

FINAL

# CHARTER

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## The San Francisco Bay Nutrient Management Strategy

### Purpose, Organization, and Governance of the Nutrient Management Strategy

First Approved June 2014

Last Amended November 2016

## 1.0 Introduction and Background

San Francisco Bay is recognized as a nutrient-enriched estuary. Nonetheless, dissolved oxygen concentrations found in the Bay's subtidal habitats are much higher and phytoplankton biomass and productivity are substantially lower than would be expected in an estuary with such high nutrient enrichment, implying that eutrophication is potentially controlled by processes other than straightforward nutrient-limitation of primary production. There is a body of evidence that suggests the historic resilience of the Bay to the harmful effects of nutrient enrichment is weakening.

The indications of decreased Bay resilience have come to the fore at a time when the availability of resources to continue assessing the Bay's condition is uncertain. Notwithstanding historic contributions to water quality sampling and monitoring by various independent organizations, there is a need for a locally-supported, multi-interest, long-term science strategy and associated implementation program to provide information that is needed to support nutrient-related management decisions in the Bay. This approach has been proposed to be the "San Francisco Bay Nutrient Management Strategy" (NMS). The NMS will define and guide this science, implementation, information-sharing, and public outreach approach. As such, the NMS and the work of stakeholders supporting the NMS (described below) will inform policies specifically decided by the San Francisco Regional Water Quality Control Board (Regional Water Board).

*Note: The State Water Resources Control Board (State Water Board) and Regional Water Board started a technical and related stakeholder process to develop Numeric Nutrient Endpoints (NNE) in lieu of Water Quality Objectives for nitrogen and phosphorus and to study and address nutrient over-enrichment in San Francisco Bay in 2010. The NMS is an extension of that ongoing effort. As such, certain aspects of the NMS are similar or identical to activities underway however, these activities have not been previously defined as part of a comprehensive strategy.*

## 2.0 Charter Purpose

This Charter describes how the NMS functions. In addition to the Introduction above and this purpose / organization section, this Charter includes the following information:

- Guiding Principles that frame and inform the NMS,
- Organizational Structure of the NMS including various groups and individual personnel,
- Roles and responsibilities of NMS groups and personnel,
- Selection criteria and methods for organizations / individuals serving the NMS,
- Decision-making protocols for NMS groups,
- Communication protocols for NMS groups,
- Operating Guidelines for NMS groups, and
- Closure procedures for the NMS.

The Charter is a “living document” and should be reviewed and periodically revised to reflect current and projected conditions for the NMS. Review and revision protocols are described in Section 5.0.

### **3.0 Guiding Principles of the San Francisco Bay Nutrient Management Strategy**

The following principles define the intentions and expectations of the participants leading, serving, and associated with the NMS. Implementation of the NMS will:

- Develop credible, feasible, scientific information and recommendations for San Francisco Bay and associated waterways that are created through collaborative discussions representing multiple interests;
- Communicate transparently and proactively with other stakeholder and technical efforts in the Bay-Delta region to ensure efficiency and minimize overlaps and duplications with other efforts;
- Conduct all decision-making in an accessible and transparent manner;
- Support transparent, peer-reviewed scientific studies when appropriate and feasible;
- Be cost and time efficient in the development and review of studies and decision-making related to these studies;
- Minimize excessive and time consuming “process” and focus on efficient work between affected stakeholders and technical specialists; and
- Support the appropriate involvement of all stakeholders affected by, and interested in, nutrient conditions in the waters of the Bay (including its tributaries)
- Foster and support flexible and adaptive management methods to address nutrient load studies and actions.

### **4.0 San Francisco Bay Nutrient Management Strategy Organizational Structure**

Figure 1 illustrates the NMS organizational structure. The following describes the functions, roles, membership, membership criteria, decision-making, and operating protocols of the various groups in the NMS organizational structure:

#### **4.1 Steering Committee**

The Steering Committee is a formal stakeholder body, structured to reasonably but not exhaustively represent various interests affected by the NMS and nutrient conditions in the Bay-Delta. The Steering Committee has formal membership. Members are invited to serve on the Steering Committee by the Regional Water Board’s Executive Officer (Executive Officer) (or a designee). All Steering Committee meetings are open to the public and are publicly noticed. Steering Committee meetings are held in various formats including in- person, virtual web-based meetings, and /or conference-call settings. Meetings are facilitated by a third party, neutral facilitator. Meetings are self-convened and occur on an as-needed basis (generally not

to exceed every four months). Under current conditions, meeting agendas are prepared by the Regional Board in consultation with the neutral facilitator, the Science Program Manager, and representative Steering Committee Members.

