TENERA Environmental

August 18, 2014

Chairwoman Felicia Marcus
California Water Resources Control Board
1001 I Street
Sacramento, CA 95814

Mr. Tom Howard, Executive Director
California Water Resources Control Board
1001 I Street
Sacramento, CA 95814

Subject: Comments on Draft Amendment to the Water Quality Control Plan for Ocean Waters of California Addressing Desalination Facility Intakes, Brine Discharges, and to Incorporate Other Nonsubstantive Changes

Dear Chairwoman Marcus and Mr. Howard:

I was a member of the Expert Panel of scientists that provided input to the State Water Resources Control Board (SWRCB) staff on both this amendment and the OTC Policy. While I recognize the significant effort that has gone into the preparation of the Draft Amendment to the Water Quality Control Plan for Ocean Waters of California Addressing Desalination Facility Intakes, Brine Discharges, and to Incorporate Other Nonsubstantive Changes (Draft Amendment) released for public comment on July 3, 2014, I wanted to suggest some changes based on my involvement with the Expert Panel and experience working on ocean intakes over the past 35 years. The attachment to this letter includes a table with columns showing the original section and language in the Draft Amendment, followed by a column with the suggested edits, and a column with my comments.

The Draft Amendment appears to use the OTC Policy as the basis for the language in the amendment. Although I would urge you to verify this with the other scientists who were members of the Expert Panel, the general feeling of the group was that the small volumes of the intakes for most desalination plants would result in minimal impacts to ocean species. Therefore, we did not feel that the large-scale intake assessments used for power plants would be necessary for desalination plants and any minor impacts could be addressed through a fee paid for the volume of water used by the plant. This approach would greatly simplify the permitting for these facilities and provided an ongoing source of funding for coastal enhancement projects throughout the state.

One of our concerns was that the standard approach for calculating mitigation used for power plant projects would result in numerous small restoration projects that would

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be difficult to manage, and more likely to fail. The fee-based approach was derived from mitigation banking which offers several advantages over on-site, permittee led restoration mitigation programs. In 1995, the USEPA, the Army Corps and several other agencies issued joint memoranda and guidance on mitigation banking under the Section 404 regulating program aimed at wetlands mitigation (60 F.R. 13711 and 60 F.R. 58605). The agencies stated that the key advantages to mitigation banking over other approaches to restoration mitigation included economies of scale, in particular they state that pooling financial, planning, regulatory and scientific resources can increase the potential for success by funding projects that are "not practicable" to many smaller project-specific proposals. Consolidation also increases the potential for the establishment and long-term management of successful mitigation. Mitigation banking was given preference in 1998 by Congress as the approach to offset wetland impacts from federally funded transportation projects if banks were approved in accordance with the 1995 guidance provided by the National Research Council (NRC).[1]

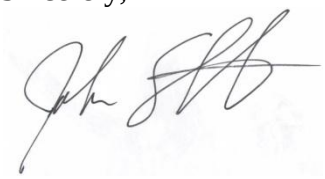
My comments also address the prescriptive approach to compliance in the Draft Amendment that provides unnecessary detail, while also leaving out many of the important issues that need to be considered when selecting an intake location or technology. For example, the Draft Amendment asks for input on the selection of a specific slot size for screens that would be used at surface ocean intakes. Since the language mentions slot opening, the assumption is that this refers specifically to wedgewire screens. This selection should be based on site-specific factors especially for use of wedgewire screens that require adequate cross flow. Other site-specific factors include the level of debris which may make the use of wedgewire screen technology infeasible. The current language does not seem to allow for other screening systems currently available or in development. Finally, the species composition at a site is a critical factor in the selection of an appropriate screen or slot opening. The SWRCB should be providing language that provides for as much flexibility in the selection and development of intake technologies as possible. A separate guidance document could be developed that would detail the site-specific factors that would need to be considered in determining the best intake technology available for a specific project.

This prescriptive approach also appears in the requirements for specific studies. My comments provide details on some of the unnecessary details included on the required studies. Some of the details include information which is incorrect, especially in regards to the methods of analysis, and requirements which far exceed what is required for intake systems that have little likelihood of having any negative effects on the marine environment.

[1] NRC (2001) Compensating for Wetland Loss Under the Clean Water Act. National Academy Press. Washington, D.C.

