

**Comments on  
California Ocean Plan 1998 Triennial Review  
“Staff Report: Issues for Review”  
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**Synopsis of Issues**

We strongly urge that the State Board staff direct its efforts as part of revising the Ocean Plan with reference to addressing urban area and highway stormwater runoff-associated constituents to focus on developing a technically valid, cost-effective approach for first defining the real, significant water quality use impairments associated with urban area and highway stormwater runoff. Where such use impairments are found, then a watershed-based, stakeholder-driven, consensus approach should be developed on how best to manage the use impairments to protect the public's interest without unnecessary expenditures for constituent control.

Where Ocean Plan objective exceedances are found, the revisions of the Ocean Plan should include development of an approach that enables the stormwater dischargers, the public, and others to work together to determine whether these exceedances represent significant adverse impacts on the beneficial uses of the receiving waters or are administrative exceedances reflecting the overly-protective nature of the Ocean Plan objectives.

Further, since rarely are NPDES-permitted stormwater runoff-associated constituents the only source of the constituents that could be adversely impacting the beneficial uses of the nearshore marine waters of the state, it will be important to develop an approach whereby the potential benefits associated with spending public funds on controlling NPDES-permitted sources will result in a significant improvement in the beneficial uses of the receiving waters. There is little point in spending large amounts of public funds controlling NPDES-permitted sources of constituents when the same constituents are derived, to a significant extent, from non-permitted sources and therefore are unregulated.

At the Ocean Plan revision issues workshop that was held in early September, a question was asked about whether economic considerations associated with urban area and highway stormwater runoff water quality impact management caused by the imposition of the Ocean Plan would be part of the review process conducted by the State Board. The State Board staff responded that, while economic considerations would be incorporated into several areas in the Ocean Plan revisions, urban area and highway stormwater runoff impacts would not be one of these. This situation is another example of the significant problems that exists today with federal and state regulatory agencies failing to meaningfully address the urban area and highway stormwater runoff water quality management issues. A credible revision of the Ocean Plan must include an economic

evaluation of requiring that ultimately NPDES stormwater runoff regulated under the Ocean Plan would have to meet water quality objectives in the runoff waters. An in-depth review of the costs of imposing Ocean Plan requirements on NPDES-permitted urban area and highway stormwater runoff should be developed as part of revising the Ocean Plan. This is one of the key issues that must be addressed. The public is entitled to know these costs in order to evaluate the appropriateness of the expenditures that could arise out of the revisions associated with the Ocean Plan.

Presented below are comments on several of the issues that the State Water Resources Control Board staff have listed as issues that are being considered to be addressed as part of the revisions of the California Ocean Plan.

Issue C.1.c: Applicability of the Ocean Plan to Regulatory Control for Stormwater Discharge. *“Should the California Ocean Plan be amended to assist stormwater dischargers and regulators in achieving the standards contained in the Plan?”*

On page C-8, the staff have listed four questions with regard to review of this issue.

- “1. Do we have adequate information on the character, volume and location of stormwater discharges to the ocean?”*
- 2. Do we have adequate information on the extent to which stormwater discharges may contribute to the exceedance of water quality standards contained in the Ocean Plan?”*
- 3. Do we have adequate monitoring information and programs in place to answer the first two questions?”*
- 4. What amendments, if any, should be made to the Ocean Plan to assist dischargers and regulators in their efforts to achieve the standards contained in the Ocean Plan?”*

We find that the questions being asked are not necessarily appropriate to protect the public’s interests without significant unnecessary expenditures for constituent control in NPDES-permitted urban area and highway stormwater runoff to nearshore marine waters. The focus on the issues that the staff have chosen to address is compliance with water quality objectives set forth in the Ocean Plan. A review of the existing and likely to be adopted revised and expanded list of constituents covered by the Ocean Plan and how these could be mechanically implemented on a worst-case basis when applied to urban area and highway stormwater runoff shows that the existing and likely to be adopted Ocean Plan objectives are in many instances over-protective of ocean waters’ beneficial uses.

