University of California, Davis' Bodega Marine Laboratory Request for an Exception to the Ocean Plan's ASBS Discharge Prohibition

Response to Comments

Two speakers representing the University of California, Davis' Bodega Marine Laboratory gave testimony at the July 30, 2007 public hearing,. The deadline for the written comments was July 31, 2007. Four comment letters were received from the following parties:

1) North Coast Water Board
2) Mr. Gene Koch
3) Environmental Law Foundation, Mr. Dan Gildor
4) University of California, Davis, Bodega Marine Laboratory

Comments from Regional Water Quality Control Board in Santa Rosa.

Comment: The North Coast Water Board is in support of the exception

Response: Staff appreciates and concurs with support for the exception.

Comments from Gene Koch.

Comment: Mr. Koch has requested that new technology be considered in the discharge of compost into sub-surface drainages by UCD/BML. He proposes alternative suggestions for compost drainage systems.

Response: The request and suggestion are not relevant to the premise of the exception application by UCD/BML regarding its discharges. The California Ocean Plan does not regulate sub-surface discharges. Therefore, no consideration can be made at this time to researching technology that can be used for sub-surface discharge monitoring.

Comments from Environmental Law Foundation.

Comment: Nothing in the Proposed Mitigated Negative Declaration (MND) or the Initial Study indicates that the State Water Board has considered, or properly implemented, the state's anti-degradation policy. Neither document establishes what background water quality is or what the likelihood is that the proposed action will lower water quality, despite clear evidence that the discharge actually lowers water quality. The State Water Board must designate the Bodega ASBS

as an outstanding national resource water (ONRW). Further, the MND does not require sufficient measures to maintain and protect the ASBS's water quality.

Response: The MND addresses the federal and state anti-degradation policies and concludes that granting the exception will not violate these policies. We agree with the commenter that further analysis of the policies is appropriate, as provided below.

The MND indicates that the discharge from the Bodega Marine Laboratory has been permitted since 1975. Since the SCCWRP survey results were published in 2003, the laboratory has implemented best management practices and engineering modifications to control storm water runoff. These actions and the conditions specified in the MND will improve water quality over previously permitted levels.

The Bodega ASBS is not an ONRW. Currently, there are two ONRWs in California – Lake Tahoe and Mono Lake. While the Bodega ASBS could be considered an appropriate candidate for ONRW status, it has not been designated as such.

While it appears clear that the actions taken by the laboratory and the conditions in the MND will improve water quality over current permitted levels, it is unclear whether the current discharge lowers water quality over background levels. There is little, or no data, on background water quality, and one principal objective of the MND conditions is to obtain this data.

The commenter incorrectly cites the State Water Board's *Status Report: Areas of Special Biological Significance* (Aug. 2006) as evidence that the discharge lowers water quality.
While page 33 of the Status Report does state that Mussel Watch data shows elevated levels of cadmium, mercury, copper, selenium, oxychlordane, gamma chlordane, and phenol in the vicinity of the Bodega ASBS, nowhere is it stated in that report that these elevated levels are a result of the discharge. There is, in fact, no causal connection between the Bodega Marine Laboratory discharge and the Mussel Watch Data. Furthermore the use of Mussel Watch data for Bodega headlands is only valid in assessing general water conditions and trends relative to the rest of the State's coastal areas, and does not demonstrate a violation of water quality standards.

It should further be noted that recent effluent data submitted by UCD/UCD/BML indicates that effluent metals concentrations were well below the Ocean Plan Table B objectives. The laboratory effluent was comparable to the Mussel Point reference water quality, with the slight differences likely due to natural variability.

Bodega Marine Lab Waste Seawater Discharge, July 10, 2007
All results in ug/L.

	Standard	Sample 1	Sample 2
	Median 6 Month	@ 11:41	@ 11:42
Arsenic	8	1.42	1.41
Cadmium	1	0.048	0.074
Chromium	2	0.76	0.72
Copper	3	0.74	1.16
Lead	2	0.059	0.089
Mercury	0.04	ND	ND
Nickel	5	0.691	1.22
Selenium	15	ND	ND
Silver	0.7	ND	ND
Zinc	20	0.94	0.68

Mussel Point Reference Station, Bodega ASBS, July 10, 2007
All results in ug/L.