Due to my involvement with the development of this policy, I am very interested in making sure that the final version is based on sound science and also promotes the development of new intake technologies that would allow for the measured development of desalination along the coast of California.

Sincerely,



John Steinbeck
Vice President/Principal Scientist
Tenera Environmental

cc: Vice Chair Frances Spivy-Weber
Water Board Member Dorene D'Adamo
Water Board Member Steven Moore
Water Board Member Tam Doduc
Deputy Director Mr. Jonathan Bishop

w/ Attached Comments on Desalination Amendment

Amendment Section	Suggested Change	Rationale
L. Implementation Provisions for Desalination Facilities		
1.		
2.		
a. General Considerations		
b. Site is the general onshore and offshore location of a new or expanded facility.		
(1) Consider whether the identified regional need for desalinated water identified is consistent with any applicable general or coordinated plan for the development, utilization or conservation of the water resources of the state, such as a county general plan, an integrated regional water management plan or an urban water management plan. A design capacity in excess of the identified regional water need for desalinated water shall not be used by itself to declare subsurface intakes as infeasible.	(1) Consider whether the identified regional need for desalinated water identified is consistent with any applicable general or coordinated plan for the development, utilization or conservation of the water resources of the state, such as a county general plan, an integrated regional water management plan or an urban water management plan. ~~A design capacity in excess of the identified regional water need for desalinated water shall not be used by itself to declare subsurface intakes as infeasible.~~	No intake design should be dismissed without consideration of numerous factors. This indicates that the policy will give preferential consideration to subsurface intakes. In many cases these have been shown to fail. The environmental impacts are largely unstudied, and some technologies such as infiltration galleries have the potential to result in impacts that are likely much greater than a well-designed screened ocean intake.
c. Design is the layout, form, and function of a facility, including the configuration and type of infrastructure, including intake and outfall structures.		
(1) For each potential site, analyze the potential design configurations of the intake, discharge, and other facility infrastructure to avoid impacts to sensitive habitats and sensitive species.		
(2) If the regional water board determines that subsurface intakes are infeasible and surface water intakes are proposed instead, analyze potential designs for those intakes in order to minimize the Area Production Forgone (APF). The intake shall be designed to minimize entrainment of organisms when operational.	(2) If the regional water board determines that subsurface intakes are infeasible and surface water intakes are proposed instead, analyze potential designs for those intakes in order to minimize the ~~Area Production Forgone (APF). The intake shall be designed to minimize~~ entrainment of organisms when operational.	The inclusion of APF as a criterion does not make any sense as it may not be feasible to calculate estimates of APF at a location. Also, APF may not provide any insight into the levels or effects of entrainment and may actually be independent of entrainment levels. Minimizing entrainment should be the primary criterion.

Amendment Section	Suggested Change	Rationale
d.		
(1) Considerations for Intake Technology:		
(a) Subject to Section L.2.a.(2), the regional water board shall require subsurface intakes unless it determines that subsurface intakes are infeasible based upon an analysis of the criteria listed below, in consultation with State Water Board staff.	(a) The regional water board shall require intakes that minimize effects on the environment, in consultation with State Water Board staff.	The original policy language gives preference to subsurface intakes without providing any basis for this policy without any legal basis for the policy. At the very least this policy statement should be backed by a balanced assessment of intake technologies that is open to scrutiny (comment) by industry and the public. The policy basis should include environmental and economic appraisals of viable technology alternatives. Subsurface intakes will not be feasible for many projects, have unknown environmental effects (adverse or beneficial), may represent a significant economic burden on California's water supply, and are known to fail. For example the Desal Expert Panel Report states that, "As indicated in WateReuse report (2011b), the largest seawater desalination facility with a subsurface intake in operation at present is the Pedro Del Pinatar (Cartagena) desalination plant in Spain where the first 64,000 m3 per d (17 mgd) phase of the project used subsurface HDD wells. Site-specific hydrogeological constraints made it impossible to use similar intake wells for plant expansion, and the second 64,000 m3 per d (17 mgd) phase of this project was constructed with an open ocean intake. Another example of a larger facility with an indirect intake is the Fukuoka plant in Japan that has an intake volume of 103,000 m3 per d (27.2 mgd) and uses a large constructed infiltration gallery with an area of 20,000 m2 (4.9 acres) in the shallow nearshore ocean waters at a depth of 11.5 m (38 ft). While details were not available for this report, there have been challenges in operating this intake system." Other environmental impacts, such as the significant greenhouse gas emissions and disturbance of benthic organisms from subsurface intakes, need to be evaluated carefully against such things as the minimal effects of any entrainment losses on fish populations and other positive benefits being sited. Other environmental implications of subsurface intakes must be thoroughly studied prior to establishing a rule favoring subsurface intakes. Other factors that need to be considered include the acquisition of required lands to support needed wells and significant additional infrastructure to transport water from expansive wells to desalination sites).