The Ocean Plan objectives were not developed for the purpose of regulating largely non-toxic, non-available constituents associated with short-term pulses, such as occur with urban stormwater runoff events. Rather than revising the Ocean Plan to more readily implement regulation of stormwater runoff from urban areas and highways so that the runoff is in compliance with the water quality objectives set forth in the Ocean Plan, the State Board should be focusing on how to revise the Ocean Plan to protect the designated beneficial uses of the oceans receiving NPDES-permitted urban area and highway stormwater runoff in a technically valid, cost-effective manner to eliminate unnecessary public expenditures for chemical constituent control in stormwater runoff to the oceans. Rather than focusing on achieving overly-protective chemical

concentrations in NPDES-permitted stormwater runoff, the focus should be on how to prevent significant adverse chemical impacts on the beneficial uses of the nearshore marine waters in a technically valid, cost-effective manner. Similarly, the focus of the revisions of the Ocean Plan devoted to protecting the public from disease associated with contact recreation in the ocean should be on adopting reliable pathogen indicator organisms that can be used to properly assess the public health risk of contact with nearshore marine waters.

Justification for altering the approach from the staff's currently proposed approach of focusing on attainment of chemical constituent concentrations which are dictated by overly-protective water quality objectives stems from the high cost and the expected limited benefits associated with achieving water quality objectives in urban area and highway stormwater runoff. The emphasis should be on protection of beneficial uses while minimizing public expenditures for constituent control. This is what the public is interested in. As set in motion now, NPDES-permitted stormwater dischargers face a BMP ratcheting-down process where within a few years they could be forced to initiate spending large amounts of public funds to control constituents in urban area and highway stormwater runoff in order to achieve overly-protective Ocean Plan objectives for constituents which are not causing significant adverse impacts on the beneficial uses of the nearshore marine waters of the state.

It has been estimated that in order to develop conventional BMPs, such as detention basins, filters, etc., for stormwater runoff in the Los Angeles area, the people in this area will have to spend on the order of \$2 to \$3 per person per day forever, for the development and operation of conventional BMPs. Traditional, conventional stormwater runoff BMPs, such as detention basins, filters, etc., will not prevent violations of the Ocean Plan objectives in stormwater runoff. The BMP ratcheting-down process is already in place in the Santa Monica Bay region where as part of the Santa Monica Bay Restoration Project, BMPs based on an ill-conceived mass load reduction approach are being called for by regulatory agencies and environmental groups. However, these same agencies/groups have failed to find real, significant water quality problems due to chemical constituents associated with urban area and highway stormwater runoff that ultimately enters Santa Monica Bay.

While it appears that the US EPA and State Water Resources Control Board as well as regional boards will not require that NPDES-permitted stormwater dischargers to the oceans comply with Ocean Plan objectives in the near future, the situation could readily evolve where because of environmental groups' lawsuits, the courts could force NPDES-permitted stormwater runoff water quality managers to have to implement what are known to be technically invalid approaches for managing real, significant water quality problems associated with urban area and highway stormwater runoff to marine waters. It is important to address this issue as part of the proposed revisions of the Ocean Plan. This issue will have to be addressed. It is far better to begin now to address this issue rather than try to wait until the next triennial review - revisions of the California Ocean Plan. By then, the State Water Resources Control Board and the public could be trapped into technically invalid, unnecessarily expensive management programs that are formulated without having an adequate information base upon which to appropriately regulate urban area and highway stormwater runoff.

The Santa Monica Bay Restoration Project is a notable example of an inappropriate approach for regulating urban area and highway stormwater runoff where the Restoration Project management was misled by its technical advisors into adopting a mass load approach for controlling constituents in urban area and highway stormwater runoff in the Santa Monica Bay watershed. The mass load approach was adopted for a variety of constituents commonly present in urban area and highway stormwater runoff without finding a real, significant water quality problem in Santa Monica Bay. There are significant water quality problems associated with dry weather flow and stormwater runoff to Santa Monica Bay. These include litter on the beaches and sanitary quality conditions in the nearshore marine waters. However, thus far the studies have not been done to demonstrate that the exceedance of Ocean Plan objectives in stormwater runoff for heavy metals and many other chemical constituents are causing real, significant use impairments of Santa Monica Bay.