	Standard	Sample 1	Sample 1	Mean	Sample 2
	Median 6 Month	@ 11:17 Replicate	@ 11:17 Replicate	@ 11:17	@ 11:20
Arsenic	8	1.46	1.45	1.46	1.43
Cadmium	1	0.048	0.047	0.048	0.055
Chromium	2	0.48	0.46	0.47	0.52
Copper	3	0.11	0.09	0.10	0.11
Lead	2	0.019	0.017	0.018	0.023
Mercury	0.04	ND	ND	ND	ND
Nickel	5	0.285	0.222	0.254	0.320
Selenium	15	ND	ND	ND	ND
Silver	0.7	ND	ND	ND	ND
Zinc	20	ND	J 0.005	--	0.367

1. ND: Not detected.
2. J: Detected at a concentration below the reporting limit (0.01 ug/L) and above the laboratory method detection.

Finally, we disagree that the MND does not contain sufficient measures to maintain and protect water quality. The conditions require that natural water quality in the receiving water be maintained and require both receiving water and reference water monitoring to ensure that this condition is met. In addition, the seawater effluent discharge must meet the Ocean Plan Table B objectives at the end-of-pipe. The conditions prohibit non-storm water facility runoff except for flows associated with emergency fire fighting. Further, the laboratory must develop a storm water management plan that is designed to ensure that natural water quality conditions are maintained in the receiving water, the plan must be approved by the North Coast Regional Water Board, and the plan must be implemented within one year of the date of approval by the North Coast Regional Water Board.

Comments from University of California, Davis Bodega Marine Laboratory (UCD/ BML). All the testimony from representatives of University of California, Davis Bodega Marine Laboratory at the July 30, 2007 public hearing was included and consistent with submitted written comments.

Comment: UCD/BML has requested that the language be changed to "UCD/BML seawater effluent will not cause a violation of Table B water quality objectives as required in Section III.C. of the Ocean Plan." We feel that this change in language would meet the intent of Table B objectives but would not require us to remove constituents that enter the ASBS from external sources.

Response: The suggested language will not have the intended effect. Section III.C. of the 2005 Ocean Plan requires that effluent limitations, rather than receiving water limitations, be imposed to implement Table B objectives, and that the effluent limitations apply to the discharger's total, i.e. gross, discharge. Therefore, staff does not recommend the change to Condition 2.

Comment: UCD/BML has requested that the language in Conditions #12 should be worded the same as #13 to allow for a six month review of surveys.

Response: Staff agrees with the suggested language change and has edited the Mitigated Negative Declaration as follows:

"At least once every permit cycle (every five years), a quantitative survey of intertidal benthic marine life must be performed near the discharge and at a reference site. The North Coast Water Board, in consultation with the State Water Board's Division of Water Quality, must approve the survey design. The results of the survey must be completed and submitted to the North Coast Water Board at least six months prior to the end of the permit cycle. Furthermore, any data from other intertidal and subtidal surveys performed by researchers in the ASBS must be reported to the State and North Coast Water Boards."

Comment: UCD/BML corrected information on Page 3, paragraph 4 of the Initial Study stating that multiple buoys and moorings were deployed in 2005. A single buoy was deployed in 2005, but deployment plans were discontinued due to lack of funding.

Response: Staff thanks UCD/BML and acknowledges this correction.

Comment: UCD/BML stated that rare birds that were listed in the initial Study should not be considered an appropriate description of the prevailing bird community.

Response: Staff appreciates that the rare birds mentioned are not necessarily indicative of the prevailing bird community. However, the list of birds was taken from a list acquired from the Madrone Audubon Society, in January 2007, which was appropriately referenced in the Initial Study. While rare birds from that list may not be a sole indicator of the prevailing bird community surrounding the laboratory, it is still valid information.

Comment: UCD/BML noted a language discrepancy on page 6, paragraph 6 of the Initial Study. They recommended replacing "area near the cove in the northern portion" with "area near the cove in the southern portion."

Response: There was an error in the Initial Study. The statement is corrected as follows: "The intertidal and subtidal topography near the northern portion of the ASBS (west of Mussel Point) is much more rugged than the area near the cove; in the northern portion, well-defined, wave-cut features are not as evident." This corrected statement is identical to the original statement on page 23 of the Reconnaissance Survey.

Comment: UCD/BML noted a language correction for a location cited on page 6, paragraph 7 of the Initial Study. They recommended replacing "each" with "Beach."