Amendment Section	Suggested Change	Rationale
i. The regional water board shall consider the following criteria in determining feasibility of subsurface intakes: geotechnical data, hydrogeology, benthic topography, oceanographic conditions, presence of sensitive habitats, presence of sensitive species, energy use; impact on freshwater aquifers, local water supply, and existing water users; desalinated water conveyance, existing infrastructure, co-location with sources of dilution water, design constraints (engineering, constructability), and project life cycle cost. Project life cycle cost shall be determined by evaluating the total cost of planning, design, land acquisition, construction, operations, maintenance, mitigation, equipment replacement and disposal over the lifetime of the facility, in addition to the cost of decommissioning the facility. In addition, the regional water board may evaluate other site- and facility-specific factors.	i. The regional water board shall consider the following criteria in determining feasibility of subsurface intakes: geotechnical data, hydrogeology, benthic topography, oceanographic conditions, volume of water required, impacts on the marine environment and biological communities, presence of sensitive habitats, presence of sensitive species, energy use; impact on freshwater aquifers, local water supply, and existing water users; desalinated water conveyance, existing infrastructure, co-location with sources of dilution water, design constraints (engineering, constructability), and project life cycle cost. Project life cycle cost shall be determined by evaluating the total cost of planning, design, land acquisition, construction, operations, maintenance, mitigation, equipment replacement and disposal over the lifetime of the facility, in addition to the cost of decommissioning the facility. In addition, the regional water board may evaluate other site- and facility-specific factors. Other land based considerations must include the fact that the preferred location for land based wells might be in areas that would likely be restricted from use (Coast Act Impacts).	Delete entire section, or at least add consideration of impacts to marine environment.
ii. The regional water board may find that a combination of subsurface and surface intakes is the best feasible alternative to minimize intake and mortality of marine life.	ii. The regional water board ~~may find that~~ shall consider whether a combination of subsurface and surface intakes, operated together or at separate times, is the best feasible alternative to minimize intake and mortality of marine life.	It is unclear to me why this statement is necessary.
(b) Installation and maintenance of a subsurface intake shall avoid, to the maximum extent feasible, the disturbance of sensitive habitats and sensitive species.	~~(b) Installation and maintenance of a subsurface intake shall avoid, to the maximum extent feasible, the disturbance of sensitive habitats and sensitive species.~~	On the basis of suggested changes to §L.2.d.(1)(a) above, this would already be considered.
(c) If subsurface intakes are not feasible, the regional water board may approve a surface water intake subject to the following conditions.	(c) The regional water board may approve a surface water intake subject to the following conditions.	
i. The regional water board shall require that surface water intakes be screened.	i. The regional water board shall require that surface water intakes be screened with the screen opening design selected to appreciably reduce the intake and mortality of the marine organisms at the project site.	