It has been determined that the cost of achieving treatment of urban area and highway stormwater runoff to meet Ocean Plan objectives in part of the Los Angeles metropolitan area is in excess of \$50 billion. The approach that the State Board staff are now suggesting as part of reviewing the issues for revision of the Ocean Plan could trap the public into this magnitude of expenditure. Because of these high costs and the questionable water quality improvement in terms of improved beneficial uses of the nearshore marine waters that would accrue from eliminating violations of Ocean Plan chemical objectives in stormwater runoff, it is important that the State Board staff and the State Board change the emphasis for revisions of the Ocean Plan from achieving Ocean Plan water quality objectives to focusing on determining what real, significant water quality use impairments of the oceans are occurring due to urban area and highway stormwater runoff. Once these are defined, then a regulatory framework should be implemented that will enable a watershed-based consensus approach for developing to the maximum extent practicable and economically feasible, the control of constituents in urban area and highway stormwater runoff that are causing significant adverse impacts on the beneficial uses of the nearshore marine waters of the state.

While the US EPA's current regulatory approach can trap the State Water Resources Control Board into inappropriate regulation of urban area and highway stormwater runoff, the Agency headquarters management at the national Water Quality Standards meeting that was held in Philadelphia, PA during the last week of August 1998 indicated that it plans to work toward changing this overly-protective regulatory approach so that real, significant water quality problems are controlled in a technically valid, cost-effective manner. Those in the US EPA who support this approach need assistance in defining the real, significant water quality problems associated with urban area and highway stormwater runoff to marine waters and then developing technically valid, cost-effective approaches for managing these problems to the extent that represents appropriate expenditure of public funds. The expenditure of \$50 billion in the Los Angeles region for achieving Ocean Plan objectives in stormwater runoff from urban area streets and highways is not an appropriate expenditure of public funds.

Issue C.1.b: Applicability of the Ocean Plan to Regional Mass Emission Regulation.  
*“Should the California Ocean Plan be expanded to regulate water quality on a mass emission basis?”*

The staff discuss the need to limit the total mass emissions of constituents to the ocean in order to prevent excessive accumulation of constituents from various permitted sources to critical levels in some areas. It is physically impossible for there to be an accumulation of constituents in the water column through various permitted discharges building up to excessive levels. Therefore, the concern is the accumulation of constituents derived from permitted discharges in sediments which are significantly adverse to the beneficial uses of the nearshore marine waters. However, while past wastewater discharges to the oceans have led to problems of the accumulation of chemical constituents in sediment which are adverse to the beneficial uses of the waters, such as were associated with DDT and PCB discharges, the wastewater sources discharged far greater concentrations of these chemical constituents than would be allowed under compliance with Ocean Plan objectives. It would be indeed rare, if ever, that urban area street and highway stormwater runoff-associated constituents would accumulate in nearshore marine water sediments to be significantly adverse to the beneficial uses of the waters.

The staff cite the so-called success of the Santa Monica Bay Restoration Project with respect to its implementation of a mass emission strategy. There is unreliable information provided on this issue in the staff report. Rather than the Santa Monica Bay Restoration Project being pointed to as a success, the facts are that after almost five years of implementation, it is a failure. This failure was predicted at the time when it was adopted, primarily because of the inappropriateness of adopting a mass emissions strategy for controlling constituents in stormwater runoff from the Los Angeles area to Santa Monica Bay. The mass emissions strategy as implemented in the Santa Monica Bay Restoration Project is an obviously technically invalid approach that if implemented will waste large amounts of public funds in controlling constituents which are not significantly adverse to the beneficial uses of the Bay.

Beginning in 1994, the authors provided extensive discussions of the fundamental technical errors made by the State Board staff advisors to the Santa Monica Bay Restoration Project in recommending and then the Project's adoption of a mass emissions strategy. Copies of the authors' comments on these issues are available from their web site (<http://members.aol.com/gfredlee/gfl.htm>) in the stormwater section. As discussed in these comments, a mass emissions strategy is a brute force, technically invalid approach for developing water pollution control programs. It ignores the fact that many chemical constituents that are potential pollutants exist in a variety of chemical forms, only some of which are toxic/available, i.e. cause pollution. To control all forms of chemicals from all sources, irrespective of their impact on the beneficial uses of receiving waters, can be and usually is significantly wasteful of public and private funds. There is no need to follow a 1960s level of understanding of aquatic chemistry, aquatic toxicology and biology in implementing the Ocean Plan objectives into pollution control programs through a mass emissions strategy. The focus should be on controlling those constituents entering the oceans to a sufficient degree in a cost-effective manner to protect the designated beneficial uses without wasting the public's funds in unnecessary control programs that focus on inert constituents.

