

Draft Response to Comments

April 11, 2011

Hopkins Marine Station Exception, Pacific Grove ASBS

I. Hopkins Marine Station Comments:

1. Hopkins Marine Station (HMS) describes its history and status as a leader in marine research, conservation and education. Maintaining the healthy condition of the Pacific Grove Area of Special Biological Significance (ASBS) is of paramount importance to HMS. HMS will work in close cooperation with the Water Boards through an effective monitoring program.

Staff response: Staff agrees that HMS is an important and valued educational and research institution, and appreciates the offer to work in close cooperation to protect the ASBS from waste discharges and to develop an effective monitoring program.

2. The requirement for a [separate] monitoring program for storm water.

a. HMS questions the logic of requiring a separate monitoring program for stormwater; HMS wishes to be included in the storm water management program to be developed by City of Pacific Grove.

b. Through easement agreements with the City of Pacific Grove, HMS hosts some City of Pacific Grove storm water discharge lines. HMS does not believe that monitoring storm water that originate outside of the boundaries of HMS property should be a burden for HMS to bear.

Staff response:

a. HMS is the custodian of discharges both singularly and co-mingled with those of the City of Pacific Grove, some of which (for co-mingled flows) can be characterized as “up-pipe” contributions. This is true of any storm water discharger that receives run-on from upstream dischargers. As the final custodian of the co-mingled discharges, HMS is responsible for monitoring those discharges.

The requirement of a storm water management plan (SWMP) for the HMS facility would include pollution control efforts, Best Management Practices (BMPs) and other measures planned for and underway to reduce and/or eliminate pollutants in the discharges. The HMS SWMP must be required to comply with applicable federal and state law.

In light of the relative contribution of storm runoff conveyed only from the HMS facility, State Water Board staff encourages collaboration between HMS and the City of Pacific Grove in the management and monitoring of storm water.

b. The Discharger must comply with applicable federal and state laws, regulations, plans and policies. The HMS discharges waste seawater (once-through seawater) and storm water effluent to the Pacific Ocean, a water of the United States, and is not currently regulated under a National Pollutant Discharge Elimination System (NPDES) permit. The receiving water for these discharges of storm water and once-through seawater is the Pacific Ocean, in an area designated by the State Water Resources Control Board (State Water Board) as the Pacific Grove ASBS. The California Ocean Plan prohibits waste discharged to ASBS, including waste in permitted storm water or nonpoint source runoff, unless an exception is granted.

Pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the USEPA, and chapter 5.5, division 7 of the California Water Code (commencing with section 13370), an NPDES permit is required for point source discharges from the HMS facility. An NPDES permit would also serve as a Waste Discharge Requirement (WDR) pursuant to article 4, chapter 4, division 7 of the Water Code (commencing with section 13260).

Storm water discharges that are contributing to water quality impairment or are a significant contributor of pollutants to waters of the United States are required to obtain permit coverage. Discharges of storm water from this facility may impact an ASBS and therefore are determined to be a significant source of pollutants for which it is necessary to obtain coverage under an NPDES permit. A permit for storm water discharges and once-through seawater discharges from the HMS facility would contain specific requirements for monitoring and control of these discharges.

Should the State Water Board decide to approve an exception to the Ocean Plan for the discharges from HMS facility, the terms and conditions (Special Protections) of the Order would be incorporated into any permit issued for HMS. These Special Protections are based on information submitted as part of the Discharger's application for an exception, and are designed to reduce and or eliminate the discharge of waste to the Pacific Grove ASBS.

State Water Board staff is aware of the difficulties in regulating discharges from HMS, since the discharges vary in origin and type, i.e. point source, non-point source and shared source. Also, the ASBS waste discharge prohibition is much broader in nature than those typically found in NPDES permits. The discharge of any waste is prohibited, regardless of the amount. Monitoring is required to ensure compliance with the waste discharge prohibition, and staff is encouraged by data submitted by HMS to date. The Regional Water Board may, at its discretion, and after receiving and analyzing the required water quality monitoring

data submitted by HMS, choose to reduce and/or eliminate some monitoring where routinely good results are found.

