

RESPONSE TO PUBLIC COMMENTS ON THE PROPOSED RESOLUTION DELEGATING AUTHORITY TO THE EXECUTIVE DIRECTOR TO APPROVE INTERIM MITIGATION MEASURES UNDER THE ONCE-THROUGH (OTC) COOLING POLICY

Comment letter	Commenter	Submitted by
Comment letters submitted by July 13, 2015 comment deadline		
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1.1	<p>Therein on several occasions, CalDesal submitted written and oral testimony that indicated that CalDesal is open to a mitigation fee, but that we believe it is critical that the fee have a direct nexus to the potential impacts of a project and that it should be calculated and applied one time to cover all marine organism mitigation requirements for a project, inclusive of all state permitting agencies. Assuming the Board is able to develop a mitigation fee that CalDesal and other stakeholders can support, CalDesal submits that each desalination project proponent should have the option of paying the mitigation fee or building their own mitigation project or utilizing an existing restoration project. CalDesal would like to take this opportunity to continue the discussion and encourages the Board to consider a mitigation fee for desalination projects as well as for power plants. We look forward to monitoring the successful progress of the interim mitigation fee for power plants as a template for a similar mitigation fee for Desalination projects.</p>	<p>This comment is out of the scope of the proposed Resolution, which only pertains to measures undertaken to comply with the requirements for interim mitigation in the Statewide Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling (OTC Policy). Regardless, the Desalination Amendment includes a mitigation fee option if a regional board determines that an appropriate fee-based program has been established that meets the applicable requirements (see Desalination Amendment section M.2.e (1-3)). While there should be a nexus between mitigation and impact, the Desalination Amendment sets forth a more specific, detailed process to determine and implement mitigation, whereas the OTC Policy's mitigation requirement has important distinctions. Section 2.C(3) of the OTC Policy requires owners or operators of existing power plants to implement measures to mitigate the interim impingement and entrainment impacts resulting from the cooling water intake structure(s) during the period of October 1, 2015 and until such time as the plant comes into final compliance. In contrast, the Desalination Amendment defines mitigation in section 2.e. as the replacement of all forms of marine life or habitat that is lost due to the construction and operation of a desalination facility after minimizing intake and mortality of all forms of marine life through best available site, design, and technology. This is consistent with the clear statutory requirement in Water Code section 13142.5(b) that any new or expanded industrial installation using seawater for cooling, heating or industrial processing use the best site, design, technology and mitigation measures feasible to minimize the intake and mortality</p>

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		of all forms of marine life. Furthermore, brine discharges from desalination facilities have impacts on marine life, which do not occur with OTC power plants. While the fee-based interim mitigation approach for OTC power plants might serve as a reference when planning the fee-based mitigation option for desalination facilities, technical and regulatory differences between the OTC Policy and Desalination Amendment support a separate approach for the two.
2.1	This Resolution is minimalistic, lacking guidance or clarification that will help to ensure that coastal power plants are consistently complying with the OTC Policy. The Resolution is also accompanied by Appendices and a separate Information Sheet, but it is unclear what weight those materials will be given in the Executive Director's assessment.	The purpose of the proposed Resolution is to delegate authority to the Executive Director of the State Water Resources Control Board (State Water Board) to approve, on a case-by-case basis, mitigation measures that owners or operators of OTC power plants shall undertake to comply with requirements for interim mitigation. To the extent that the commenter raises questions regarding the proposed Resolution's appendices and Information Sheet, see responses to comments 2.6, 2.16, and 3.4.
2.2	Federal case law has clarified that after-the-fact restorative measures are illegal under the letter of the law, and unreliable or impossible in practical terms, so the State must minimize the harm prior to turning to mitigation – even in the interim period when working towards full enforcement. To date, there is little up-to-date information available to ensure the owner-operators are in full compliance with the interim “minimization” measures contained in Section 3 of the OTC Policy. The resolution should be clear that, prior to turning to any “after the fact” mitigation, the Executive Director shall require full and immediate compliance with the minimization measures. Adding to the decades of unnecessary damage to marine ecosystems, and attempting to compensate for on-going violations with after-the-fact mitigation that is decidedly lacking in restorative values, is simply	Clean Water Act (CWA) section 316(b) requires that the location, design, construction and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact. Federal case law interpreting the statute includes the finding in <i>Riverkeeper, Inc. v. United States Environmental Protection Agency</i> 358 F.3d 174, 191 (2nd Cir. 2004) that EPA “exceeded its authority by allowing compliance with section 316(b) through restoration methods.” Thus, the court concluded not that restoration measures are illegal, but that such measures may not substitute for the use of best technology available (BTA) for minimizing adverse environmental impact. Consistent with federal case law, the OTC Policy requires BTA for minimizing

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	unacceptable.	adverse environmental impact and does not substitute restoration measures for complying with section 316(b). Interim mitigation measures are included as part of a phased approach to the BTA requirements, an approach intended to ensure grid reliability during implementation of the Policy directives. The commenter has not identified other interim minimization measures required but not yet implemented pursuant to the Policy. Further, the State Water Board has authority to require monitoring and reporting under Water Code section 13383 for facilities subject to National Pollutant Discharge Elimination System (NPDES) permits. OTC facilities have been required to provide periodic updates in their implementation plans pursuant to this statute since adoption of the Policy. Such periodic reporting will continue to be required in order to assess progress toward compliance as well as any other requirements contained in the OTC Policy.
2.3	<p>To assess interim mitigation needs, data gaps must be filled with consistent information.</p> <p>To assess interim mitigation required on a case-by-case basis, as proposed by the draft OTC Resolution, it is necessary to know, at a minimum, the actual intake volume, intake velocity, and impingement mass for the 13 plants still utilizing once through cooling in their units. Owners or Operators should also be providing estimated entrainment numbers – and species impacted - for their site-specific facility. To our knowledge, very little of this data has been collected. Some of this data may be available from the Regional Water Quality Control Boards (“Regional Boards”), which communicate with the plants through the NPDES permit review process, but the information is difficult to</p>	<p>As required by their NPDES permits, OTC power plants are required to report their intake volumes monthly through the California Integrated Water Quality System (CIWQS) database. Power plants are not required to report their velocity. The public can access this information through the public CIWQS web site by generating electronic self-monitoring reports, which provide analytical and calculated data provided by NPDES permit holders.</p> <p>As described in the Information Sheet for the proposed Resolution, the Expert Review Panel on minimizing and mitigating intake impacts from power plants and desalination facilities (ERP II) concluded that applying an average cost estimate for entrainment (cost per</p>