Response: This was a typographic error. Staff thanks UCD/BML and acknowledges this correction.

Comment: Regarding page 8, paragraph 4 of the Initial Study, although waves do play a part, coastal current velocity and direction are predominantly influenced by wind speed and direction.

Response: The statement in question "Coastal current velocities and directions are largely influenced by local wave action." is quoted directly from page 11 of the 1979 Reconnaissance Survey prepared by researchers from the University of California for the State Water Board. Since the time of the Reconnaissance Survey our knowledge of oceanographic processes in the region have improved. Therefore, staff agrees that while waves do play a part, local wind speed and direction are a dominant influence on coastal current velocity and direction.

Comment: Regarding the statement on page 8, paragraph 5, of the Initial Study, salinities in the area range from 32 to 34 parts per thousand (not percent). Salinities as low as 28 parts per thousand (ppt) in 1997 and as high as 35 ppt (1991, 1994) have been documented. (Reference: UCSD Scripps Institution of Oceanography Shore Stations Program and Bodega Ocean Observing Node).

Response: Staff thanks UCD/BML. The term "percent" was an error in translation of the symbol $^{0}/_{00}$. Staff intended the term "parts per thousand" to be used instead of percent. Regarding the range of salinity provided in the Initial Study, staff used the salinity range provided in the 1979 Reconnaissance Survey, which stated that salinities in the area are generally constant and range from 33 to 34 $^{0}/_{00.}$ Based on the information provided in the comment, staff agrees with the recommended change, that salinities in the area range from 32 to 34 $^{0}/_{00.}$

Comment: UCD/BML notes that there is no mention of discharges in the Russian River in the water quality and temperature section of the Initial Study. They state that this is a major drainage 8 miles north of the laboratory and a visible plume exists offshore of the ASBS during high flow periods.

Response: Staff acknowledges that the Initial Study failed to mention the Russian River as a potential source of pollutants in the Bodega ASBS.

The waters of the ASBS may be influenced in the winter by sediment and fresh water from the Russian River, which empties into the ocean about 9 miles (15 km) north of the area. The Russian River has a drainage basin of about 1,486 square miles (3,850 square km), and the average annual runoff has been estimated at 1,510,000 acre-feet (1,863 cubic hectometers) (SWRCB, 1979). The Russian River is on the State's list of impaired water bodies (final 2006 Clean Water Act Section 303d list). The lower Russian River watershed contains two tributary watersheds that do not meet water quality standards: Austin Creek, for sedimentation/siltation and temperature, and Guerneville for pathogens, pH, sedimentation/siltation and temperature.

In addition, the USEPA recently added Salmon Creek Park beach to the 2006 303d list, due to indicator bacteria contamination. Salmon Creek Park is immediately north of the Bodega ASBS. Pollutants from the Salmon Creek Beach may also enter the ASBS.

Comment: Regarding page 9, paragraph 2 of the Initial Study, Bodega Bay is the body of water outside of Doran Beach and the embayment is called Bodega Harbor. UCD/BML recommends statement be changed to state "Bodega Harbor discharges to the ocean one mile from the southern boundary of the ASBS. Vessel wastes are associated with harbor waters."

Response: Staff agrees that Bodega Harbor is an enclosed embayment adjacent to the larger Bodega Bay. Outflows from Bodega Harbor, including vessel wastes and other wastes (e.g., runoff) drain into Bodega Bay and these wastes may at times enter the ASBS.

Comment: The Initial Study's statement that the Mendocino County Wastewater District is the nearest wastewater treatment facility was inaccurate. The closest

wastewater treatment facility is Bodega Bay Public Utilities District Wastewater Treatment Plant, and there are several others that discharge into the Russian River.

Response: Staff acknowledges that the closest wastewater treatment facility is the Bodega Bay Public Utilities District Wastewater Treatment Plant, and there are several others that discharge into the Russian River. However, the Bodega Bay Treatment Plant does not have an ocean discharge. The Mendocino County Wastewater District operates the nearest wastewater treatment facility with a permitted ocean discharge.

Comment: UCD/BML stated that the Mussel Watch Station at Bodega Head is not located within the boundaries of the Bodega ASBS and its readings should not be considered when using its results to define the water quality in the area.

Response: We acknowledge that the station at Bodega Head falls just outside of the boundary of the Bodega ASBS. However there is no closer Mussel Watch station. The Bodega Head station's close proximity to the ASBS allows its data to be used as a reasonable characterization of the ASBS and surrounding ocean waters.

