Peer Reviewed.

The Draft Policy calls for special studies to "investigate alternatives" for the nuclear plants to meet the requirements of this policy and calls for a review committee to oversee the special studies and to provide a report for public comment detailing the results of the studies within three years of the effective date of the policy. Other than for safety reasons, we disagree with the general notion that nuclear facilities should be given another special exception to the policy or from the requirements to

<sup>48</sup> Issues and Environmental Impacts Associated with OTC, *supra* note 1 at, p. 12, Figure 1.

<sup>49</sup> Draft SED, *supra* note 10 at Table 2-3, p. 31-32.

<sup>50</sup> UN Atlas of the Oceans (2002), <http://www.oceansatlas.org>; see also CA Dep't of Fish and Game, *California's Living Marine Resources: A Status Report* (December 2001).

<sup>51</sup> *Riverkeeper, Inc. v. U.S. EPA*, 475 F.3d 83 (2<sup>nd</sup> Cir. 2007); see also Draft SED, *supra* note 10 at p. 46.

achieve BTA. Rather, the only purpose of this special study should be to determine how nuclear facilities will achieve either Track 1 or Track 2 (not “alternatives” to those provisions). This language in the policy should be clarified to indicate that type of approach. In that vein and that vein alone, we would support the inclusion of a review committee and ask that the State Board clarify that the review committee will also be involved in setting the parameters for the third party study before it begins. Further, we urge the State Board to ensure that all studies included in the decision making process are peer-reviewed.

## **V. INTERIM REQUIREMENTS**

### **a. Interim Requirements Should Not Distract from Planning and Compliance with the Actual Policy Requirements.**

We support the general intent of the interim requirements to immediately reduce negative impacts to our marine and estuarine ecosystems; however the complexity of these requirements raises concern. If interim requirements are included in the final policy, we urge the State Board to clarify that compliance with the actual policy is of primary importance, and further refine the requirements for the interim measures to ensure streamlined compliance.

Technology to prevent the entrainment of organisms such as marine mammals and turtles (such as large organism exclusion bars) and restoration are beneficial measures in the interim, but neither will satisfy the compliance goal of reducing impingement and entrainment by 90%. By comparison, NPDES permits often have interim requirements for certain constituents while a waste water treatment plant installs new technology to improve effluent water quality, but neither these interim requirements nor any past actions count towards compliance with the final effluent limitations. There is no reason that power plants should be provided special treatment or credit for mechanisms employed to remediate the past and present environmental damages caused by OTC.

Also, for even improved clarity, it is important that this definition make a distinction in the “Immediate and Interim Requirements” that the prohibition of seawater intakes is not an “interim” requirement – but a permanent and “immediate” requirement.

### **b. Critical System Maintenance Should be Defined**

Currently interim requirement C(2) allows the intake of water to occur only during “power generating activities or critical system maintenance.” While “power generating activities” are defined in section 6 of the Draft Policy, “critical system maintenance” is not. “Critical system maintenance” needs to be clearly defined so that it does not allow for continued flows for co-located desalination facilities or other practices not included in “critical system maintenance.” Without definition, this provides a significant loophole for plants to continue intake flows, which is contrary to the intention of this policy to actually reduce impacts to marine life. We suggest defining “critical system maintenance” to only include activities that are critical for maintenance of a plant’s physical machinery and absolutely cannot be postponed until the unit is operating to generate electricity. This will help protect against the intake of excess cooling water when no power generation or essential maintenance operations are being performed.

### **c. Restoration should not be confused with Mitigation.**

Currently the interim measures outlined in section C(3) provide three options for compliance: a) demonstrating that the owner or operator is compensating for interim impacts through existing mitigation measures, b) participating in funding an appropriate mitigation project, and c) developing and implementing a mitigation program for the facility approved by the Regional Board. We are concerned by the use of the term “mitigation” in all of these elements, as that is a term also used in the

California Water Code Section 13142.5(b) which establishes standards for regulating new power plant cooling technology and other industrial seawater intakes. “After the fact” restoration as an alternative to implementing BTA has been plainly rejected by the Courts.<sup>52</sup> However, we are not opposed to mandating restoration as an interim measure while all units come into compliance.