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	<p>access, so the accuracy and consistency are unknown. To analyze the appropriateness of mitigation projects, it is also necessary to project future intake levels consistent with the requirement to minimize those intakes. We recommend that the State Water Board request that plant owners and operators provide their future projections as well detailed information about steps already taken to minimize intake volumes to only what is absolutely necessary in the interim period to full compliance.</p>	<p>million gallons) to all intakes is the simplest approach for entrainment mitigation, and under this approach, estimates of entrainment for each power plant are not required. An average cost estimate for entrainment and a power plant's intake volume would be used to determine the amount that must be paid on an annual basis to compensate for resources lost due to entrainment. Intake velocity is not a variable utilized in the calculation for impingement cost that was recommended by ERP II. Data on impingement mass has been submitted by some power plants through their OTC Policy Implementation Plans, and additionally the power plants were required to submit impingement and entrainment data to the Regional Boards. However, if this data is not representative of current operations, owners or operators would need to report annual impingement for their power plants, as this is necessary to calculate cost of impingement. Additionally, projections of future intake volumes would not be necessary for power plants that have selected the interim mitigation option of paying a mitigation fee. The mitigation fee would be based on a power plant's actual intake volume and consequently would be paid in arrears.</p>
2.4	<p>It is worth noting that the OTC Interim Mitigation due date of October 1, 2015 has been in place for five years, since 2010. In retrospect, during this time, it would have been valuable to request that plants gather entrainment and impingement data and regularly report actual intake volumes and velocity. With the interim mitigation due date growing near, the State Water Board should immediately request that covered plants begin to collect information necessary for and implicit in their compliance with the interim mitigation provisions of the OTC Policy. This request for information</p>	<p>See response to comment 2.3.</p>

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	<p>should clarify the time frames upon which the data are required and interim mitigation activities evaluated then performed.</p>	
2.5	<p>To facilitate efficient information collection to allow the SWRCB to assess proposed interim mitigation approaches, we recommend that staff issue requests for information from the covered plants, and from the Regional Boards. These requests should include past, current and projected intake volume and velocity and impingement mass and clear timeframes should be provided for when information is due and when mitigation requirements are assessed and brought due.</p>	<p>See response to comment 2.3.</p>
2.6	<p>The state water board should recalculate the average entrainment fee using a confidence level of 95 percent.</p> <p>To determine an appropriate mitigation fee, the State Water Board contracted Moss Landing Marine Laboratory to establish an Expert Review Panel on minimizing and mitigating intake impacts from power plants and desalination facilities (ERP II). The mitigation fee equation developed in ERP II comprises an entrainment fee, an impingement fee, and a management fee for implementation and monitoring of the mitigation project. The entrainment fee equation utilizes empirical transport models coupled with the HPF method, as required by the Policy, and is based on the cost of creating or restoring habitat that replaces the production of marine organisms killed. Despite the court's ruling that after-the-fact restoration measures are unreliable and impossible to ensure, we do not oppose ERP II's equation for determining the cost of replacing the marine life lost during OTC operations for the shortest possible interim period with the least damage possible in that time. However, we do not agree that an average entrainment fee of \$5.17 per MG is the correct price: this dollar amount should only be</p>	<p>Under the OTC Policy, owners or operators have several options to compensate for interim impacts as they come into compliance with the Policy's technology-based requirements. The option to pay a fee to the Coastal Conservancy is just one of these options. Ultimately, responsibility for demonstrating compensation lies with the owner or operator. However, the interim mitigation fee calculation developed by ERP II, which is described in the Information Sheet, is a reasonable method for the fee-based compliance option. The Information Sheet for the proposed Resolution describes the interim mitigation fee developed by ERP II and the default calculation of the entrainment fee based on an average cost of entrainment, which would be applied to all power plants. The value of \$5.17 per million gallons that is presented in the Information Sheet is incorrect (see response to comment 3.4 for an explanation of this), and the correct average entrainment cost that serves as the default in calculating entrainment fees for power plants is actually \$4.60 per million gallons. This average value</p>

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	<p>considered an example of the application of the formula.</p> <p>To the extent that an average entrainment fee is applied to facilities for which specific data was not included in the average calculation, we request that the State Water Board recalculate the average entrainment fee based on an HPF estimate using a confidence level of 95 percent rather than inferior calculations used in the past. We also request the State Water Board make clear that the \$5.17 per MG fee is only an illustration of how the formula works, and direct the Executive Director to calculate the entrainment fee for each individual OTC facility using a confidence level of 95 percent for the ETM/HPF estimate.</p>	<p>is based on input values considered to be reasonable for the purposes of the OTC Policy's interim mitigation. This does not preclude the possibility that the Executive Director may determine that the interim mitigation fee calculation should be modified for reasons such as site-specific conditions. For instance, there may be cases where some power plants have suitable entrainment data available that may be representative of their current operations and could be used to calculate habitat production foregone (HPF) or also referred to as area of production foregone (APF). In these cases, where the Executive Director determines that data is appropriately representative, interim mitigation fees would be based on costing of the HPFs for their specific power plants, as opposed to paying fees that utilize the average cost of entrainment. Furthermore, under the proposed Resolution, the Executive Director could consider applying offset ratios or a simple multiplier to the interim mitigation fee to ensure adequate funding for mitigation.</p> <p>Ultimately, use of the 95 percent confidence level in the Desalination Amendment was a policy decision made earlier this year by the State Water Board to provide greater certainty that mitigation conducted under the Desalination Amendment would be sufficient. This application of a 95 percent confidence level is specific to new or expanded desalination facilities where there is an expectation to replace all forms of marine life for ongoing impacts throughout the facilities' operation. This is a more stringent mitigation requirement than what was proposed in the OTC Policy (e.g., compensation for interim impacts of power</p>