Amendment Section	Suggested Change	Rationale
ii. In order to reduce entrainment, all surface water intakes must be screened with a [0.5 mm (0.02 in)/ 0.75 (0.03 in)/ 1.0 mm (0.04 in)] or smaller slot size screen when the desalination facility is withdrawing seawater. [NOTE: The State Water Board intends to select a single slot size, but is soliciting comments on whether 0.5 mm, 0.75 mm, 1.0 mm, or some other slot size is most appropriate to minimize intake and mortality of marine life.]	Delete	Predefining the screen or slot opening for wedge wire screens does not allow for consideration of the conditions and species at an intake location. Also the text seems to confuse slot openings which refer to wedgewire screen and openings for screen mesh. The selection of a specific slot opening for wedge wire screens is unnecessary as the manufacturers can customize the slot openings to a large degree allowing the intake to be customized to the specific site conditions. This section does not provide any information on the need for adequate cross flow to allow a wedgewire screen to operate efficiently, or the potential for technology that might utilize square or other shape mesh. The screen opening needs to be selected based on the species at a location and not prescribed in a policy.
iii. An owner or operator may use an alternative method of preventing entrainment so long as the alternative method provides equivalent protection of eggs, larvae, and juvenile organisms as is provided by a [0.5 mm (0.02 in)/ 0.75 (0.03 in)/ 1.0 mm (0.04 in)] slot size screen [see note above]. The owner or operator must demonstrate the effectiveness of the alternative method to the regional water board. The owner or operator must conduct a pilot study to demonstrate the effectiveness of the alternative method, and use an Empirical Transport Model (ETM)/ Area of Production Forgone (APF) approach to estimate entrainment at the pilot study location. The study period shall be at least 36 consecutive months and sampling shall be designed to account for variation in oceanographic conditions and larval abundance and diversity such that abundance estimates are reasonably accurate. Samples must be collected using a mesh size no larger than 335 microns and individuals collected shall be identified to the lowest taxonomical level practicable. The ETM/APF analysis shall be representative of the entrained species. At their discretion, the regional water boards may permit the use of existing entrainment data from the facility to meet this requirement.	iii. An owner or operator may <u>demonstrate an alternative method of preventing entrainment through a pilot study designed to demonstrate the effectiveness of the alternative.</u>	See comments on selection of specific screen or slot openings. Any study designed to demonstrate the effectiveness of a screening technology would not use an ETM-type assessment. The purpose of ETM is to estimate the impacts due to entrainment on a source population of marine organisms. The pilot study would need to detect the reduction in entrainment resulting from the technology. The designs and sampling approaches for the two studies are entirely different and specifying that the study needs to be conducted for 36 months indicates the absence of any understanding of the goal of this type of study. Similar to the ETM, the study will be estimating a percentage reduction which would show little variation among years as long as the species composition of larvae was similar among years. A defined set of goals need to be established so that any project being assessed can be measured appropriately against that set of goals. Based upon the results of the assessment, appropriate mitigation steps, where required, might be possible to meet or exceed the established goals.
(d)		

Amendment Section	Suggested Change	Rationale
(2) Considerations for Brine Discharge Technology:		
(a)		
(b)		
(c)		
(d)		
i. Estimate intake entrainment impacts using an ETM/APF approach.	i. Provide a board approved assessment on the intake entrainment effects.	Should not require an ETM-type study as volume of intake may not require detailed assessment. Also, modeling could be used to provide an ETM-type assessment.
ii.		
iii.		
(e)		
(f) Facilities that use subsurface intakes to supply augmented flow water for dilution are exempt from the requirements of chapter III.L.2.d.(2) if the facility meets the receiving water limitation for salinity in chapter III.L.3.	(f) Facilities that use subsurface intakes to supply augmented flow water for dilution are also required to provide a board approved assessment on the environmental effects of the intake technology.	Subsurface intakes should not be exempt from evaluation of environmental impacts.
e. Mitigation for the purposes of this section is the replacement of marine life or habitat that is lost due to the construction and operation of a desalination facility after minimizing marine life mortality through site, design, and technology measures. The owner or operator may choose whether to satisfy a facility's mitigation measures pursuant to chapter III.L.2.e.(3) or, if available, L.2.e.(4). The owner or operator shall fully mitigate for all marine life mortality associated with the desalination facility.	Mitigation for the purposes of this section is the compensation of any significant losses ~~the replacement~~ of marine life or habitat ~~that is lost~~ due to the construction and operation of a desalination facility after minimizing marine life mortality through site, design, and technology measures. The owner or operator may choose whether to satisfy a facility's mitigation measures pursuant to chapter III.L.2.e.(3) or, if available, L.2.e.(4). ~~The owner or operator shall fully mitigate for all marine life mortality associated with the desalination facility.~~	**Note that this is setting a policy that all losses are required to be replaced – regardless of whether the losses are significant.** Also, as written, the language would not provide for any mitigation that does not provide exact replacement.
(1) Marine Life Mortality Report. The owner or operator of a facility shall submit a report to the regional water board projecting the marine life mortality resulting from construction and operation of the facility after implementation of the facility's required site, design, and technology measures.	Marine Life Mortality Report. The owner or operator of a facility shall submit a report to the regional water board estimating ~~projecting~~ the marine life mortality resulting from construction and operation of the facility after implementation of the facility's required site, design, and technology measures.	The ETM approach does not project entrainment numbers, it estimates the annual mortality due to entrainment. Projecting arguably implies additive annual entrainment, which is wrong. Entrainment remains consistent each year and does not increase with additional years.