*4.1.1 - Steering Committee Role:* The role of the Steering Committee is to be the decision-making body for many NMS decisions (excluding policy and regulatory decisions). All recommendations and information from various groups in the NMS organizational structure ultimately “flow” to the Steering Committee to make decisions. The tasks the Steering Committee addresses will change over the timeline of the NMS (See Appendix A) but initially include:

- Determine funding needs for upcoming years and coordinate needs with other organizations;
- Determine long term funding outlook;
- Track and get closure on NMS reports;
- Clarify and confirm interface with the Regional Monitoring Program, U.S. Geological Survey, and potential other monitoring activities;
- Confirm NMS Peer Reviewers;
- Select Core Team members; and
- Scope NMS Plans.

*4.1.2 - Steering Committee Member Selection:* Steering Committee membership reflects a representative but not exhaustive range of stakeholders affected by, and involved with, nutrient load research and regulation in the Bay-Delta. Membership is by invitation from the Executive Officer (or a designee) who, using the following criteria, will seek to ensure a balanced set of interests. Appointment as a Steering Committee Member will be based on the invitee’s acceptance of all requirements expected of them and as described in the invitation letter from the Executive Officer.

*4.1.3 - Steering Committee Member Types and Selection Criteria:*

- Nutrient Dischargers – Discharger members represent a range of discharger types that are commonly believed to exceed de minimis levels of nutrient loading into the Bay-Delta. These include one representative each from the Bay Area Stormwater Management Agencies Association (BASMAA), the agricultural community, the petroleum industry. Publically Owned Treatment Works (POTWs) are major contributors to nutrient loadings to the Bay. They are also major funders of the scientific investigations undertaken as part of NMS implementation and will be significantly impacted if the science shows that nutrient loadings need to be reduced. In this context and given that there are many POTWs, both large and small, that have widely varying interests in the outcomes of the NMS, there will be two seats on the Steering Committee allocated for POTW representatives. These Members will be coordinated by the Bay Area Clean Water Agencies (BACWA).

- Environmental Advocates – One or more environmental advocates will be included as Members. Environmental Advocate selection will be based on the organization’s and/or individual’s having an established record of being engaged in, and knowledgeable about, water quality conditions and regulations in the Bay Area. Each member organization will have one member on the Steering Committee.
- Water Quality Regulatory Agencies – One representative each from the San Francisco Bay Regional Water Board, the Central Valley Regional Water Board, and the U.S. Environmental Protection Agency (USEPA) Region IX.
- Resource Trustee Agencies – One representative each from the California Department of Fish and Wildlife (CDFW), the U.S. Fish and Wildlife Service (USFWS), and the National Marine Fisheries Service (NMFS).
- Regional Agency-Based Research Organizations – One representative from the Interagency Ecological Program (IEP) and/or the Delta Science Program, and one member from the U.S. Geological Survey (USGS);
- Other Interested Entities – The State and Federal Contractors Water Agency (SFCWA).

*4.1.4 - Steering Committee Membership:* Current Steering Committee Members are:

- |                         |  |
|-------------------------|--|
| • Baykeeper             | • Bay Area County Farm Bureaus                   |
| • USEPA                 | • Western States Petroleum Association           |
| • BACWA                 | • State & Federal Contractors Water Agency       |
| • Regional Water Boards | • BASMAA   |
| • IEP/DSP               | • Sacramento Regional County Sanitation District |
| • CDFW                  | • USFWS  |
| • NMFS                  | • USGS   |

All Members are expected to regularly discuss NMS outcomes and key topics with their colleagues and/or constituents as a means to ensure that the NMS process is transparent and that broad feedback is being collected to inform the process (consistent with Members’ roles as representatives of larger groups of stakeholders). Willingness and commitment to serve this role will be a basis for invitation and approval by the Executive Officer.

*4.1.5 - Steering Committee Alternates:* Given the volume of information to be considered and various demands on Members’ schedules, Alternates may be used by a participating organization. Alternates must be identified in advance, fully briefed, and able to represent the Member and the Member’s constituents during decision-making. Alternates are expected to be kept up to date on all project activities by their Member representatives and are expected to attend on behalf of a Member, fully prepared to discuss agenda items. No items addressed at previous meetings will be revisited to accommodate an Alternate.

*4.1.6 - Steering Committee Member Resignation / Replacement:* Members and/or their organization may resign from the Steering Committee. They are encouraged to do the following steps:

1. Provide written resignation communication (e.g., letter, email) to the Executive Officer; and
2. Recommend a replacement either from the Member's organization or from a similar interest organization.