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		<p>plants that are actively working to eliminate or minimize use of OTC water). Furthermore, recalculating the HPF estimates for the average cost of entrainment with 95 percent confidence levels would require new costing assessments for these acreages. Recalculating the HPF estimates used to determine the average cost of entrainment and reconvening the expert review panel would delay a determination of an appropriate mitigation approach until well after the October 1, 2015 requirement to begin collecting data and implementing mitigation has commenced.</p> <p>However, a 95 percent confidence level may be applied in cases where the Executive Director decides that it would be more appropriate to use available entrainment data that is representative of a plant's current operations to calculate its HPF and entrainment fee.</p> <p>See response to comment 2.2 regarding how the OTC Policy's interim mitigation requirements are not intended as a substitute for BTA.</p>
2.7	<p>Previous ETM/HPF estimates should have been calculated using a 95 percent confidence level prior to converting the estimated acreage to a mitigation fee. When determining how to calculate an entrainment fee, the ERP II "concluded that using an average cost estimate for entrainment (cost per million gallons), based on the costs of mitigation already calculated using HPF for some power plants, and applying this average to all intakes is the simplest approach for entrainment mitigation." The Resolution then states that facilities "would need to measure their intake volumes for each year of interim mitigation so that these values are available for use in their annual entrainment fee</p>	<p>See response to comment 2.6. In addition to calling for a 95 percent confidence level to be calculated for the HPF estimates of the power plants used in determining the average cost estimate for entrainment, the commenter also requests that a 95 percent confidence level should be applied to the overall calculation. It is unclear what the commenter means by the latter. Assuming that the commenter intends for a 95 percent confidence level to be applied to the average dollar per million gallons value, this is a misunderstanding of how confidence levels can be applied to HPF estimates.</p>

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	<p>calculations.” Our reading of Resolution 10(a)i, is that facilities will use the “average cost estimate for entrainment” (calculated in Appendix A as \$5.17/MG), and then multiply \$5.17 by the facility’s specific intake volume to determine that facility’s total entrainment fee. If so, then the State Board is effectively defining the mitigation fee at \$5.17 per million gallons withdrawn, and the Executive Director will only be delegated the authority to do the simple arithmetical task of multiplying that dollar value by the volume of water withdrawn.</p> <p>If our reading of Resolution 10(a)i is correct, then the State Water Board needs to recalculate the \$5.17/MG in Appendix 2 to have the proper confidence level of 95 percent. During the adoption of the Desalination Amendment, the State Water Board determined that a 95 percent confidence interval was appropriate for determining a replacement value in the mitigation fee calculation. However, the 5-facility mitigation fee average – used in Appendix 2 to calculate the \$5.17/MG average – did not use a confidence level of 95 percent. Furthermore, the overall equation used in Appendix 2 to calculate the \$5.17/MG average also did not use a 95 percent confidence level.</p>	<p>The HPF is the area of habitat that would need to be created to compensate for resources lost to entrainment. It is calculated by measuring the productivity forgone for a subset of species and averaging those measurements. Using an average HPF means that there is a 50 percent confidence level, so essentially there is a 50 percent chance that a mitigation project will underestimate or overestimate the mitigation area needed to fully compensate for a facility’s impacts. The level of confidence in whether the HPF acreage is fully compensatory can be increased by calculating greater confidence intervals for the available data and adding the confidence intervals to the average HPF. The resulting value will be greater than the average HPF but will have a greater degree of confidence that the project will fully mitigate for a power plant’s impacts. Hence, applying a 95 percent confidence level involves re-calculating the HPF estimates, not making an adjustment to the overall equation for the cost of entrainment.</p> <p>The authority being delegated to the Executive Director is not simply an arithmetic exercise. The proposed Resolution includes approval of not just the amount of funding under section 2.C.(3)(b) of the OTC Policy, but also of specific projects proposed under sections 2.C.(3)(a) and 2.C.(3)(c). Even under section 2.C.(3)(b), the Executive Director would need to review and approve the site-specific factors used to determine the funding amount (e.g., intake volume, impingement estimate, estimated life of the mitigation project, etc.). Moreover, the delegated authority would include consideration of any alternative method to</p>

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		demonstrate compensation under section 2.C(3)(d) of the Policy.
2.8	A 95 percent confidence interval is the appropriate level to ensure that the area affected by OTC operations is fully mitigated. As the State Water Board states it “is important to ensure that marine life mortality is fully mitigated.” However, using an APF equation to determine the size of a mitigation project causes some statistical uncertainty associated with the calculations of productivity forgone versus mortality associated with the facility. Using an average APF – as the State Water Board has done by using a \$5.17/MG average entrainment fee - means that there is a 50 percent chance that a mitigation project will underestimate the mitigation area needed to fully compensate for a facility’s impacts.	See response to comment 1.1 for an explanation of how the mitigation requirements differ between the OTC Policy and the Desalination Amendment. Furthermore, the logic that using an average HPF may result in a 50 percent chance of under-compensation in the estimate of acreage needed to compensate for a power plant’s impacts could conversely be used to argue that there is a 50 percent chance of over-compensation as well. Although using a higher confidence level increases the likelihood that a mitigation project will fully compensate for a power plant’s impacts, it does not guarantee fully compensatory mitigation. As with any technique for calculating mitigation habitat area, it is not possible to be 100 percent confident that the calculated HPF will fully compensate for impacts. See response to comment 2.6 for further discussion regarding confidence levels.
2.9	There are numerous examples where the State Water Board or other state regulatory agencies have required greater statistical certainty for a regulatory action.	See responses to comments 2.6 and 2.8.
2.10	As the State Water Board determined in the adopted Desalination Amendment, including “a requirement that the APF be calculated using a one-sided, upper 95 percent confidence bound for the 95th percentile of the APF distribution is consistent with existing requirements in the Ocean Plan.” To be consistent with past determinations as to the appropriate statistical certainty when developing a mitigation fee, the State Water Board should determine that a 95th percentile confidence level will be used when calculating the OTC mitigation fee. Therefore, the APF estimates used in the past mitigation fees (used to create	See responses to comments 1.1, 2.6, and 2.8.