Amendment Section	Suggested Change	Rationale
(a) For operational mortality related to intakes, the report shall include a detailed entrainment study. The entrainment study period shall be at least 36 consecutive months and sampling shall be designed to account for variation in oceanographic conditions and larval abundance and diversity such that abundance estimates are reasonably accurate. At their discretion, the regional water boards may permit the use of existing entrainment data from the facility to meet this requirement. Samples must be collected using a mesh size no larger than 335 microns and individuals collected shall be identified to the lowest taxonomical level practicable. Additional samples shall also be collected using a 200 micron mesh to provide a broader characterization of other entrained organisms. The ETM/APF analysis shall be representative of the entrained species collected using the 335 micron net. The APF shall be calculated using a 90 percent confidence level. An owner or operator with subsurface intakes is not required to do an ETM/APF analysis for their intakes and is not required to mitigate for intake-related operational mortality.	(a) For operational mortality related to intakes, the report shall include a detailed entrainment assessment approved by the regional board. ~~The entrainment study period shall be at least 36 consecutive months and sampling shall be designed to account for variation in oceanographic conditions and larval abundance and diversity such that abundance estimates are reasonably accurate.~~ At their discretion, the regional water boards may permit the use of existing entrainment data from the facility to meet this requirement. If sampling is required, the samples must be collected using a mesh size no larger than 335 microns and individuals collected shall be identified to the lowest taxonomical level practicable. ~~Additional samples shall also be collected using a 200 micron mesh to provide a broader characterization of other entrained organisms. The ETM/APF analysis shall be representative of the entrained species collected using the 335 micron net. The APF shall be calculated using a 90 percent confidence level. An owner or operator with subsurface intakes is not required to do an ETM/APF analysis for their intakes and is not required to mitigate for intake-related operational mortality~~.	No specifics on the study requirements should be included as the design or even requirements for actual data collection will vary by location. Based on input from the Expert Review Panel no studies should be required for facilities with low volume intakes (probably 30 mgd or less). Also, for many plants the impacts can be estimated using an ETM-based modeling approach, especially at locations where there are some existing data. No additional sampling using a 200 micron net should be required since the impacts estimated from the ETM can be easily extrapolated, in almost all cases, to any planktonic organisms subject to entrainment. ETM is the method used to assess the significance of entrainment mortality. APF is a method for calculating mitigation of taxa for which there is an identifiable adult habitat association. It is not clear why it would be included in a Marine Life Mortality Report. APF converts proportional mortality calculated by the ETM into an area metric (equivalent square kilometers) for appropriate larval taxa. This APF estimate is the area required to compensate for the loss of those larval taxa. Therefore it should be included in a mitigation assessment if the ETM assessment concludes a significant impact that requires mitigation.
(b) For operational mortality related to discharges, the report shall estimate the area in which salinity exceeds 2.0 parts per thousand above natural background salinity or a facility-specific alternative receiving water limitation (see § L.3). The area in excess of the receiving water limitation for salinity shall be determined by modeling and confirmed with monitoring. The report shall use any acceptable approach for evaluating mortality that occurs due to shearing stress resulting from the facility's discharge, including any incremental increase in mortality resulting from a commingled discharge.		No specific comment but is the 2 ppt limit supported by any studies? This seems very low.
(c)		
(d) Upon approval of the report by the regional water board in consultation with State Water Board staff, the calculated marine life mortality shall form the basis for the mitigation provided pursuant to this section.		This has important implications for APF – as habitat cannot be replaced for several of the taxa commonly entrained in California. It is likely that a strong argument against APF for all taxa effects could be made and that additional mitigation may be required.