*4.1.7 - Steering Committee Member Removal:* Members are expected to uphold their commitments to participate in all Steering Committee meetings, review all materials in a timely manner, and be prepared to provide input and participate in Committee decision-making. If a Member does not fulfill these commitments, he/she can be removed from the Steering Committee and be replaced by either another person from the previous Member's organization or a new organization that represents similar interests as those of the previous organization. A Member will be removed through the following steps:

1. The Executive Officer (or a designee as directed by the Executive Officer) will directly intervene and contact the Member in question to inform them that they are not fulfilling their commitments. This intervention may come as a result of anecdotal information provided to the Executive Officer or as a result of a report from any other Member(s) of the Steering Committee.
2. The Member in question (and organization) will be allowed time (as determined by the Executive Officer or a designee) to resolve his/her participation challenge and fulfill his/her commitments to the process.
3. If after the prescribed period of time, the Member in question does not resolve his/her participation challenges, the Executive Officer (or a designee as directed by the Executive Officer) will provide a removal recommendation to the Steering Committee for discussion.
4. Steering Committee discussion will take place at either the next available meeting or through a special session (if needed) to discuss the proposed removal and a summary of the discussion will be provided to the Executive Officer.
5. The Executive Officer will be advised by the Steering Committee; however the Executive Officer will retain the sole decision authority to remove the Member and or organization and to start member replacement steps.

*4.1.8 - Steering Committee New Member Addition:* In the event a new person/organization requests to become a Member on the Steering Committee (beyond attending as a member of the public), the Steering Committee invites a new person/organization, or a Member is removed and an open position is created on the Steering Committee, the person/organization must do the following, and the Steering Committee will conduct the following review steps:

1. The prospective new Member will submit a letter of application to the Executive Officer (or designee) describing why his/her interest is unique and is not adequately represented on the Steering Committee.

2. The Facilitator will agendize consideration of the request at the next appropriate Steering Committee meeting.
3. The Steering Committee will review the application and will decide if the requested position is warranted to be added to the Steering Committee. Criteria for new Member addition should consider whether the applicant will add interests / perspectives, geographic representation, funding capacity for the NMS, and/or some other form of diversity not currently served on the Steering Committee.

The Steering Committee will make an administrative decision (as per decision methods described below and in Appendix B) and will provide a recommendation to the Executive Officer. If the applicant is approved, the Executive Officer will issue a standard invitation letter to the applicant.

*4.1.9 - Steering Committee Decision-Making:* As a voluntary partnership of diverse organizations, the Steering Committee is not “consensus-based”. The represented organizations do not necessarily have the authority to implement binding decisions. Therefore, the Steering Committee is “consensus-seeking” wherein all participants take reasonable and appropriate steps to reach consensus. Specific decision-making methods are described in Appendix B.

*4.1.10 - Steering Committee Operating Protocols:* The Steering Committee is facilitated by a neutral third-party facilitator. Agendas are prepared by the Facilitator (in consultation with the Steering Committee and the NMS Science Manager). The Steering Committee makes decisions based on the protocols described above and in Appendix B. If any Steering Committee Member is subject to input from their respective internal decision-making body or supervisor before weighing on a decision item, the Member in question is required to communicate that to all other Members. All Members will notify the Steering Committee when a decision-making body’s approval is required to enter any formal commitment and will work to secure approval from their respective organization.

## **4.2 Stakeholder Advisory Group (SAG)**

The SAG is an ad hoc group of stakeholders interested in and affected by the development and implementation of the NMS. All SAG meetings are open to the public and are publicly noticed. SAG meetings are held in various formats including in person, virtual web-based meetings, and /or conference call settings. SAG meetings are convened by the Steering Committee (described below) on an as-needed basis. At times the Regional Water Board may also convene the SAG as a means to inform stakeholders about activities unique to the Board’s roles and responsibilities.

*4.1.1 - SAG Role:* The SAG reviews materials provided by the Steering Committee (and at times the Regional Water Board) and work products presented and distributed by technical specialists related to the NMS (described below). The SAG discusses these

materials and NMS activities. Information and outcomes from SAG meetings are provided to the Steering Committee and, when feasible and appropriate, are considered by the Committee as it makes decisions.

*4.2.2 - SAG Membership:* The SAG has no formal membership or membership criteria. It is open to all interested parties.

*4.2.3 - SAG Decision-Making:* The SAG does not make any decisions.

*4.2.4 - SAG Operating Protocols:* The SAG is facilitated by either a representative of the Regional Water Board or a neutral third-party facilitator (when warranted). Agendas are prepared by the Steering Committee (with support from a facilitator and the NMS Science Manager). When feasible and appropriate, Science Core Team (Core Team) recommendations (described below) may be discussed at the SAG meeting before being submitted to the Steering Committee for decision-making.