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	the proposed average per gallon fee) should be recalculated using the 95% confidence interval, and the cost of mitigation adjusted upward in proportion to the adjusted APF estimate.	
2.11	Before the State Water Board adopts the OTC Resolution with direction to use the “average cost estimate for entrainment”, the Board needs to recalculate the 5-facility mitigation cost average using a 95 percent confidence level for the ETM/APF estimate. Using the new 5-facility average, the Board should recalculate the overall average cost estimate for entrainment using a 95 percent confidence level.	See responses to comments 1.1, 2.6, and 2.8.
2.12	In addition to recalculating the average cost estimate for entrainment based on scientifically sound adjustments to the past mitigation fees, the Board also needs to make explicit that the \$5.17/MG fee is only an illustration of how the formula may work – not the final average entrainment fee.	See response to comment 2.6.
2.13	As discussed above, we read the OTC Resolution to state the \$5.17/MG fee is the average cost estimate for entrainment.” The OTC Resolution states that the “average value and the facility’s specific intake volume (million gallons) would be used to determine how much shall be paid for the entrainment fee on an annual basis.” However, the Information Sheet does not provide certainty as to whether the \$5.17/MG is the average cost, or whether it is simply an illustration of how the formula works, with real data points to be decided by the Executive Director on a case-by-case basis.	See response to comment 2.6.
2.14	The Information Sheet explains how the average cost of entrainment was calculated on Page 5 with “[a]s an example of calculating the entrainment fee, it could be estimated...” This leads us to believe that the State Water Board is only offering an example of how facilities’ can calculate the average cost at a future time. A specific example of why this average fee is not adequate to apply to all plants is	See response to comment 2.6.

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	<p>described in Section III of this letter, below. However, the Information Sheet goes on to state that plugging “these input values into ERP II’s calculation yields an average cost estimate for entrainment of \$5.17 per million gallons (Appendix 2). Then, this average cost estimate for entrainment and a facility’s annual intake volume would be multiplied to calculate the entrainment fee for the facility.” The State Water Board should only utilize the \$5.17/MG as an example of how the average cost will be calculated in the future, and guidance documents should be clear that this is the purpose of that number.</p>	
2.15	<p>If the Resolution is establishing a fixed average cost of entrainment, the State Water Board should recalculate the average cost as explained above. If, as we assert is appropriate, the \$5.17 is only an illustration of how to calculate the average cost in the future, then the State Water Board should add direction in the Resolution that the Executive Director will adjust the ETM/APF, as well as the associated mitigation costs, used in the 5-facility average cost to establish a per million gallon entrainment fee on a case-by-case basis with adequate opportunity for public comment and judicial review.</p>	<p>See response to comment 2.6. Additionally, the proposed Resolution now includes a provision directing a public comment period for individual draft determinations.</p>
2.16	<p>Provide clear guidance and a standardized process for assessing existing or future mitigation projects.</p> <p>Our review of plants’ Implementation Plans and relevant documents reveals that six of thirteen plants are likely to request credit for existing mitigation projects. Owners or operators of El Segundo Generating Station, Pittsburg Generating Station, Encina Power Station, Mandalay Generating Station, Huntington Beach Generating Station, and Ormond Beach Generating Station have all argued in their Implementation Plans or related documentation that they should be given full or partial credit for existing</p>	<p>See responses to comments 1.1 and 2.6.</p> <p>Section 2.C(3)(a) of the OTC Policy provides the interim mitigation option of demonstrating to the State Water Board’s satisfaction that the owner or operator is compensating for interim impingement and entrainment impacts through existing mitigation efforts, including any projects that are required by state or federal permits as of October 1, 2010. As such, the OTC Policy allows for credit to be given for existing mitigation activities. Per section 2.C(3)(d) of the OTC Policy, the HPF method, or a comparable alternate</p>

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	mitigation activities.	method approved by the State Water Board shall be used to determine the habitat and area, based on replacement of annual entrainment, for funding a mitigation project. Also, section 2.C(3) states that it is the preference of the State Water Board that funding provided to the California Coastal Conservancy (Coastal Conservancy) is directed toward mitigation projects to increase marine life associated with the State's Marine Protected Areas (MPAs) in the geographic region of the facility. Therefore, in determining whether existing mitigation efforts adequately meet the OTC Policy's interim mitigation requirements, an owner or operator would need to demonstrate 1) that the HPF method was employed in those efforts or, if not, that an alternative method was comparable and 2) preferably, whether those efforts are directed toward increases in marine life associated with the State's MPAs in the geographic region of the facility. Furthermore, the owner or operator would need to include a comparison of the existing mitigation efforts to what the owner or operator would have provided if the fee-based interim mitigation option had been selected instead. If it is determined that existing efforts fall short, the owner or operator would be required to make up the difference through funds contributed to the Coastal Conservancy up to and until the power plant achieves final compliance with the OTC Policy.
2.17	For example, the Huntington Beach power plant owner-operator has previously paid mitigation fees for re-tooling Units 3 and 4. This is an example of a facility that may request exemption from the new mitigation fee or credit for fees paid in the past. Further, those past mitigation fees are one of the 5 facilities used to calculate an average cost per	See response to comment 2.16. The State Water Board has not made recent decisions that would require "stricter standards" for interim mitigation to compensate for impingement and entrainment from existing facilities under a phased approach to final compliance with best technology available under Clean