With respect to controlling sediment accumulation of chemical constituents through a mass emissions strategy, this approach is contrary to the US EPA's recommendations for regulating heavy metals. The US EPA, after extensive review, adopted ambient water soluble metals as the regulatory approach for the potentially toxic heavy metals. The Agency correctly pointed out that

by focusing on the toxic/available forms in ambient waters, it will be possible to control water column impacts. Critics of this approach point out that the particulate metals accumulate in sediments that may be adverse to aquatic life. While this can and does occur, it is recognized by the US EPA and others that the way to control this problem is not through trying to regulate particulate forms of heavy metals entering a waterbody since there is no relationship between concentrations or total mass in the discharges added to the waterbody and the adverse impacts through accumulation in sediments. Instead, the approach that should be adopted is to control the impact of constituents through the sediment route through sediment quality evaluations.

While there are some who assert that since there are no sediment quality criteria, it is not possible to control sediment quality through this approach, such assertions are technically invalid and ignore the fact that the US EPA and Corps of Engineers for over 20 years have been controlling sediment quality impacts associated with dredged sediment disposal in open waters through sediment quality evaluations. They do not rely on chemically-based sediment quality criteria, but instead use an evaluative approach of measuring toxicity, bioaccumulation or other impacts directly. This approach should be implemented as part of the Ocean Plan. It is the technically valid, well-demonstrated approach that could be used to determine whether a single discharge or several discharges to a particular waterbody which contains constituents that accumulate in sediments are adverse to the beneficial uses of a part of the California nearshore marine waters due to sediment quality impacts.

The State Water Resources Control Board should not adopt a mass emissions strategy for implementation of the Ocean Plan objectives. It should adopt a strategy that requires that single or multiple dischargers demonstrate with a reasonable degree of certainty that their discharges do not result in the accumulation of constituents in sediments that are significantly adverse to the beneficial uses of the receiving waters in the vicinity of the accumulation. This is a readily implementable, technically valid approach.

Issue C.1.d: Applicability of the Ocean Plan to Suspended Solids and Chlorination By-Products Regulation.

On page C-9, the staff state in the “Background” section,

*“...the Ocean Plan does contain water quality objectives for certain potential chlorination by-products, such as chloroform and a number of halomethanes (bromoform, bromomethane, chloromethane, chlorodibromomethane, and diclorobromomethane).”*

As individuals who are familiar with the potential impacts of these constituents on water quality, we strongly recommend that the State Board not develop water quality objectives for the discharge of these constituents to marine waters based on the fact that their primary concern is through drinking water consumption in domestic water supplies. While there is some potential for skin absorption of these chemicals through contact recreation, the likelihood of there being sufficient exposure through contact recreation to absorb a critical dose of these constituents is so remote as to not justify spending taxpayers’ funds focusing on this issue as compared to the many other

issues that need to be addressed to more appropriately regulate constituents in marine waters than is being done today.

Issue C.3.a: Choice of Indicator Organism for Water-Contact Bacterial Standard and Increased Stringency of the Water-Contact Fecal Coliform Standard. *“Should enterococcus be added to the total and fecal coliform water-contact bacterial standards currently in the California Ocean Plan? Should the fecal coliform standard be made more stringent?”*

The authors have recently participated in the US EPA workshop in which the Agency discussed the problems with trying to use total and fecal coliforms as a contact recreation standard for protection of the sanitary quality of nearshore marine waters. It has been clear for many years that the approach that has been used in California with respect to protecting sanitary quality is not technically valid. The issue should not be as listed in Issue C.3.a. as the addition of *Enterococcus*. What should be done is to abandon the fecal coliform and total coliform standards and adopt the US EPA-recommended organisms, including *Enterococcus*, as the basis for regulating sanitary quality. It is important to not just add additional indicator organisms as proposed by the staff. There is also a need to eliminate compliance with sanitary quality standards based on unreliable organisms.