### **4.3 Science Program Manager**

The Science Program Manager (Program Manager) oversees and administers the NMS Science Program. Currently, the Program Manager is a Senior Scientist with the San Francisco Estuary Institute (SFEI). The general responsibilities of the Program Manager are:

- Provide oversight and guidance to Core Team activities on a day-to-day basis (Core Team consists of SFEI staff, Southern California Coastal Water Research Program [SCCWRP] staff, and Technical Advisors – discussed below);
- Act as the liaison between the Core Team and the Steering Committee, the SAG, and the Nutrient Technical Workgroup (NTW) (described below); and
- Coordinate Peer Review activities.

More specific roles of the Program Manager are described in Section 4.3.1

*4.3.1 - Program Manager Role:* The Program Manager has ultimate responsibility for the following tasks:

- Coordinate Core Team staff from SFEI, SCCWRP, and Technical Advisors (described below);
- Manage the application and selection process of Core Team Technical Advisors;
- Recommend Technical Advisor selection for the Steering Committee to take action on;
- Prepare Peer Reviewer selection criteria and present criteria to the Steering Committee to review and approve;
- Coordinate Peer Reviewer solicitations/applications and submit Peer Reviewer candidates to the Steering Committee to review and approve;
- Prepare and submit annual (or more frequent) Science Program work plans and budgets for the Steering Committee to review and approve;
- Manage the work flow and progress of all Core Team assignments;

- Coordinate and facilitate (or delegate said role) for all internal Core Team meetings (with optional periodic support from a neutral facilitator if deemed beneficial by the Program Manager);
- Prepare and report Science Program progress summaries for the Steering Committee;
- Manage the distribution of stipends (as paid by others) provided to Peer Reviewers and Technical Advisors;
- Manage the distribution of funding (as paid by others) to support Science Program activities such as technical studies;
- Attend SAG and NTW meetings as the representative of the NMS Science Program;
- Coordinate Science Program speakers (as warranted) for SAG and NTW meetings; and
- Implement Steering Committee decisions and recommendations.

#### 4.4 Science Core Team

The Core Team is comprised of three types of staff:

- Technical specialist staff and administrative support staff from SFEI;
- Technical specialist staff from SCCWRP; and
- Regionally recognized, topic-specific, Technical and Collaborative Advisors from:
  - Academia
  - Regulatory agencies
  - Local, State, and federal science agencies and/or agency partnerships.

In some circumstances (as recommended by the Program Manager and approved by the Steering Committee), private or non-governmental technical consultants may be used to support Core Team activities; however, this is not expected to be common.

*4.4.1 - Science Core Team Role:* The Core Team focuses on specific areas of NMS scientific need as discussed by the Core Team, managed by the Program Manager, and directed by the Steering Committee. These specific needs are carried out by focused “sub-teams”. Presently, these teams include (but are not limited to) a:

- Modeling Team,
- Risk Assessment Framework Team, and
- Monitoring Program Team.

The primary workload of each team is conducted by SFEI and SCCWRP staff. Topic specific Technical Advisors collaborate with SFEI and SCCWRP staff and, at times, may take a leadership role on these teams. Technical Advisors have significant expertise on one or more technical subjects (i.e., hydrology, nutrient uptake, water treatment, etc.) and are used for their regional and technical acumen. The process for engaging technical advisors is described in detail in Appendix C of this Charter.

*4.4.2 - Science Core Team Membership:* The Core Team does not have “members.” Rather, the Core Team is comprised of the staff and advisors (described above) that carry out technical assignments.

*4.4.3 - Science Core Team Decision-Making:* The Core Team and its component teams use the same decision-making protocols described above in Section 4.2 (Steering Committee Decision-Making). That said, since the Core Team makes recommendations to the Steering Committee, the Core Team is not held to as high a standard to make consensus recommendations. While consensus should be sought, the Core Team and its component teams may provide a range of recommendations to the Steering Committee for final decision-making.

*4.4.4 - Science Core Team Operating Protocols:* The Core Team and its component teams meet internally and regularly to get work done. This day-to-day work is not open for public involvement. Core Team meetings are either self-managed by Core Team colleagues, or, at times, a team leader may be identified if deemed needed. In some circumstances, a Core Team meeting may be facilitated by a neutral third-party facilitator as requested by the Program Manager; however, this is not expected to be common. Meeting agendas (when needed) for Core Team meetings are prepared by Core Team staff and advisors.

Work by the Core Team is also discussed in public meetings (described below in Section 4.5). Public feedback is collected and compiled for Steering Committee consideration before they make a decision.