To avoid future confusion in defining the term “mitigation” when enforcing the Water Code for all intakes of seawater for industrial purposes, we encourage the replacement of “mitigation” with the term “restoration.” We do not believe the two terms are synonymous. Furthermore, as previously stated, we urge the State Board to not only account for interim damages caused by OTC between adoption of this policy and compliance by facilities in this section, but also for past entrainment and impingement by coastal power plants.

We also urge the State Board to prohibit credit for past mitigation efforts as counting toward compliance with interim requirements. The general intent of the interim requirements is meaningless if the State Board chooses to give credit to power plants for their past mitigation efforts through Coastal Commission or other permitting processes. Therefore, we recommend the deletion of interim requirement section C(3)(a).

**d. Plant Owners and Operators Should Fund Restoration Projects Designed and Implemented by Government Agencies.**

Due to the complexity of restoration projects, we urge the State Board to simplify the interim restoration requirements and exclude section C(3)(b) and (c) of the Immediate and Interim Requirements Section and instead require that coastal power plant owner and operators participate in funding of restoration projects that are designed and managed by experienced entities with knowledge in restoration scaling and ecosystem-level restoration project design and implementation, such as the California Coastal Conservancy or Santa Monica Bay Restoration Commission.

The design and execution of ecosystem-level restoration projects requires significant time, resources and expertise— without the right expertise and direction, restoration efforts can be very expensive without the intended results.. For example, over five years and hundreds of thousands of dollars were invested deliberating over how to replace the loss of fishing opportunity caused by contaminated sediments under the Montrose Settlements Restoration Program.<sup>53</sup> The restoration deliberations for San Onofre Nuclear Generating Station and El Segundo Generating Station repowering projects also required significant time and funds. How will the Regional Boards streamline these processes and ensure the development of a restoration plan that results in ecosystem-level benefits? Furthermore, how will the State Board address the problem of maximizing restoration, but avoiding compromises to ecosystem integrity? For example, fish hatcheries are often used as restoration measures (unfortunately, ineffectively in many cases), but are a species-specific approach that can cause adverse environmental impacts such as habitat degradation and water quality impairments when not properly designed.

Another critical question is: what is the appropriate restoration ratio for the impacts caused by OTC? The California Coastal Commission spent years trying to identify an appropriate mitigation ratio for various damages, and this issue still comes up for debate before the Commission for many

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<sup>52</sup> *Riverkeeper, Inc. v. U.S. E.P.A.*, 358 F.3d 174, 189 (2<sup>nd</sup> Cir. 2004); *Riverkeeper, Inc. v. U.S. EPA*, 475 F.3d 83 (2<sup>nd</sup> Cir. 2007).

<sup>53</sup> Montrose Settlements Restoration Program. (2006) *Montrose settlements restoration program plan, programmatic environmental impact statement, and Programmatic environmental impact report*. Federal Register: January 2, 2001 Volume 66, Number 1.

restoration and mitigation projects. Clearly, restoration for ecosystem-level impacts is complex and many questions need to be addressed before moving forward with appropriate measures.

**e. Historic Source Water Depletion Should be Analyzed With the Use of Reference Sites and Incorporated into Interim Requirements.**

We cannot go back in time to gauge the true impact of these facilities; however, we urge the State Board to include reference location studies to better determine ecological productivity in areas without impacts from OTC to more accurately assess impingement and entrainment impacts. These studies must be multiyear studies to account for seasonal and annual variability and should be used to inform interim restoration requirements (see Section II above). If local source water studies are used to assess current OTC impacts, the impacts will be vastly underestimated. Accurate monitoring and assessment of biological and resource impacts is critical, and the information must be used in an appropriate manner that does not artificially underestimate historical abundance and diversity and the requirements of restoration costs in the Immediate and Interim requirements.