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	<p>million gallons in the proposed resolution. Finally, it is likely the Huntington mitigation fees may be used as credit for the proposed Poseidon-Huntington seawater desalination facility -- which is sited and designed with the expressed purpose to utilize the existing cooling water intake structure well into the future.</p> <p>The record of the decision by the California Energy Commission to approve the mitigation fee is unclear as to whether the fee calculation would be acceptable under today's standards. It appears from the record that the initial ETM/APF estimated a restoration project for 104 acres at a cost of nearly 9 million dollars. However, it appears that the final condition of certification only required restoration of 66.8 acres of restoration, and the cost estimate calculation is unclear. The original per-acre cost estimate used an average cost per acre for existing mitigation projects in other parts of the State, noting that the costs near this site would be significantly higher. Now, the resolution is including this mitigation fee as part of a new "average" – potentially compounding the original under-estimation of costs.</p> <p>This is just one example of why our organizations have serious concerns about setting the entrainment mitigation cost at \$5.17/MG. Further, it is an example of concerns about crediting past mitigation approved by other agencies for the "interim measures" that must employ stricter standards to be consistent with recent decisions by the State Board to ensure replacement values and adequate compensation. It is also an example of concerns that the past decisions may carry on well into the future if other project proponents using seawater for industrial processes rely on those past decisions. However, we also believe the Huntington example illustrates how the Executive Director</p>	<p>Water Act section 316(b). See response to comment 1.1 for an explanation of how the OTC Policy and the Desalination Amendment differ in mitigation requirements.</p> <p>The California Energy Commission (CEC) originally proposed a mitigation recommendation of 104 acres of wetlands restoration and maintenance for ten years for the Huntington Beach Generating Station (HBGS) Retool Project, which was calculated based on 100 percent of the power plant's permitted operation. However, during the first five years, the power plant operated at considerably less than its permitted level, so there was concern that this level of mitigation for the initial five-year period was disproportionate and unfair. Several alternative mitigation proposals were submitted by HBGS, and both the CEC and HBGS agreed to a proposal for 66.8 acres of wetlands restoration and maintenance for ten years. This proposal was based on HBGS reducing intake flow during certain times of the year over the ten-year period. Under this proposal, there would be flow restrictions of 25, 50, 80, 45 percent of the maximum intake per quarter, and the ETM/APF estimates for the necessary acreage to compensate for impacts were based on these flows. (Foster 2012). Because the selected proposal tried to account for actual intake volumes of the plant rather than using the maximum permitted amount, the selected proposal resulted in fewer acres of restoration. Similarly, the proposed interim mitigation fee calculation for the OTC Policy would be based on the actual intake volumes of power plants.</p>

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	<p>could utilize the data collected in the past proceeding to adjust the ETM/APF calculation to ensure a 95% confidence interval. Further, the Executive Director analyze the basis of the per-acre restoration, monitoring and adaptation, and/or acquisition costs.</p>	
2.18	<p>We are greatly concerned about using existing mitigation projects that were installed for environmental impacts assessed before the State Water Board adoption of the OTC Policy. At a minimum, we urge the State Water Board to require facilities proposing to use former mitigation projects for compliance to provide detailed monitoring information that shows the environmental benefits of these projects to be equal to or greater than the environmental impact caused by each facility through impingement and entrainment.</p> <p>Without delaying implementation of the OTC Policy through formal amendments, we suggest that State Board staff issue requests for information that clearly detail the conditions around which existing mitigation efforts would be found to adequately compensate for a facility's impacts, whether additional funds or efforts will be required to make those projects adequate.</p> <p>Mitigation projects and the administration of mitigation funds will require expert oversight, and it appears to be the intent of the State Board to incorporate administration costs into mitigation fees due. Administration costs should include the costs of ongoing monitoring and assessment of these projects.</p>	<p>Owners or operators who choose to comply with interim mitigation requirements would need to demonstrate that the project compensates for interim impacts. To be credible, such demonstration would likely require the kind of information recommended by the commenter. See response to comment 2.16 for additional discussion of demonstration requirements.</p> <p>As the commenter mentions, it is proposed that the interim mitigation fee include administration costs, which will help fund monitoring and assessment of mitigation projects. ERP II recommended management and monitoring fees on the typical range of 10 to 25 percent of the project's costs of entrainment and impingement. Management fees are necessary to cover the Coastal Conservancy's administrative costs associated with project selection, grant oversight, and administering of the interim mitigation funds. Monitoring and assessment of the mitigation project are critical for ensuring that the project is truly compensating for the resources lost due to intakes. Therefore, it is critical to ensure that some fees are dedicated toward these activities.</p>
2.19	<p>The State Water Board should ensure opportunity for public comment on individual OTC facility's mitigation fees and the proposed mitigation project.</p> <p>The State Water Board's delegation of authority to the</p>	<p>See responses to comments 2.3 and 2.15.</p>

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	<p>Executive Director should be accompanied by the opportunity for public comment on the individual mitigation fees and the proposed use of those fees. The Resolution’s primary whereas clause states that the “State Water Board hereby authorizes the Executive Director of the State Water Board to approve, on a case-by-case basis, mitigation measures that owners or operators of OTC facilities shall undertake to comply with requirements for interim mitigation.”</p> <p>As discussed above, there remains great uncertainty regarding how the Executive Director will determine whether the mitigation measures – self-selected by the owners and operators – are appropriate under the OTC Policy. As noted above, the first step in the analysis must be to ensure each owner-operator has submitted sufficient information to assess whether they have fully complied with the mandatory minimization measures that have been in place since adoption of the OTC Policy and to make an effective evaluation of their proposed interim mitigation activities. Such an assessment requires, at a minimum, accurate data about past, current, and future projected intake volumes and velocity, such that mitigation measures actually replace marine life lost to OTC operations.</p>	
2.20	<p>Given the lack of certainty as to how facilities will calculate their mitigation fee, and how the Executive Director will decide whether the proposed mitigation project is appropriate, we request the State Water Board add a clause to the Resolution clarifying that compliance with any of the interim mitigation alternatives, including a per-gallon mitigation fee, will be determined on a case-by-case basis – and directing the Executive Director to provide notice and opportunity for public comment on each individual facility’s proposed mitigation fee and/or project.</p>	See responses to comments 2.6 and 2.15.