## **4.5 Nutrient Technical Work Group**

The Nutrient Technical Work Group (NTW) serves as the primary public venue for stakeholder input on technical issues. The NTW focuses on the review of highly technical work products from the Core Teams. All NTW meetings are open to the public and are publicly noticed. NTW meetings are held in various formats including in-person, virtual web-based meetings, and /or conference call settings. NTW meetings are convened by the Program Manager on an as-needed basis.

*4.5.1 - NTW Role:* The NTW combines NMS technical specialists from the Core Team with other technical specialists that do not serve on the Core Team to publicly discuss Core Team draft recommendations. These other technical specialists may have personal interests in Core Team outcomes and/or may act as technical representatives of other stakeholders. For example, a private technical consultant may be asked by an interested stakeholder that regularly attends SAG meetings to attend a NTW meeting as a means to participate in a technically-focused analysis and discussion of Core Team draft recommendations. Information and outcomes from NTW meetings are provided

to the Steering Committee and are considered by the Steering Committee as it makes decisions.

*4.5.2 - NTW Membership:* The NTW has no formal membership or membership criteria. Participation in the NTW is focused on appropriate technical specialists that have an applied and credible background in the topics to be discussed.

*4.5.3 - NTW Decision-Making:* The NTW does not make any decisions. It is an information exchange venue wherein Core Team recommendations can be reviewed and transparently discussed by other technical specialists.

*4.5.4 - NTW Operating Protocols:* The NTW is facilitated by the Program Manager or a neutral third-party facilitator (as requested by the Program Manager). Agendas are prepared by the Program Manager. Core Team recommendations may first be discussed at the public NTW meeting before being submitted to the Steering Committee for decision-making; however, this may not always be practical or feasible. In between an NTW meeting and submission of final recommendations to the Steering Committee, the Program Manager and Core Team staff, are expected to review NTW discussions and legitimately consider feedback that might modify a Core Team recommendation(s).

## **4.6 Peer Review**

An important component of the NMS is robust, peer-reviewed science. NMS Peer Reviewers are paid individuals of significant reputation on technical topics applicable to the NMS; however, they have no relationship with or interest in NMS outcomes.

*4.6.1 - Peer Review Role:* Peer Reviewers provide independent review and critique of Core Team recommendations and Science Manager planning activities (i.e., annual Work Plans).

*4.6.2 - Peer Review Member Selection.* Peer Reviewers are selected based on criteria prepared and recommended by the Science Manager, agreed on by the Steering Committee, and available for public review. All Peer Reviewers are selected by the Steering Committee after a solicitation and application process managed by the Science Manager. The Science Manager may be asked to provide selection recommendations by the Steering Committee and may do so or may defer providing such a recommendation.

Selection criteria for Peer Reviewer applicants currently does not exist. It is expected to include but not be limited to the following variables:

- Technical expertise and reputation of the applicant,
- Relevance of the applicant to NMS topics,
- Applicant availability and resources to commit the appropriate level of effort to technical reviews, and

- The applicant’s independence from, or avoidance of any conflict of interest with, the NMS and/or any parties associated with the NMS.

*4.6.3 - Peer Review Members:* TBD.

*4.6.4 - Peer Review Decision-Making:* Peer Reviewers do not make decisions per se. They provide input and recommendations about NMS technical documents but do so individually and therefore have no need for decision protocols.

*4.6.5 - Peer Review Operating Protocols:* Peer Reviewers are used on an as-needed basis to review technical deliverables prepared by the Core Team. However, their activities must be effectively scheduled to accommodate their other work responsibilities outside of the NMS. To avoid last minute requests and circumstances where Peer Reviewers may not have appropriate background to fulfill their responsibilities, Peer Reviewers will be updated regularly about materials they will be asked to review and the status of said materials. Such updates may be done in-person, via email, or by virtual meeting methods (if the reviewers are geographically distant from the Bay-Delta region).

The Science Manager will coordinate all communications with the Peer Reviewers to ensure that communications are controlled and efficient. Peer Reviewers may submit their outcomes back to the Science Manager to be compiled and presented to the Steering Committee, or the Steering Committee may ask that Peer Review comments be sent directly to them. Not all Peer Reviewers will be used at the same time on all deliverables but rather, they will be used as a study / deliverable applicable to their expertise is available and needing independent review.

The Peer Reviewer(s) agree to serve and provide their input with the expressed understanding that the Steering Committee and Regional Water Board will consider all Peer Review comments seriously. However, neither the Steering Committee nor the Regional Water Board is under an obligation to accept and support all Peer Reviewer recommendations / input.