As documented in U.S. EPA, CEC, and other agency records, the persistent use of OTC at coastal power plants has clearly contributed to the loss of biodiversity and the documented population decline of many marine species over the past 50 years. Although we support the simple approach of using generational flow as a proxy for entrainment to achieve marine life mortality reductions in Track 2, this approach does not account for potentially depleted source waters surrounding OTC facilities, and may bias the actual achievement of marine life mortality reductions. To maintain the simplicity of the policy, we urge the State Board to account for historic impacts caused by OTC in the final policy as an interim requirement.

We recommend an approach involving reference site monitoring to help gauge larval and planktonic marine life densities at similar sites not impacted by power plants, stormdrains or point sources, and utilize this information to help designate the interim requirement to mitigate past and present impingement and entrainment impacts before policy compliance. Reference baseline characterization studies should be conducted over multiple years (at least four years and repeated at least once every five years thereafter) to account for seasonal and annual variation. The scientific community broadly accepts the use of reference sites in study design to determine the extent of environmental impacts. These studies typically use a control, or reference site, to provide the data necessary to make comparisons between an impacted and unimpacted site and quantify the ecosystem effects of an environmental stressor.<sup>54</sup>

In addition to academic studies, reference sites have historically been used in management to determine the extent of industrial impacts on marine and coastal resources. For example, both Hyperion Treatment Plant's and the Joint Water Pollution Control Plant's permits have historically and continue to require monitoring both within their outfall impact zone and at reference stations to determine the impacts of sewage discharge to benthic community composition and species abundance.<sup>55</sup> We urge the State Board to incorporate this type of an approach into the assessment of marine life impacts of OTC generators.

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<sup>54</sup> Schroeter *et al.*, "Detecting the Ecological Effects of Environmental Impacts: A Case Study of Kelp Forest Invertebrates," *Ecological Applications*, Vol. 3, No. 2., May 1993; Osenberg *et al.*, "Detection of Environmental Impacts: Natural Variability, Effect Size, and Power Analysis," *Ecological Applications*, Vol. 4, No. 1, Feb 1994.

<sup>55</sup>Phillips, SCCWRP, *Hyperion Monitoring Report*, Available at: [http://www.lacity.org/SAN/EMD/products/\\_pdf/SMB\\_Reports/2001\\_02/Chapter1.pdf](http://www.lacity.org/SAN/EMD/products/_pdf/SMB_Reports/2001_02/Chapter1.pdf). Accessed 9.29.09

## VI. IMPLEMENTATION SCHEDULE & MILESTONES

### a. A Statewide Policy Should Be Adopted and Implemented as Soon as Possible.

The State Board has been working on this policy for over four years. We encourage the Board to move forward with adopting and implementing a policy with clear deadlines as soon as possible. In early 2007, directly after the Second Circuit Court of Appeals decision in *Riverkeeper II*, the U.S. EPA sent a memo to the Regional Administrators directing them to institute best professional judgment regarding permits under section 316(b) of the Clean Water Act.<sup>56</sup> Specifically, U.S. EPA headquarters directed the Regional Offices as follows:

With so many provisions of the Phase II [existing facilities] rule affected by the [*Riverkeeper II*] decision, the rule should be considered suspended . . . . In the meantime, all permits for Phase II facilities should include conditions under section 316(b) of the Clean Water Act developed on a Best Professional Judgment basis.<sup>57</sup>

Despite this specific direction from U.S. EPA and the guidance provided by *Riverkeeper II*, the Regional Water Quality Control Boards (“Regional Boards”) have failed to properly reissue NPDES permits for power plants using OTC. Out of the 19 plants currently using OTC, 15 have NPDES permits that have already expired; Regional Board staff has stated that they are waiting for the statewide policy to update these overdue permits. At the end of 2009, one more plant will have an expired NPDES permit, which means that 84% of the plants using OTC will have overdue permits by the end of 2009 because of the delayed policy.