Amendment Section	Suggested Change	Rationale
(2) The owner or operator shall mitigate for the marine life mortality determined in the report above by choosing to either complete a mitigation project as described in chapter III.L.2.e.(3) or, if an appropriate fee-based mitigation program is available, provide funding for the program as described in chapter III.L.2.e.(4). The mitigation project or the use of a fee-based mitigation program and the amount of the fee that the owner or operator must pay is subject to regional water board approval.	The owner or operator shall mitigate for the marine life mortality determined in the report above by choosing to either complete a mitigation project as described in chapter III.L.2.e.(3) or, if an appropriate fee-based mitigation program is available, provide funding for the program as described in chapter III.L.2.e.(4), <u>or a combination of the two</u>. The mitigation project or the use of a fee-based mitigation program and the amount of the fee that the owner or operator must pay is subject to regional water board approval.	It may be appropriate to consider both options for some projects, particularly in the case of projects whose range of entrained larval taxa have adult forms that do and do not associate with restorable habitat. See comments below for explanation.
(3) Mitigation Option 1: Complete a Mitigation Project. The mitigation project must satisfy the following provisions:		
(a) The owner or operator shall submit a Mitigation Plan. Mitigation Plans shall include: project objectives, site selection, site protection instrument (the legal arrangement or instrument that will be used to ensure the long-term protection of the compensatory mitigation project site), baseline site conditions, a mitigation work plan, a maintenance plan, a long-term management plan, an adaptive management plan, performance standards and success criteria, monitoring requirements, and financial assurances.	The owner or operator shall submit a Mitigation Plan. Mitigation Plans shall include <u>an APF assessment of appropriate taxa in order to scale project entrainment and brine disposal effects on larva to appropriate compensatory habitat acreage</u>, The plan should also include project objectives, site selection, site protection instrument (the legal arrangement or instrument that will be used to ensure the long-term protection of the compensatory mitigation project site), baseline site conditions, a mitigation work plan, a maintenance plan, a long-term management plan, an adaptive management plan, performance standards <u>based on the impact assessment and mitigation plan objectives</u> and success criteria, monitoring requirements, and financial assurances.	See comments above on the difference between APF and ETM. APF is only appropriate for use with species whose adult forms associate with a restorable habitat. Species without habitat association as adults will not benefit from habitat restoration. Alternative mitigation approaches such as quota buyout and stocking should be considered for taxa with no restorable adult habitat association. These approaches are unlikely to be feasible unless a mitigation banking/*in-lieu* fee approach is taken.

Amendment Section	Suggested Change	Rationale
(b) The mitigation project must meet the following requirements:		
i. Mitigation shall be accomplished through expansion, restoration or creation of one or more of the following: kelp beds, estuaries, coastal wetlands, natural reefs, MPAs, or other projects approved by the regional water board that will mitigate for intake and mortality of marine life associated with the facility.		NOTE that none of these habitats directly compensate for losses to coastal pelagic fishes such as croakers which are usually entrained in high numbers as larvae. Therefore, there should be consideration of stocking in this list.
ii. The owner or operator shall demonstrate that the project fully mitigates for intake-related marine life mortality by including acreage that is at least equivalent in size to the APF calculated in the Marine Life Mortality Report above. The owner or operator shall do modeling to evaluate the areal extent of the mitigation project's production area to confirm that it overlaps the facility's source water body. Impacts on the mitigation project due to entrainment by the facility must be offset by adding compensatory acreage to the mitigation project. The regional water boards may require additional habitat be mitigated to compensate for the annual entrainment of organisms between 200 and 335 microns.	ii. The owner or operator shall demonstrate that the project ~~fully~~ mitigates for intake-related marine life mortality ~~by including acreage that is at least equivalent in size to the APF calculated in the Marine Life Mortality Report above~~. The owner or operator shall do modeling to evaluate the areal extent of the mitigation project's production area to confirm that it overlaps the facility's source water body. Impacts on the mitigation project due to entrainment by the facility must be offset by adding compensatory acreage to the mitigation project. ~~The regional water boards may require additional habitat be mitigated to compensate for the annual entrainment of organisms between 200 and 335 microns.~~	The APF should not be used as the only criterion used to determine appropriate mitigation. The method has limited value for coastal pelagic fishes. If the ETM is used in the intake assessment then the impacts predicted from the model can be extrapolated as occurring to all planktonic organisms. The ETM estimate is a percentage that is largely affected by the ratio of the intake to source water volumes, therefore the same percentage losses could be used to approximate the impacts to all plankton with the same planktonic duration. The actual impacts to other plankton is most likely much less due to the reduced planktonic duration for most plankton relative to fishes.
iii. The owner or operator shall demonstrate that the project also fully mitigates for the discharge-related marine life mortality projected in the Marine Life Mortality Report above. For each acre of discharge-related disturbance as determined in the Marine Life Mortality Report, an owner or operator shall restore one acre of habitat unless the regional water board determines that a mitigation ratio greater than 1:1 is needed.	Delete.	As previously noted this will not be possible for many species. Also, mitigation ratios have been used on previous projects.
iv. The owner or operator shall demonstrate that the project also fully mitigates for the construction-related marine life mortality identified in the Marine Life Mortality Report above. For each acre of construction-related disturbance, an owner or operator shall restore one acre of habitat unless the regional water board determines that a mitigation ratio greater than 1:1 is needed.	Delete.	As previously noted this will not be possible for many species. Also, mitigation ratios have been used on previous projects.
(c)		