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3.1	<p>It appears that the policy mixes OTC mitigation and desalination mitigation. It is important to consider facility lifespans for each when determining the mitigation fee. All fossil-fueled OTC power plants have a transition to non-OTC or closure date planned. Desalination plants are just now being built with, presumably, multiple decade lifespans. Therefore, seawater withdrawal mitigation is necessarily different for each. The Expert Review Panel II (ERP II) was convened to discuss seawater withdrawal mitigation fees for both OTC and desalination, but the information sheet and supporting documents do not differentiate between the two, especially as it pertains to project timelines.</p>	<p>See response to comment 1.1 for an explanation of how the mitigation requirements differ between the OTC Policy and the Desalination Amendment.</p> <p>As described in Appendix 1 of the Information Sheet, consideration was given to the difference in estimated time periods of operation between OTC power plants and desalination facilities. The model for cost of entrainment that was developed for ERP II was originally designed for long-term projects where impacts to be mitigated likely would last for decades. Therefore, the lifespan of the project was largely irrelevant to costing. (Raimondi 2015) Since OTC interim mitigation involves much shorter time periods, it is appropriate to incorporate the estimated longevity of the mitigation project, adjusting the cost for the benefits provided by mitigation once OTC operations have ceased. This express consideration of differences between OTC power plants and desalination facilities is why the ERP II calculation for cost of entrainment was modified to include adjustable input values for the estimated longevity of the mitigation project and the estimated period of continued operation of the power plant.</p>
3.2	<p>The management and monitoring fee is proposed as an alternative for depreciation of the mitigation project under the assumption that management and monitoring would ensure the mitigation is successful and compensatory. Facility owners who choose to support the State's preferred mitigation alternative will pay for mitigation per paragraph 2. C. (3)(e) of the Policy. There are likely to be projects undertaken by the California Coastal Conservancy (CCC), such as land acquisition, which may have very limited need for monitoring. There are also likely to be projects that may</p>	<p>As described in response to comment 2.18, ERP II recommended that management and monitoring costs be included in the total interim mitigation fee, with these costs ranging typically from 10 to 25 percent of the project's costs. In 2012, when ERP II's final report was finalized, the State Water Board did not make a final decision on what percentage would be appropriate to use for OTC interim mitigation. After recent discussions with the Coastal Conservancy, it has been concluded that using 10 percent, the lowest</p>

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	<p>require extensive monitoring for a short period of time relative to the potential life of the project. Therefore, an escalator for monitoring and management such as the 10% figure proposed in 2012 seems more appropriate.</p>	<p>percentage in the typical range for management and monitoring costs, would not be sufficient to cover costs for both management and monitoring. The management costs alone may require a maximum of 10 percent of the project's costs, which would leave no dedicated portion of the funds to monitoring.</p> <p>State Water Board staff is working with the Coastal Conservancy and the Ocean Protection Council to identify appropriate projects to fund with the OTC interim mitigation funds. As the commenter points out, it is likely that the projects will vary in terms of how much is needed for management and monitoring. Once the appropriate projects have been identified, the Coastal Conservancy, the Ocean Protection Council, and the State Water Board will continue collaborating to decide on the specific mitigation projects where funds from individual power plants should be directed. However, it is difficult to make this decision without knowing the amount of funding that individual power plants will be contributing. The interim mitigation fee is based on actual annual intake volume, so the precise annual fee can only be determined once a power plant has measured its annual intake volume. Consequently, since the Coastal Conservancy does not currently have the information necessary to decide which specific projects will receive funds from individual power plants, it is proposed to include a 20 percent management and monitoring cost in the interim mitigation fee, which would cover more variability in actual management and monitoring costs.</p>
3.3	<p>Furthermore, the life span of the mitigation project will undoubtedly exceed the 2-15 years that interim mitigation is needed for each facility. There is no accounting for the value</p>	<p>The commenter is correct in stating that the longevity of the mitigation project will likely exceed the period of operation of the power plant. See response to</p>

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	of many of these projects which could continue in perpetuity.	comment 3.1 for an explanation of how both of these values are accounted for in the calculation for the cost of entrainment.
3.4	Taking the average entrainment fee calculated from recently completed projects is in fact the simplest approach. This is a point where the blanket application of the mitigation fee concept is being applied to OTC and desalination without accounting for the lifespan of each. Similarly, the timeline to begin the mitigation project is not a critical issue to OTC facility owners. Predicting when the CCC may initiate a project with these funds may not be possible given the range of potential factors that will undoubtedly factor into the project selection and timeline. Ultimately, the actual funds the CCC will receive are directly tied to the cooling water volumes circulated by each OTC facility subject to interim mitigation. Weather conditions and power demand will also dictate this and ultimately dictate the mitigation fee the CCC receives. Therefore, facility owners should not be required to pay a premium for hypothetical situations and be responsible for compensating the State under the OTC policy requirements using present day dollars.	The commenter is addressing the cost projection variable in the calculation for cost of entrainment. The explanation found in section 3 of the Information Sheet incorrectly describes the cost projection variable as representing a delay between the payment of the entrainment fee and the initiation of the mitigation project. However, Dr. Raimondi accurately explains in Appendix 1 of the Information Sheet that the cost projection allows for the initiation of the entrainment fee to be delayed. It serves as an adjustable input value in the calculation that allows for the number of years between the original mitigation project cost assessments and the current year (2015) to be updated. Since OTC power plants would begin paying interim mitigation fees in arrears in 2016, the cost projection would be equal to one year because there is only a one-year difference between 2015 and 2016. Therefore, the proposed cost projection value should be 1, not 5. Using the correct cost projection value of 1 yields an average cost of entrainment of \$4.60 per million gallons, which would serve as the basis for the default calculation of entrainment fees for power plants unless the Executive Director determines otherwise.
3.5	With regards to the \$0.80 per pound of impingement charge, the valuation includes indirect value to the economy which is not included in the entrainment mitigation, therefore LADWP believes that the number should be closer to \$0.41.	The calculations for the cost of entrainment and the cost of impingement, as suggested by ERP II, are based on different methods. Dr. Raimondi's calculation for the cost of entrainment utilizes the HPF method, which estimates the area of habitat that would need to be created to compensate for resources lost to entrainment. A key assumption in how the HPF method is applied is that the production forgone for a