Issue C.3.c. Biological Objectives. *“Should the narrative biological objective now in the California Ocean Plan be clarified with additional narrative and/or numerical language hat would make it easier to interpret and implement?”*

The Ocean Plan should include language that supports the use of appropriately conducted biological assessments of the impact of chemical constituents on the beneficial uses of the nearshore marine waters. The narrative approach should not degenerate into a numerical limit approach, but instead should be based on best professional judgement weight-of-evidence. It is not possible to develop reliable numeric biological assessment implementation approaches.

Issue C.3.f: Sediment Quality Objectives. *“Should numeric sediment quality objectives be developed for marine waters?”*

The staff state under the “Background” section, *“Numeric sediment quality objectives would define unacceptable toxicant levels in sediments for the protection of marine benthic organisms or human health.”*

In the next paragraph under “Status,” the statement is made,

*“In 1991, the SWRCB established a conceptual approach to develop sediment quality objectives for enclosed bays and estuaries. The annual fees collected to support the Bay Protection and Toxic Cleanup Program, however, were less than originally anticipated and are no longer collected (as of January 1, 1998). As a consequence, progress in establishing sediment quality objectives for enclosed bays has been delayed indefinitely.”*

While this is the propaganda that the State Board BPTCP staff put forth as to why they failed to achieve sediment quality objectives in the BPTCP, the facts are that even if all projected fees had

been collected, the State Board staff's approach toward developing sediment quality objectives would have failed. As was discussed by the authors at the time that the BPTCP was being implemented, it was doomed to failure from the beginning since it was well-known, based on tens of millions dollars in research that has been conducted over the years, that chemical-specific, numeric sediment quality objectives cannot be developed which will reliably protect the beneficial uses of waters from sediment-associated constituents without significant, unnecessary expenditures by the public. As discussed herein, there is no need to take the obviously technically invalid approach of chemical-specific numeric sediment quality criteria/objectives which rely on comparing chemical concentrations in sediments to the criterion/objective value for their implementation.

The US EPA and Corps of Engineers over 20 years ago established sediment quality evaluation procedures based not on sediment concentrations, but sediment-associated constituent impacts. This is the technically valid approach. Do not measure copper or lead in sediments and try to estimate toxicity; that approach will fail. Instead, measure toxicity. Do not measure concentrations of a bioaccumulatable chemical and then try to estimate bioaccumulation; measure bioaccumulation and determine the source of the constituents responsible for the bioaccumulation. The unreliability of chemical-specific, numeric sediment quality objectives have been discussed in detail in several of the authors' papers which are available from their web site in the sediment quality -Aquafund section. These papers also list numerous references to the literature as to why sediment quality objectives based on chemical-specific numeric concentration values are inappropriate for reliably regulating sediment impacts.

On page C-24, the staff discuss the US EPA's development of guidelines for sediment quality criteria guidelines. The staff do not discuss, however, that the US EPA has abandoned its sediment quality criteria approach in favor of guidelines which are designed to be triggers of effects-based testing because of the inability to develop chemical-specific sediment quality criteria. The US EPA spent tens of millions of dollars in this effort over the last 10 years and has finally admitted that it has failed to achieve its original goals.

#### Issue C.4.a: Regional Ambient Water Quality Monitoring and the Ocean Plan.

We strongly support comprehensive monitoring of nearshore marine waters designed to initially detect significant impairments of water quality - beneficial uses and then ultimately, more subtle impacts of chemical constituents in point and non-point source discharges to the oceans. We also support that wastewater dischargers, stormwater runoff managers, agricultural interests and the public should all share in the cost of this monitoring. It is important, however, that the monitoring be done more appropriately than was done in the BPTCP as organized and implemented by the State Board staff. That Program spent large amounts of money and accomplished very little in the way of collecting meaningful data compared to the funds available. Rather than keeping the monitoring program secretive without public review as was done in the BPTCP, the monitoring program should be subject to full public review in its formulation, implementation, presentation and interpretation of results. It should be based on a watershed-based, consensus-of-all-interested-parties approach which operates on a full, interactive peer review process. Note: this process is significantly different from the biased, basically manipulative peer review process that is now being conducted by some of the regional boards and some State



Board staff in support of preconceived positions on regulatory issues. Information on how a properly conducted, interactive peer review should be implemented is available upon request.