Comment: Regarding page 10, paragraph 5 of the Initial Study, "Phaeophyta" is misspelled.

Response: Staff agrees. This was a typographic error.

Comment: This comment relates to page 12, paragraph 2 of the Initial Study, which states "Salt water fleas (Amphipods) reach great abundance at all intertidal levels. Because of the difficulties they pose for the non-expert, no attempt has been made to identify them." Over BML's history, many scientists have studied and identified local amphipods.

Response: Staff acknowledges that there have been many studies performed since 1979 to collect data on marine biota in and near the ASBS. However, UCD/BML did not previously provide those new studies in their application and therefore staff did not have ready access to that information. We suggest that UCD/BML collect and provide all relevant information on marine biota in the ASBS, for future use in compliance with the requirements of the exception and permit.

Comment: UCD/BML stated that *Collisella* and *Notoacmea* are presently referred to as *Lottia*.

Response: Staff was already aware of the change in taxonomy for these limpets. The genera *Collisella* and *Notoacmea* were used on Page 12 and in

Appendix D of the Initial Study to avoid confusion from the 1979 Reconnaissance Survey. However Appendix D to the Initial Study already places *Collisella* in parentheses behind *Lottia* to reflect that change. Appendix D mistakenly does not do the same for *Notoacmea.* There are very likely other changes in taxonomy since the original 1979 survey, but staff has not had the resources to identify and record these for the large number of species found in ASBS.

Comment: The statement in the Initial Study on page 18, paragraph 9 dates from 1979, and is contradictory to the next sentence. Replace with "Sport fishermen in charter boats and most private boats ~~likewise~~ normally work ~~well~~ outside the area of the preserve. UCD/BML staff routinely observes sport boats fish up to and …"

Response: Staff acknowledges and agrees with the comment.

Comment: UCD/BML suggested a language change on page 20, paragraph 4 of the Initial Study. Laboratory personnel see dozens of harbor seals within the ASBS. Replace beginning of sentence with "It is not unusual to see several dozen individuals of this species."

Response: Staff acknowledges the comment and agrees that harbor seals are numerous in the area.

Comment: UCD/BML corrected a date used in the Initial Study regarding a sighting of Cuvier's beaked whale. They stated that this occurred in 1985, not 1980.

Response: Staff thanks UCD/BML and acknowledges this correction.

Comment: UCD/BML noted an error in the statement on page 46, paragraph 1 of the initial Study. They suggest a correction to state that sulfur dioxide gas is used in dechlorination, not hydrogen sulfide.

Response: Staff thanks UCD/BML. Staff was aware that sulfur dioxide is used for dechlorination and acknowledges this correction to the Initial Study.

Comment: UCD/BML corrected a date referenced on page 47, paragraph 1 of the Initial Study regarding the placement of a temperature monitor. They suggest that the date be changed from February 2001 to February 2007.

Response: Staff thanks UCD/BML and acknowledges this correction to the typographic error in the Initial Study.

Comment: *Caulerpa* was grown between 2000-2002 in a quarantine facility permitted by the CA Department of Food and Agriculture, which required no

drainage from the facility and highly restricted access. The research conducted in the facility was devoted to *Caulerpa* eradication techniques for the California Department of Fish & Game. All Caulerpa was destroyed according to permit requirements.

Response: We acknowledge that *Caulerpa* was utilized as a research specimen within the laboratory and a permit was attained to reflect such approved research. However, the statement in the Initial Study is essentially factual and therefore is not edited.

Comment: This comment relates to page 55 of the Initial Study. The northern boundary of the historical range for white abalone is well accepted as Point Conception, California. No white abalone has occurred within the Bodega ASBS in modern times. In the DFG Shellfish Health Lab, we are holding white abalones that were spawned in southern California several years ago. They do not become gravid under our holding conditions, and if they were to spawn, the chlorination treatment of the effluent from this facility would kill any developing larvae. The authors may have mistakenly stated white abalone (*H. sorenseni*) when they meant flat abalone (*H. wallalensis*), which does occur in this area (the name *wallalensis* refers to Gualala). The flat abalone is not listed as endangered or as a candidate for listing (Dr. Jim Moore, Senior Fish Pathologist, Department of Fish & Game).