## **4.7 Public Outreach and Education**

The Steering Committee will decide on the public outreach and education effort needed for the NMS and the level of resource expenditure. The Regional Water Board will continue to manage the NMS webpage on the Board’s website. Others, e.g., BACWA and SFEI, also have webpages that they will continue to maintain. Other possible outreach activities include:

- Preparation and distribution of NMS newsletters and fact sheets,
- Authoring of NMS-related information for the media, and
- Design and delivery of public outreach events.

## **4.8 Other Regional Efforts**

As described in Section 3.0 (Guiding Principles), NMS participants are collectively dedicated to ensure that there is minimal overlap and/or duplication between the NMS and other stakeholder and technical efforts in the Bay-Delta region. Similarly, NMS participants want to ensure that the NMS communicates transparently and proactively with other stakeholder and technical efforts in the Bay-Delta region and that these efforts are similarly transparent and proactive with the NMS. NMS leaders are dedicated to create and modify communication tools and methods to ensure that these principles are achieved.

## **5.0 Charter Revision**

The Steering Committee may amend this Charter by following the same decision rule set forth above and in Appendix B. Amendments may be proposed by Steering Committee Members during or between meetings to the Facilitator. The proposal will be agendaized for discussion and possible action, using the consensus decision rule process, at the next meeting, or through email and/or conference call communication if feasible and appropriate.

## **6.0 General Nutrient Management Strategy Operating Guidelines**

To ensure all aspects of the NMS are effective, all participants commit to the following guidelines:

- All participants will have scheduled opportunities to accurately represent the interests of their participating organization in the development and implementation of the NMS.
- The personal integrity, values and legitimacy of the interests of each participant will be respected by other participants. Everyone will participate; no one will dominate.
- All interests will be considered by all participants in general deliberation and in decision-making procedures.
- Participants participate regularly and in person (if possible) and will be well informed on the issues under discussion.
- Every participant will communicate their respective interests and will disclose pertinent information on issues under consideration.
- Commitments will not be made lightly and will be kept. Delay will not be employed as a tactic to avoid an undesired result.
- All participants will have the authority necessary to represent their respective organizations in deliberations.
- All participants will inform their respective decision-making bodies in a timely manner of developments in the NMS.

## **7.0 Facilitator Roles and Responsibilities**

Stakeholders have suggested that third party neutral facilitation be available for certain aspects of the NMS. The following describes the roles and responsibilities of the facilitator(s):

- Serve as professional neutrals, manage dialogue in meetings, and oversee the provisions of this Charter;
- Design, implement and refine (as needed) a consensus-seeking process;
- Ensure that all points of view held by NMS participants are heard and that the interests of each participant’s constituencies are considered;
- Provide assistance to participants requesting help with communications; and
- Memorialize and distribute meeting discussions and outcomes in a neutral and unbiased manner.

## **8.0 Nutrient Management Strategy Communications**

When communicating outside of the NMS, all NMS participants will speak only for themselves and/or organizations when asked about NMS progress, unless there has been adoption of concepts or recommendations by a respective NMS full group and concurrence by the Steering Committee.

When conducting internal communications, all NMS participants are encouraged and expected to speak and present information as candidly as possible on topics that may affect the NMS process and/or participants therein. That said, all participants acknowledge that conditions may occur where a NMS participants must retain information confidentially for some period of time. All participants accept this but will seek to minimize this condition

Meeting announcements will be sent out at least 10 business days before any public NMS meeting. Meeting agendas will be sent out at least 5 business days before any public NMS meeting. All NMS groups will make a good faith effort to send out meeting materials at least 3 business days prior to any NMS meeting. Facilitators will distribute draft meeting summaries within two weeks after each meeting.