Amendment Section	Suggested Change	Rationale
(4) Mitigation Option 2: Fee-based Mitigation Program. If the regional water board determines that an appropriate fee-based mitigation program has been established by a public agency, and that payment of a fee to the mitigation program will result in the creation and ongoing implementation of a mitigation project that meets the requirements of section L.2.e.(3), the owner or operator may pay a fee to the mitigation program in lieu of completing a mitigation project.		Note: The Expert Review Panel agreed that this was the best approach for addressing intake effects as the intake volumes are likely to be too small to produce any impacts.
3. Receiving Water Limitation for Salinity		
a.		
b.		
(1) Discharges shall not exceed a daily maximum of 2.0 parts per thousand above natural background salinity to be measured as total dissolved solids (mg/L) measured no further than 100 meters (328 ft) horizontally from the discharge. There is no vertical limit to this zone.		Same comment as above – Is the 2.0 ppt supported by data?
c.		
(1) To determine whether a proposed facility-specific alternative receiving water limitation is adequately protective of beneficial uses, an owner or operator shall:		
(a) Establish baseline biological conditions at the discharge location and at reference locations over a 36-month period prior to commencing brine discharge. The biologic surveys must characterize the ecologic composition of habitat and marine life using measures established by the regional water board. At their discretion, the regional water boards may permit the use of existing data from the facility to meet this requirement.	(a) Establish baseline biological conditions at the discharge location and at reference locations~~ over a 36-month period prior to commencing brine discharge~~. The biologic surveys must characterize the ecologic composition of habitat and marine life using measures established by the regional water board. At their discretion, the regional water boards may permit the use of existing data from the facility to meet this requirement.	Study period should not be specified. The appropriate time period should be determined based on the communities and habitats present and threatened by discharge effects.
(2)		
(3)		
(4)		
d.		
e.		

Amendment Section	Suggested Change	Rationale
4. Monitoring and Reporting Programs		
a.		
(1)		
(2) Baseline biological conditions shall be established at the discharge location and at a reference location prior to commencement of construction. The owner or operator is required to conduct Before-After Control-Impact biological surveys that will evaluate the differences between biological communities at a reference site and at the discharge location before and after the discharge commences. The regional water board will use the data and results from the Before-After Control-Impact surveys for evaluating and renewing the requirements set forth in a facility's NPDES permit.	2) Baseline biological conditions shall be established at the discharge location and at a reference location prior to commencement of construction. The owner or operator is required to conduct studies to ~~Before-After Control-Impact biological surveys that will~~ evaluate the differences between biological communities at a reference site and at the discharge location before and after the discharge commences, preferably using a Before-After Control-Impact design. The regional water board will use the data and results from the study ~~Before-After Control-Impact surveys~~ for evaluating and renewing the requirements set forth in a facility's NPDES permit.	The term "Before-After, Control-Impact' refers to a type of study design. The suggested language change was made to reflect the fact that the design may not be adaptable to all locations.