As described in the appendix to the HMS comments, there are ten storm water discharges on HMS property. Five discharges are made up entirely of urban runoff from the City of Pacific Grove, two of which are non-point sources. Three of the discharges are co-mingled HMS and City of Pacific Grove storm water. Two discharges are primarily storm water generated from HMS property.

Staff agrees with HMS concerns that the monitoring of storm water discharges originating outside of the boundaries of HMS property should not be a burden for HMS to bear. Staff recognizes that through easement agreements, the City of Pacific Grove does convey stormwater via pipes that transverse HMS property and empty to the ocean receiving waters. Staff therefore proposes to clarify the draft Mitigated Negative Declaration and exception to require HMS to only monitor end-of-pipe for those five outfalls that: a) it is either solely responsible for (two outfalls), and b) for which it contributes to the discharge (three outfalls). Staff is also supportive of a collaboration of resources and effort between the HMS and the City of Pacific Grove for the three outfalls with contributions from both entities.

3. The requirement for monitoring a reference and discharge site in the rocky intertidal zone to evaluate a discharge impacts, and its scientific validity.

- a.** HMS questions the identification and establishment of rocky intertidal monitoring sites that could be adequately characterized as a reference and a discharge site and considers this an impossible task.
- b.** HMS questions the statistical validity of a discharge and reference monitoring site study and results arising from the comparison of the data set from that study.
- c.** HMS feels that forces unrelated to their seawater or storm water discharges are the primary drivers of water quality and ecosystem status.
- d.** HMS questions the term “waste” as applied to their seawater outfall discharges originating from the Agassiz and Loeb laboratory research/aquaria buildings. HMS is concerned about environmental conditions existing just outside and adjacent to these aquaria, which are haul-out sites for more than 300 harbor seals and flocks of geese and shorebirds. Aquaria animals which are brought inside to the laboratory aquaria for study, then release fecal material through these seawater outfalls, should be considered no different than what naturally occurs outside the lab.

Staff response:

a., b., and c. The discharger should be required to conduct biological monitoring as a condition of the exception and the permit for discharges to ASBS in order to ensure the protection of the marine aquatic life beneficial use. A well-planned approach to biological investigations is essential to produce scientifically sound evidence of impacts from discharges.

Rocky intertidal habitats are by far the rarest of all coastal habitats in California. Encompassing less than 7 square miles total, they serve to provide marine scientists an indicator for anthropogenic and natural impacts. The State Water Board has historically partnered with marine science institutions such as the Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO), who specialize in the consistent and long-term collection of three important marine ecosystem components: kelp forest, rocky shores, and coastal currents.

Patterns of species' abundance and diversity vary along the coast on scales of feet to hundreds of miles. Patterns also change over time, from year to year and decade to decade. Documenting these patterns is fundamental for understanding the nature of marine ecosystems and essential for managing resources and comparing these changes to those potentially affected by land based anthropogenic pollutant discharges.

Though HMS is concerned that the identification and establishment of rocky intertidal monitoring sites as a reference and a discharge site is an impossible task, State Water Board staff is confident it is possible. Staff successfully identified statistically significant community structure changes in the Bodega Marine Laboratory rocky intertidal study, which relied on discharge and reference sites in relatively close proximity to one another. More recently a rocky intertidal study, performed by Dr. Peter Raimondi and his staff (PISCO and UC Santa Cruz), was successfully undertaken as part of the ASBS regional monitoring effort in southern California. Several discharge and reference sites were surveyed, with the purpose of identifying differences between sites if such differences existed. Two ASBS sites in that study were determined to be statistically different when comparing motile and sessile organisms. While staff understands that the southern California study did not determine that water quality was the absolute cause of those differences, the information is useful in a weight of evidence approach.

Based on previous experience with these programs, several factors must be taken into account when setting up a rocky intertidal monitoring program and survey design site specific to HMS and potential reference sites. Results of quantitative surveys can be statistically analyzed for the comparison of invertebrate and algal communities. Community measures of intertidal community structure may be assessed, such as sessile invertebrate cover, sessile invertebrate diversity, mobile invertebrate abundance, mobile invertebrate

diversity, total algal cover, algal diversity and total cover, as well as considering these community measures in each tidal zone. It is then possible to statistically evaluate the data. An analysis of variance (ANOVA) (two-way or one-way) or multivariate analysis of variance (MANOVA) may be performed in order to compare differences.