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		<p>subset of species is a representative sample of all species present at that location, even those that are not directly measured. If the habitat calculated using HPF is created or restored, the habitat will support the species assessed in the analysis as well as other species in the ecosystem that were not assessed. Hence, this method accounts for both direct effects to entrained species as well as indirect effects to associated species. Since the method for calculating impingement is not based on this concept of creating or restoring habitat, it does not account for indirect effects to associated species, and therefore incorporation of the indirect economic value is necessary.</p>
3.6	<p>Appendix 1 was prepared by Dr. Peter Raimondi and served as the supporting material for the information sheet released by the State. Here the concepts of monitoring, maintenance, and remediation were introduced. These were departures from prior mitigation fee calculation guidance documents released by the SWRCB staff. During the Desalination Policy consideration period, the ERP considered mitigation for desalination intake. Dr. Raimondi derived a cost range of \$1.66 to \$3.28 per 10⁶ gallons based on four wetland restoration and one artificial reef project. The average cost was \$2.45 per 10⁶ gallons. To calculate the costs per 10⁶ gallons, Dr. Raimondi used the following formula:</p> <p>Cost per 10⁶ gallons= Project cost / flow volume (mgd) / 365 days</p> <p>In addition, Dr. Raimondi factored in (1) a cost escalator of 3% per year, and (2) an estimated project half-life.</p> <p>For Huntington Beach Generating Station (HBGS), the costs he used</p>	<p>See response to comment 2.18. Additionally, as the commenter notes, HBGS' cost estimate for entrainment is higher in the example provided in the Information Sheet than in the calculation in Appendix 1 of ERP II's final report, and this is partially due to the greater lapse in time between the current year (2015) and the years when the original cost estimates were done for the mitigation projects used in the calculation. The estimated life of the mitigation project is an adjustable input value. Since the OTC Policy's interim mitigation involves shorter time periods, a shorter estimated life of the mitigation project was considered for the example provided in the Information Sheet.</p> <p>Although the commenter makes a valid point about maintenance and monitoring upholding the integrity of the restoration project, this does not account for the fact that power plants only will be contributing to the maintenance and monitoring of the mitigation projects for a finite period of time. Under the proposed interim</p>

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	<p>were as follows: Project cost= \$4,927,650 Flow volume = 126.5 mgd The cost per 10⁶ gallons was: \$106.7 per 10⁶ gallons.</p> <p>Dr. Raimondi further applied a 3% annual escalator to account for the time from when the costs were derived and 2012. For HBGS, this increased the cost to \$116.62 per 10⁶ gallons. Lastly, he divided the cost per 10⁶ gallons by the estimated half-life of the restoration project (50 years) to derive the final cost of \$2.33 per 10⁶ gallons per year. If one closely looks at his table in the ERP document, it does not look like the full table was included. The key includes blue cells for "cost projection" that are not shown.</p> <p>In the updated 2015 document issued by the SWRCB, Dr. Raimondi's table differs in the following ways: 1. The fee has increased because more years have progressed since the 2009 cost estimate. The \$116.62 above is now \$147.73. 2. The life of the restoration project is now 30 years instead of 50 years, but this could be changed. If you are required to pay for maintenance and monitoring, then presumably a wetland restoration project should last much longer than 30 years. Dividing \$147.73 by 30 yields \$4.92 per 10⁶ gallons for the HBGS.</p>	<p>mitigation fee calculation, owners or operators of OTC power plants essentially are paying to ensure performance over the estimated lifespans of the mitigation projects, which is 30 years in the default average entrainment fee calculation in the Information Sheet. This value was used because, as aforementioned, the OTC Policy's interim mitigation involves short time periods. Thirty years is considered a reasonable estimate because it accounts for the mitigation projects outlasting the operations of the OTC power plants but does not unfairly hold power plants responsible for management and monitoring of the mitigation projects for decades beyond their operating times.</p>
3.7	<p>Dr. Raimondi also adds: 1. A 10-25% "management and monitoring fee" (M&M) is included. Dr. Raimondi does not cite how he derived the 10-25% range, but 20% appears to be on the high end. At Malibu Lagoon, monitoring estimates ranged from 0.4% to 1.2%. The 10- 25% for M&M is not appropriate because the costs are already conservative and the projects will provide benefits for decades that would far exceed the costs of</p>	<p>See responses to comments 2.18 and 3.2. Rather than require owners or operators of power plants who have selected the fee-based option for OTC interim mitigation to implement their own monitoring programs for the mitigation projects, the current proposed methodology uses ERP II's suggestion to incorporate a management and monitoring cost into the total mitigation fee. As the commenter notes, the benefits of</p>

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	monitoring.	the mitigation projects may exceed the costs of monitoring, but this is assuming that the mitigation projects are successful because they are operating as designed. By assessing biological performance, monitoring plays a key role in ensuring the success of mitigation projects (Raimondi 2015).
3.8	LADWP suggests that the SWRCB may want to employ a resource economist to better determine the mitigation fee approach.	While there is no objection to the proposal of consulting with a resource economist regarding economic considerations, it is not feasible at this point due to the impending start of interim mitigation for the OTC Policy.
3.9	It is unclear whether the 2015 Proposal received the same level of review that occurred for the 2012 Proposal. There are no references provided in the report. This is important because of the changes in at least three of the assumptions in the 2015 Proposal.	The framework of Dr. Raimondi's model for calculating the cost estimate for entrainment essentially has remained the same as what was presented in Appendix 1 of ERP II's final report. As described in Appendix 1 of the Information Sheet, the model no longer includes a half-life input value. The half-life originally was included to account for degradation of the mitigation project over time, assuming that there is no monitoring, maintenance, and remediation. (Raimondi 2015) However, since a cost for monitoring is proposed to be included in the OTC interim mitigation fee, the half-life input value is not necessary. As mentioned in response to comment 3.1 and 3.6, in the model, Dr. Raimondi included adjustable input values for the estimated life of the mitigation project and the estimated period of continued operation of the power plant. This was to account for the shorter time periods involved with OTC interim mitigation. (Raimondi 2015)
3.10	The first assumption is related to the life of the projects. As stated in the 2012 Proposal ". . . I made the (very) simplifying assumption that the half-life of the restoration or mitigation project was 50 years. (Note that this assumption,	See responses to comments 3.6 and 3.9.