### b. The Statewide Advisory Committee should be used to Streamline Permitting Processes.

We applaud the State Board for its coordination and partnership with other involved agencies. However, it is imperative that such coordination facilitates, rather than delays, this process. Therefore, we recommend further use of the Statewide Advisory Committee on Cooling Water Intake Structures (SACCWIS) as a streamlining tool to expedite the various permitting processes before the multiple agencies involved. At the September 16, 2009 hearing, we heard testimony from industry that in some cases the compliance schedule is infeasible due to complex permitting requirements from other agencies, such as the CEC, for the plant upgrades that would be required by the Draft Policy. Because the relevant permitting agencies including the CEC, CPUC, and California Coastal Commission are members of the SACCWIS, we recommend using this group to expedite and streamline any permit requirements from multiple agencies related to this policy.

### c. The Statewide Advisory Committee’s Role in Extending Compliance Deadlines Should be Better Defined and Opportunity for Public Comment Should be Given.

The Draft Policy includes a provision to allow SACCWIS to review a power plant’s proposed implementation plans ensure that the implementation schedule takes into account local area and grid reliability. The SACCWIS is required to report to the State Water Board with “recommendations on modifications to the implementation schedule every two years starting in 2013.” The language as written is unclear and could be interpreted to require recommendations on modifications on the schedule. We urge the State Board to amend this language to make it clear that the SACCWIS should only make recommendations on modifications to the schedule if necessary for grid reliability.

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<sup>56</sup> Memorandum from Benjamin Grumbles, Assistant Administrator, U.S. EPA to U.S. EPA Regional Administrators, *Implementation of the Decision in Riverkeeper, Inc. v. EPA, Remanding the Cooling Water Intake Structures Phase II Regulation* (March 20, 2007).

<sup>57</sup> *Id.*; see also 40 CFR § 401.14.

Furthermore, the required findings for the SACCWIS to recommend a delay in the compliance schedule are not defined, nor is the State Board's "appropriate" determination based on that recommendation defined or a procedure prescribed. We urge the State Board to include definitions in this section and to make clear that the State Board will retain decision making authority on when and if the compliance schedule is altered.

Finally, the State Board's "appropriate" determinations of the SACCWIS timeline modifications should provide opportunity for public comment. These decisions should not be made behind closed doors, and the public should have the opportunity to review and provide comment on SACCWIS and State Board recommendations.

**d. The Timeline for Compliance Should Reflect Other State Efforts to Move California Towards Modern and Efficient Power Generation.**

Extending the life of these antiquated power plants not only prolongs the damage to our coastal and estuarine ecosystems, but also extends the life of inefficient power generation in California. In its draft report on repowering and retiring once-through cooled plants, the California Independent System Operator noted that many of the older power plants being analyzed tend to have "higher greenhouse gas emission rates and other pollutants than new generation sources."<sup>58</sup> The compliance schedule should reflect the numerous state efforts to move California towards renewable energy sources.

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We are long overdue for the state to embrace a policy on OTC that reflects Californians' desire to protect our valuable marine and coastal resources, while investing in a sustainable, environmentally sound future energy supply. California has consistently set high standards for the protection of the state's world-renowned coastal and marine resources, through the Marine Life Protection Act, the California Ocean Protection Act, and the Marine Life Management Act, among others. The State Board's policy on OTC should be consistent with these laws, with the Clean Water Act and Porter-Cologne, and with other state laws and policies that commit California to a sustainable energy path. We urge the State Board to expeditiously adopt and implement a state policy on OTC that charts an environmentally sustainable course for California's future.

Thank you for your consideration of our comments.

Sincerely,

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<sup>58</sup> California Independent System Operator, *Old Thermal Generation Retirement and Replacement of Once-Thru Cooling Long-Term Transmission Planning Study Version 2.0* (September 2007), p.1.

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