Staff appreciates HMS' concern about the scientific validity of monitoring reference and discharge sites, statistical reliability of data, and forces unrelated to their seawater or stormwater discharges. However, State Water Board staff is convinced, based on our recent experience in the southern California region that this task, though challenging, can be performed and can provide sound, reliable data. State Water Board staff also feels strongly that a rocky intertidal monitoring program will best be performed in the context of a regional monitoring effort, and we sincerely hope that HMS works with other ASBS dischargers in the Monterey Bay area to accomplish this in a collaborative manner.

d. Staff appreciates HMS' comment regarding the natural fecal contributions from wildlife, and is emphasizing that we did not propose a fecal indicator monitoring requirement for waste sea water. However, we did propose indicator bacteria monitoring for all storm runoff outfalls. Based on the comment, staff is proposing to eliminate the bacterial monitoring requirement for the two storm outfalls that solely drain the HMS property, but to retain the bacterial monitoring requirement for the discharges shared with the City of Pacific Grove. There has been recent research indicating the contamination of coastal waters in Monterey Bay from a pathogen (*Toxoplasma*) originating from domestic cat feces, and there is evidence that sea otter mortality has been increased as a result. *Toxoplasma* analysis is expensive, but fecal indicator bacteria (FIB) testing is much less expensive. While FIB will not be able to discriminate between cat and other sources, it will provide a proxy for loading of fecal bacteria from the Pacific Grove watershed.

Staff also is emphasizing that elevated FIB in the outfall (end-of-pipe) is not intended to be a compliance end-point. The compliance endpoint is instead natural water quality in the ASBS, and naturally occurring fecal matter from wildlife is a component of natural water quality.

Refinements in laboratory testing methods will better serve to identify the source of the bacterial contamination. It is believed that wildlife sources of FIB are generally not as threatening as human or domestic animal sources. Current studies incorporating Quantitative Microbial Risk Analysis (QMRA) are useful in investigating this. The State Water Board is currently funding a large project to study and identify the most effective tests to provide much better definition of FIB sources. This project will help us develop methodologies to provide accurate source identification.

While refinements in testing methods will help with identifying sources, any waste discharged through a point source remains the responsibility of the discharger. There are two outfalls which discharge once-through waste seawater, one from the Agassiz building and one from the Loeb building. These outfalls, per state and federal laws, are point source discharges operated by HMS. The Pacific Ocean is a water body of the United States and is the receiving water for these outfalls. State Water Board staff has determined that these are waste discharges into an ASBS. Further, staff relies on the data provided by HMS (exception application) to assess the potential for impacts to the beneficial uses of ASBS. Staff believes that these discharges (as well as the storm water runoff from HMS) should be considered for an exception to the Ocean Plan, and that waste reduction measures can be easily employed to meet the terms and conditions required for ASBS protection and water quality improvement.

4. HMS is concerned that there are significant problems with the Draft Mitigated Negative Declaration (DMND) monitoring requirements.

Staff response:

By their proximity, oceans adjacent to coastal land development are continually subjected to pollutant inputs. This has led to habitat alteration, eutrophication, contaminated sediments, and accumulation of toxics in tissues of marine organisms, resources held in the public trust of the state.

In contrast to most other coastal conservation strategies, the State of California established 34 marine protected areas in 1974-75 specifically for the protection of water quality called Areas of Special Biological Significance (ASBS). The primacy of water quality protection is indicated within state policy whereby all “discharge of waste is prohibited” and “natural water quality must be maintained” in these ASBS.

The State of California has done a remarkable job limiting point source waste water discharges in ASBS. Only eleven point source facilities discharge to ASBS statewide, and seven of these have exceptions. Of the four remaining facilities, three are marine aquaria and/or flow through seawater systems associated with research academic institutions, all of which (including HMS) have requested exceptions.

Monitoring is key to ensure protection of ASBS and is scientifically supported. The State Water Board convened a Natural Water Quality Committee, comprised of scientists from academic institutions specializing in ocean science, to evaluate the status of ocean water quality in ASBS. This Committee provided support and guidance for a study carried out by Southern California Coastal Water Research Project (SCCWRP). The results of this study are found in SCCWRP’s Technical Report 629 “Status of California’s Marine Water Quality Protected Areas”

(September 2010). This study supports the state's requirement for water quality monitoring efforts and aids in promoting accountability from dischargers.