Response: Staff is revising the sentence in question as follows: Three other species of abalone, flat abalone (*H. wallalensis*), white (*H. sorenseni*) and black abalone (*H. cracherodii*) are also known to occur at Bodega ASBS.

There was no confusion regarding white abalone and flat abalone. Staff acknowledges the presence of flat abalone in the Bodega ASBS, and also acknowledges that the presence of white abalone would be considered rare outside of the southern California Bight. However, a list obtained from a US Fish and Wildlife Service website: (**{** HYPERLINK "http://www.fws.gov/sacramento/es/spp_lists/auto_list_form.cfm" **}**) in 2006 includes white abalone as a listed species for the project area. The website stated: “Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested.” The list in the Initial Study was generated using the Bodega Head (503D) U.S.G.S. 7½ Minute Quad. Since flat abalone is not endangered it would not be on that list.

State Water Board Staff Testimony

State Water Board staff, at the July 30 Public Hearing, made a recommendation that the monitoring conditions in the Mitigated Negative Declaration and

Exception be revised to include regional monitoring as an allowable option. Therefore staff recommends that Condition 16 in the Mitigated Negative Declaration be revised as follows:

"Once annually, the subtidal sediment in Horseshoe Cove must be sampled and analyzed for Ocean Plan Table B constituents. For sediment toxicity testing, an acute toxicity test using the amphipod *Eohaustorius estuarius* must be performed during the first year of the permit cycle. Based on the first year sample results, the North Coast Water Board will determine specific constituents in the sediment to be tested during the remainder of each permit cycle, except that acute toxicity for sediment must be tested annually. Participation in a collaborative regional or statewide ASBS monitoring effort is encouraged. After the first year of monitoring results are reviewed, the North Coast Water Board, in consultation with the State Water Board's Division of Water Quality, may adjust the sediment, receiving water, and bioaccumulation monitoring required under this exception, based on UCD/BML's participation in an appropriate regional or statewide monitoring program."

State Water Board Staff – Further Minor Edits to the Initial Study and Mitigated Negative Declaration

Regarding monitoring for residual chlorine, new technical information has recently come to staff's attention since the Initial Study and draft Mitigated Negative Declaration were released. State Water Board staff has just completed observations of the effectiveness of various sensors and bench top analyzers for residual chlorine. These observations suggest that UCD/BML may have technical difficulties in meeting the TRC limits due to technological limitations in the available instrumentation. Therefore, the paragraph on page 44 of the initial Study, with regard to staff recommendations for monitoring residual chlorine, is revised as follows:

"Staff recommends that UCD/BML continuously monitor residual chlorine with a reporting limit of 50 µg/L, if technically feasible. This reporting limit is based on the approximation factors set forth in the Standard Methods for the Examination of Waste and Wastewater (20th Edition, 1998), which can estimate method detection limits from instrument detection limits. However, it should be noted that suspended solids in the wastewater will reduce the accuracy and reliability of continuous TRC monitoring measurements. Therefore, as an alternative, UCD/BML may continuously monitor sulfite as a proxy for assuring that the discharge meets TRC effluent limits.

In addition bench top residual chlorine measurements should be performed monthly with a minimum method detection limit of 10 µg/L total residual chlorine in accordance with USEPA regulations (40 CFR 136). The reporting limit should

be 13 µg/L. This reporting limit is based on a method detection limit of 10 µg/L and a 25 percent uncertainty factor to account for the complexity of the analysis.

These analytical recommendations may be revised based on new information when made available by the State Water Board or by the USEPA. It is advisable for the North Coast Water Board staff, when developing the Monitoring and Reporting Program, to consult with the State Water Board staff to incorporate the most current and feasible analytical requirements."

Therefore staff is also revising Condition 3 in the Mitigated Negative Declaration as follows:

"UCD/BML shall continuously monitor TRC. The reporting limit for continuous TRC monitoring shall be 50 µg/L or as low as is technically feasible. Alternatively UCD/BML shall continuously monitor sulfite as a proxy for assuring that the discharge meets TRC effluent limits. In addition, bench top TRC measurements shall be performed at least once monthly with a minimum method detection limit of 10 µg/L TRC and a reporting limit of 13 µg/L. The North Coast Water Board, in consultation with the State Water Board's Division of Water Quality, may revise these requirements in the Monitoring and Reporting Program of the NPDES Permit."