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	<p>along with discounting rate is adjustable in the model). Half-life is the midpoint in the expected life of the restoration project and is the point where the resource value conveyed is expected to be 50% of as-built, in the absence of further funding.</p> <p>This is an important assumption and one that should be discussed. The main implication of this assumption is that it affects the discounting of the fee.” This assumption affects the period of time that a project is providing value and the declining value of the benefits with time. It is not related to the “degradation of the mitigation project over time”, as stated on page 3 and 9 of the 2015 Proposal. There is no indication that the change in the half-life of the project in the 2015 Proposal from 50 to 30 years was discussed since, as stated in the 2012 Proposal, the value is critical to the calculations. In fact, a properly designed mitigation project should continue to provide benefits in perpetuity, but during the ERP discussions in 2011–2012 we agreed that 100 years was a reasonable time period to use in the calculations. In rereading the 2012 Proposal, I now see that the concept of discounting and degradation are somewhat confounded in the text. In fact no discounting is applied in the calculations.</p>	
3.11	<p>As indicated above, discounting should be applied to account for the declining value of a project with time. The discounting is not related to the “degradation” of the project. Using the logic on page 3, there would be no discounting applied to the fee if the initial costs included maintenance and monitoring. In reality, the discounting occurs due to the time value of the money. A dollar today is worth more than a dollar next year, and the standard value for annual discounting applied in similar restoration projects is 3.0%.</p>	<p>The calculation that ERP II suggested for the OTC Policy’s interim mitigation fee did not include discounting. Discounting is applied to projects in general to account for the fact that a project’s value will decrease over time due to the changing value of money. Since this involves speculation regarding future values, there continues to be debate regarding how discounting can be appropriately applied to mitigation projects, so discounting typically is not standard in mitigation projects in the State. Therefore,</p>

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	<p>It is unclear in the calculations whether the Estimated Annual Costs are averaged based on the expected life of the plant or the mitigation project. Based on the assumption that the mitigation project is fully replacing the entrainment losses after 5 years, the costs would be divided by the life of the intake – not the mitigation. If this is the case, then the mitigation fee needs to be adjusted based on the projected life of an individual project, and it makes no sense to calculate an “average” fee.</p> <p>In its current form, the approach does not provide any accommodation for the time value of the project. For example, if the life of a project is 100 years, the total value of \$1 in mitigation at the start of a project will provide with a discount rate of 3% over \$30 dollars in benefits (value). In actuality, with 3.0% discounting, it will take several hundred years before the value approaches zero. Conversely, the cost of completing the same mitigation project would increase over time. If the inflation rate is assumed to equal the discount rate, the Estimated Costs at Time of Projection would be divided by the projected years of the project impacts to determine an annual cost. As noted above, this will be project dependent. The methodology does not account for the continued value of the project that could extend out over several decades (100 years in the 2012 Proposal).</p>	<p>it is not recommended to incorporate discounting into the interim mitigation fee for the OTC Policy.</p> <p>As the commenter notes, the mitigation fee needs to be adjusted based on the projected life of an individual project, and in fact, the model for calculating the cost estimate for entrainment incorporates both the estimated life of the mitigation project as well as the estimated period of continued operation of the power plant. Rather than changing the annual cost of entrainment, the input value for the estimated period of continued operation of the power plant mainly affects how long the annual cost of entrainment is paid. The Information Sheet proposes the use of an average cost estimate of entrainment, as recommended by ERP II, because there is still uncertainty regarding what specific mitigation projects will be funded by the OTC interim mitigation funds. See response to comment 3.2 for an explanation of why it is difficult to determine where funds will be directed at this point.</p> <p>See responses to comments 3.6 and 3.7.</p>
3.12	<p>This interpretation of the fee ties into the second assumption in the approach related to the costs of monitoring and management. For the 2012 Proposal, we assumed a cost of ~10% to cover management of the projects, although the final report included a range from 10–25% to cover the costs of monitoring the success of a project. The addition of this to the final costs is problematic since the facilities paying into the state fund will have no control over the success of the</p>	<p>See responses to comments 2.18, 3.2, and 3.7.</p>

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	<p>project.</p> <p>Therefore, this presents two scenarios. The first scenario is based on the approach provided in the 2015 Proposal where a markup is added to the cost to cover monitoring and management. This additional funding helps ensure that the mitigation project is providing 100% of the necessary benefits over the life of the intake (Figure 1). The second scenario would provide funding for the mitigation project which at the completion of construction would start declining in value (Figure 2). In both scenarios, the benefits need to include the time out to the effective life of the project (100 years in the 2015 Proposal).</p>	
3.13	<p>The third change in the 2015 proposal relates to the escalation in the mitigation costs at a rate of 3% per year for 5 years to account for the “cost projection year”. There is no economic justification for doing this. The economic role of cost escalation in determining the entrainment fee is to adjust estimated costs from the date of the mitigation cost estimate to the year 2015. For example, the mitigation cost estimate for the Moss Landing Power Plant was derived in the year 2000, and the ERP II final report escalates these costs at a rate of 3% per year from a cost of \$15.1 million in the year 2000 to \$23.5 million in the year 2015. One way of understanding the economic rationale for this approach is that the cost escalator essentially accounts for price inflation in the economy: Between 1999 and 2014, price inflation occurred in the U.S. economy at an annual rate of 2.4%. There is no commensurate justification for escalating cost in the entrainment fee calculation for 5 additional years beyond 2015 to account for the “cost projection year”. If entrainment fees commence in 2015 and are adjusted annually for inflation, the entrainment fees paid in 2015 grow over time to match the escalation in mitigation cost. The suggested</p>	See response to comment 3.4.

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	discount rate for natural resource damage assessment provided by NOAA (1999) is 3%, which implies a rate of return in alternative investment that exactly offsets the assumed escalation in cost. Escalating costs for 5 years in the basis of the entrainment fee and also adjusting the fee upwards each year to account for inflation amounts to double-counting. An economically accurate entrainment fee is based on 2015 mitigation costs (per MG of intake), adjusted annually for inflation.	
4.1	<p>If this resolution removes the decision-making process from the full State Water Board, I object to delegating authority solely to the Executive Director.</p> <p>Opponents and proponents should have the eyes and ears of the full governing body, not just a single mind to persuade to their point of view.</p>	<p>The proposed Resolution does not preclude the Board Members' ability to voice their concerns with the Executive Director. The proposed delegation has been revised to include that individual draft determinations of the Executive Director be posted for a public comment period and circulated to interested persons. Where appropriate, and in cases with significant controversy, the Executive Director schedules items for consideration by the full Board, delegations notwithstanding.</p>

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