Monitoring of discharges is part of the regulatory requirement for discharges to the ocean. Academic institutions that have applied and been approved for Ocean Plan exceptions include Scripps Institution of Oceanography, Wrigley Marine Science Institute, and Bodega Marine Laboratory. These three academic institutions have successfully implemented and carried out their monitoring and reporting programs as required by the Special Protections incorporated into their NPDES permits.

Finally, staff wants to make it clear that the bulk of the monitoring requirements in the exception may be met by participation in a regional monitoring program, which we expect to be more cost effective and informative than stand-alone efforts. HMS is strongly encouraged to participate in a regional monitoring effort for Monterey Bay ASBS dischargers.

5. Other comments regarding the Draft Initial Study refer to suggested corrections and are attached as Appendix I of the HMS comment letter.

Staff response:

Staff appreciates HMS' attention to detail and comments on editing errors. Staff will review the suggestions in the HMS Appendix I and will make corrections where appropriate. Corrections and further responses to comments regarding Appendix I will be placed in the final response to comments document prior to the adoption meeting for the exception. Corrections to the Initial Study will be made in an errata sheet.

II. Monterey CoastKeeper Comments:

1. Monterey Coastkeeper (MC) conditionally supports the State Water Board's recommendation for HMS exception to the Ocean Plan for their selected discharges to Pacific Grove ASBS. In general, MC feels that the ASBS exception process has positively impacted operations at HMS in that several discharge pipes have been capped and abandoned; seawater and stormwater discharges have been separated; site BMPs have been considered and adopted; and the Tuna Research backflush filter water has been rerouted from stormwater discharge to the sewer POTW.

a. MC feels that monitoring is an essential part of any permit or exception, however, they believe that the Rocky Intertidal Life Survey will be expensive and do little to contribute to discharge control.

b. MC supports a site-specific stormwater management plan and BMPs for HMS. HMS participates in the Monterey Regional Stormwater Management

Plan, but the additional responsibilities of being within the ASBS require additional description.

c. MC requests further detail in two areas of the HMS facility operations, that of the Tuna Research facility and the operation of Dr. Lowe's research Lab.

d. MC is concerned about legacy contamination from the Monterey Boatworks property located between the Monterey Bay Aquarium and HMS. Of primary concern is butyltin, an anti-fouling compound used historically with boat paint and now a source of contamination in marine sediments and southern sea otters. MC requests monitoring and analysis of butyltin within the Boatworks property and adjacent marine area to adequately characterize and rule out cause for environmental concern, if any, to the ASBS.

Staff response:

a. The waste discharge prohibition to ASBS is intended to protect the marine aquatic life beneficial use. The rocky intertidal community is an important component of the ASBS marine life and is also in a position to experience waste discharges in their most undiluted state at the point of discharge. The rocky intertidal monitoring proposed in the Special Protections has been carried out in other ASBS with very successful results by the rocky intertidal team at UC Santa Cruz, and with considerably less cost than would be expected from a private consulting firm, particularly if performed as part of a regional monitoring effort. In order to justify the continuation of an exception for waste discharges, staff must have monitoring evidence of the continued health of the marine aquatic life beneficial use. Also, see Staff response to HMS comment 3.a., b., and c.

b. Staff agrees. The three academic institutions described above at other ASBS have successfully developed and implemented storm water management plans unique and specific for their facilities. See Staff response to HMS comment 2. above.

c. It is staff's understanding that the discharge from the Tuna Research facility is now routed to the Monterey Bay Aquarium for discharge from that facility. Monterey Bay Aquarium has now accepted responsibility for that discharge. It is also staff's understanding that the discharge from Dr. Lowe's lab is treated (UV and microfiltration) and then discharged to the ASBS from HMS. Staff proposes to add a requirement in the exception to protect against discharges of non-indigenous species or associated pathogens.

d. Staff agrees that butyltin should be monitored in the water, sediment and marine life in the ASBS boundary between NMS and Monterey Bay Aquarium. This and other reasons are good cause for a regional monitoring effort where multiple parties can collaborate to address this issue.