# Evaluating the Ecological Condition of the South Bay:

# A Potential Assessment Approach

The City commissioned this report as a preliminary effort to explore the possibility of developing alternative assessment methodology and techniques that could be further developed and implemented as appropriate. The City's goal was to further the technical discussion on assessment opportunities and present alternatives to the regulatory community for consideration.

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## Executive Summary

"Is the estuary healthy?" is one of the most common questions asked of estuarine researchers and environmental managers. People desire news about their environment, especially when they understand their activities may be creating adverse effects. Despite public calls for such an assessment, none presently exists due in part to the difficulty in defining the health of an estuarine ecosystem. An assessment of the health of the ecosystem would ideally also provide valuable feedback for public officials regarding the effectiveness of environmental policies and programs. The goal of this document is to present a method for preparing an assessment of the ecological condition or "health" of the South Bay.

The method proposed here assumes that an effective assessment must be: (1) relevant to existing legal and regulatory mandates, (2) prepared in plain language that is meaningful to the general public; (3) scientifically credible; and (4) based upon existing information to the maximum extent possible. Guided by these assumptions and a review of other programs and the scientific literature, the proposed method seeks to first identify the attributes of a healthy estuarine ecosystem based on the goals and objectives from public laws and our scientific understanding of the estuary. Some of these attributes include maintaining balanced indigenous wildlife, reversing measured population declines, increasing the amount of wetlands, maintaining water quality, and supporting commercial and sport fishing among others.

Using these attributes as guidance, a set of questions to be answered in an assessment of ecological condition is presented, phrased using plain language so that the importance of answering the questions is obvious to nonscientists. Examples of these questions include "Is it safe to eat fish and shellfish from the Bay?", "Are key species successfully reproducing?" , or "Are Bay water or sediments toxic to animals or plants?"

Since we cannot measure all aspects of the ecosystem, we must select a set of indicators to measure to answer these questions. The report identifies a preliminary set of indicators for consideration, using selection criteria recently promulgated by the National Academy of Sciences. These indicators are presented to stimulate and focus debate; they will need to be carefully reviewed by stakeholders before a program to gather data and assess condition is implemented.

An initial survey of available data indicates there are many data sets available that could be useful for answering each of the assessment questions. This suggests that an initial assessment of condition could be conducted to a significant extent with existing data, rather than with new measurements, making the assessment more cost-effective.

The report also discusses several strategic considerations for the process of refining and implementing the assessment. The assessment protocol will need to be considered and supported by a majority of the stakeholders in the South Bay, including regulatory agencies. Upon favorable review, partnerships would need to be developed to guide and fund further refinement and peer-review of the indicators, and potential pilot monitoring. Since indicator

measurements are most useful when part of a long-term program, a long-term commitment to the measurements must be feasible.

There can be no doubt that an assessment of the ecological condition or “health” of the South Bay that tracks the status of the ecosystem could be a valuable tool for environmental decision-making. Citizens of the Bay Area and their elected officials want to know if environmental policies and programs are doing enough of the right things to protect the South Bay for future generations. The approach presented in this report has the potential, when fully developed, to fulfill this critical need.