On page C-25, under “Status,” the State Board staff state,

*“Because California’s baseline water quality conditions are little understood in nearshore waters, the State Water Resources Control Board (SWRCB) has supported research and monitoring efforts of the Santa Monica Bay Restoration Project...”*

The monitoring in the Santa Monica Bay Restoration Project should not be held up as a credible program; at best, it can be characterized as a token program that has yet to come to grips with many of the real water quality issues that should have been addressed through an appropriately developed monitoring program before any restoration plan was adopted. For example, rather than arbitrarily assuming that an exceedance of a Long and Morgan co-occurrence-based value for lead in Santa Monica Bay sediments represented a significant adverse impact on the beneficial uses of Santa Monica Bay, the Santa Monica Bay Restoration Project management, as recommended by the authors, should have conducted studies to determine whether the lead in the marine sediments of concern because of its elevated concentrations was in a toxic/available form. It is indeed rare that lead and many other heavy metals in marine waters are in toxic/available forms. Most of them are precipitated as inert constituents.

A properly conducted Restoration Project and a credible monitoring program would have addressed this issue. While this issue was raised by the authors almost five years ago when the Restoration Project implementation plan was first proposed, now almost five years later, this issue still has not been addressed. This is another of the significant technical deficiencies associated with the Santa Monica Bay Restoration Project which is an outgrowth of a significant misguidance provided to the Restoration Project managers by the technical advisory staff. Rather than assuming that there is a water quality problem due to the elevated concentrations of constituents in a sediment, a credible restoration program should be based on finding a real, significant water quality use impairment that is of sufficient concern to the public to spend their funds on its control.

Issue C.4.g: Nonpoint Source Control. *“Should the California Ocean Plan include a specific implementation program for the control of nonpoint sources of pollution?”*

The answer is obviously “yes” where pollution is defined in accord with the Porter-Cologne Act as an impairment of the beneficial uses of the waters, not as simply the presence of a constituent that under some conditions at some locations may be a pollutant. Pollution should be defined based on a 1990s level of aquatic chemistry, toxicology and biology. With respect to nonpoint source pollution, the Ocean Plan, as well as all California regulations, should require that the control of true pollutants, i.e. those constituents that impair beneficial uses in accord with the Porter-Cologne requirements, occur, irrespective of their source. The issue of regulating urban area and highway stormwater runoff in most settings is confused because associated with NPDES stormwater runoff, there are in most situations unregulated discharge of the same constituents as are derived from the urban area streets and highways to the waterbody.

On page C-38 are essentially the same questions as were asked in connection with urban area and highway stormwater runoff discussed previously. The answers to these questions are the same. These questions should be rephrased to focus on controlling those non-point sources of constituents that have significant adverse impacts on the beneficial uses of receiving waters. Non-point source dischargers as well as the public should be required to pay for the investigations needed to reliably define whether constituents, such as pesticides, nutrients, etc., derived from agricultural and other non-NPDES-permitted sources are significant causes of impairment of the nearshore marine waters of the state.

Issue D.4.a: Ambient Toxicity Monitoring. *“Should routine monitoring be initiated for ocean water column ambient toxicity?”*

The answer is “Yes.” Aquatic life toxicity is one of the potentially significant indicators of pollution for a wide variety of constituents and should be routinely monitored to screen for problems of this type. Where toxicity is found, investigations should be conducted to determine its cause and significance..

If there are questions about these comments, please contact Dr. G. Fred Lee. If there is interest in additional information on these issues, please consult Drs. Anne Jones-Lee’s and G.F. Lee’s web site (<http://www.gfredlee.com>). We have a number of papers and reports on this web site that discuss these issues, including the over-regulation of the Santa Monica Bay urban area and highway stormwater runoff that arose out of the inappropriate approaches that were developed in formulating the Santa Monica Bay Restoration Project Plan.