## **9.0 Nutrient Management Strategy Group and Process Closure**

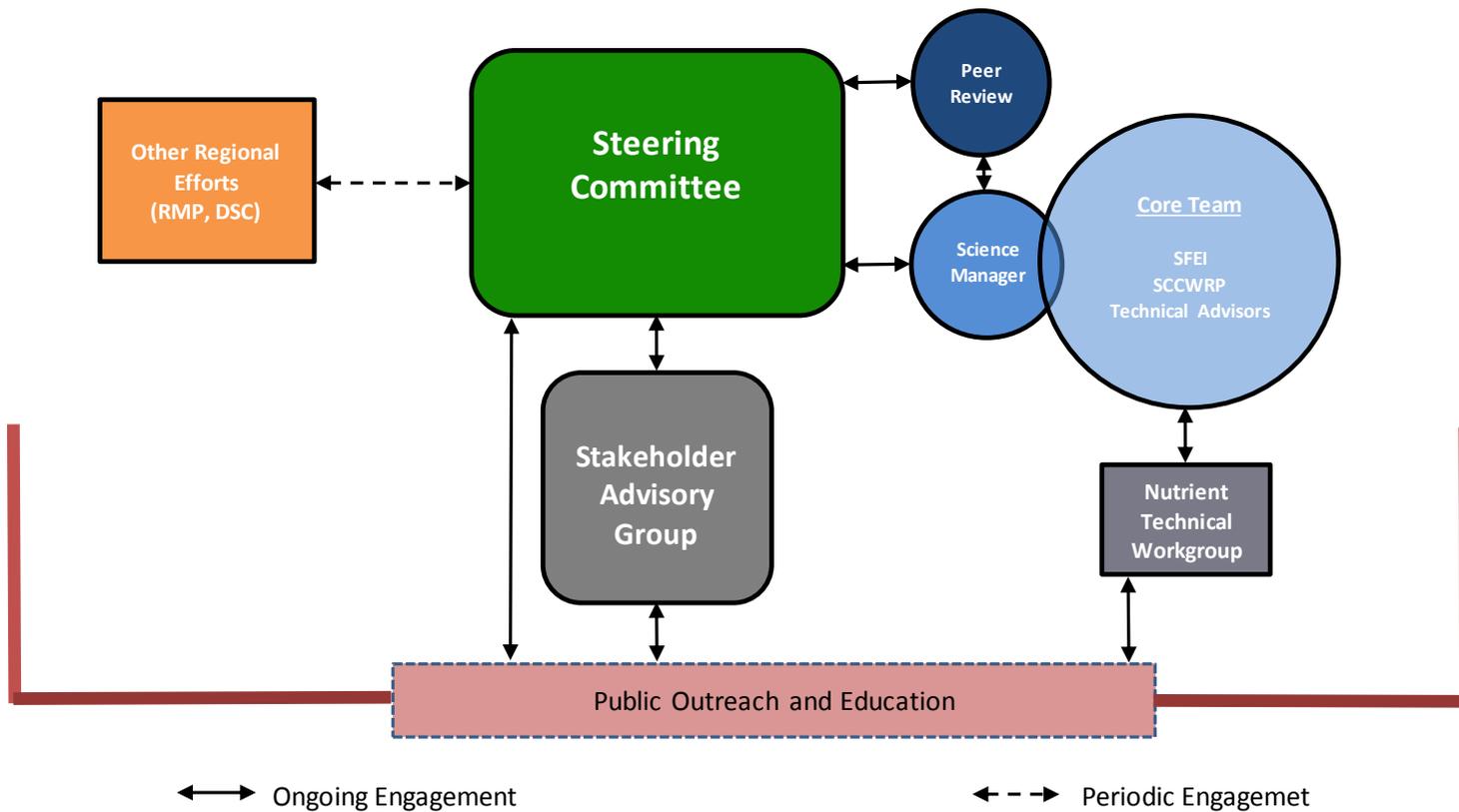
The NMS process (and/or groups within the NMS process) will be completed at some time either by virtue of it having been successful in achieving the various objectives and missions adopted or, in the unlikely circumstance, of it being unsuccessful in achieving these objectives and missions. The process for closure will be the following:

- Any member of the Steering Committee and/or the Executive Officer (or a designee) can prepare a recommendation to close the process.
- The recommendation document should include but may not be limited to:
  - Name(s) of the Members making the recommendation
  - Rationale for the recommendation
  - Analysis of alternates to closure and analysis of the implications of the proposed closure.

- The Steering Committee will discuss the recommendations among themselves and with the Program Manager.
- The Steering Committee will provide a recommendation to the Executive Officer.
- The Executive Officer will consider the Steering Committee's recommendation. The Executive Officer will have the sole responsibility to close the process (if recommended) or start efforts through which the NMS may be revised and/or a new Steering Committee is selected.



Figure 1 - Nutrient Management Strategy Organizational Structure



**APPENDIX A**  
**Near-Term Tasks for the**  
**Nutrient Management Strategy Steering Committee**

The role of the Nutrient Management Strategy (NMS) Steering Committee will likely evolve over the timeline of the NMS. Some tasks however can be reasonably expected for the initial three to six months of the Steering Committee. The following provides brief descriptions of these near-term tasks:

**Determine funding needs for upcoming years and coordinate needs with other organizations**

*For calendar years 2014 and 2015, the Steering Committee will identify, prioritize, and recommend the specific funding needs for technical work. This will include coordination with and determination of funding contributions from the Regional Monitoring Program (RMP) and the Bay Area Clean Water Agencies (BACWA).*

**Determine long term funding outlook**

*Using existing recommendations from the San Francisco Estuary Institute (currently serving the NMS as the Science Manager), the Steering Committee will assess, confirm, and recommend future funding allocations including initial scopes of work and associated timelines and costs, additional funding sources and potential collaborating institutions.*

**Track and get closure on NMS reports**

*The November NMS document includes preliminary recommendations for technical activities including key reports and information that provide initial guidance to the NMS process. The Steering Committee will be updated on the status of this information and will be responsible for ensuring closure on these reports, e.g., Conceptual Models.*

**Clarify and confirm interface with the RMP, US Geological Survey, and potential other monitoring activities**

*The Steering Committee will be responsible for coordinating the approach to developing a monitoring plan with all relevant parties, concurring on the monitoring priorities, and developing an approach to funding the priorities established in monitoring plan.*

**Provide Input on Peer Review (Science Panel) member selection**

*The Steering Committee will recommend specific roles and responsibilities of the Science Panel and will provide review and input and concurrence on recommendations for the selection of the Science Panel members.*

**Create technical workgroup(s)**

*The Steering Committee will work with the Science Manager and the current NMS document and will determine the need for and recommended membership of technical workgroups to support the Technical Team and NMS goals.*

**Scope NMS Plans**

*Expanding on the November 2012 NMS, the Steering Committee will recommend the scope, scale, work assignments, timing, and budgets to prepare a range of plans that support the NMS including, but not limited to, the modeling plan, monitoring plan, science plan, and treatment optimization plan.*

## APPENDIX B Decision-Making Protocols

The following decision method is applicable for all groups within the NMS that have a decision-making responsibility (as described in the NMS Charter, Section 4). Varying levels of time will be expected to spend to reach consensus with the highest level of effort expected to be put forth by the Steering Committee.

**Consensus-Seeking Decision Method.** The consensus decision method is based on principles of “consensus with accountability.” Consensus with accountability requires all participants to try to reach consensus, while at all times supporting and expressing their self-interest. In the event a participant must reject a proposal, that participant is expected to provide a counter proposal that attempts to achieve their interest and the interests of the other participants.

In seeking consensus on an interim or final recommendation, participants will voice their opinions with specific proposals along the way, rather than waiting until a final recommendation has been developed. At all times, participants will ensure that they are providing input commensurate to their prescribed role and constituency. The basic decision-making process is as follows:

Straw Polls: Participants will use straw polls to assess the degree of preliminary support for an idea before it is submitted as a formal proposal for final consideration by the group. Participants may indicate only tentative approval for a preliminary proposal without fully committing to its support.

Draft and Final Decisions: A draft and final decision will only be made when there is a quorum of the NMS group present. For the purpose of the NMS, quorum is defined as 2/3's of a group's participants (or a participant's alternate) present for a decision milestone.

The NMS group in question will use the following three levels to indicate participants' degree of support for any proposal being considered and to likewise determine the degree of consensus:

- |                         |  |
|-------------------------|--|
| <i>Thumbs Down:</i>     | <i>I do not support the proposal.</i>  |
| <i>Thumbs Sideways:</i> | <i>I am not enthusiastic about it, but I can live with the proposal.</i>   |
| <i>Thumbs Up:</i>       | <i>I support the proposal</i>  |
| <i>Abstention:</i>      | <i>At times, a pending decision may be infeasible for a participant to weigh in on. Certain participants may also consider themselves “Ex Officio” or similar and will consistently abstain.</i> |

The goal is for all participants to be in the ‘Thumbs Up’, or ‘Thumbs Sideways’ levels of agreement. The NMS group will be considered to have reached consensus on an item when all Members present are at Thumbs Up or Thumbs Sideways levels. If any participant is at a ‘Thumbs Down’ level, that participant must provide a counter proposal that legitimately attempts to achieve their interest and the interests of the other participants. The NMS group will then evaluate how best to proceed. Participants that abstain from particular proposals are encouraged to explain why abstention is in their best interest.

Decision Actions will be made at each appropriate meeting and will be publicly noticed in advance. The Steering Committee will not revisit previously agreed on decisions or recommendations unless new information is brought to light that would likely affect the outcome of the group's previous work.

**Majority Rule Decision Method.** Should consensus not be achievable, the NMS group uses a simple majority rule (51% or greater) method to complete and memorialize a decision process (as described below). For all circumstances, decision-making will take place using the following criteria:

- **Administrative Decisions.** Administrative decisions are about the day-to-day activities of the Steering Committee (including but not limited to logistics, meeting dates and times, agenda revisions, schedules, etc.). Administrative decisions will be made by the NMS group using a simple majority of a quorum (or greater) present at any given meeting.
- **Resource Decisions.** Resource decisions are made by the NMS group using the consensus rule after sufficient discussion and deliberation has been conducted. In the event consensus cannot be achieved, the group will use a simple majority method and that majority-minority recommendation will be provided to the Executive Officer. A final decision will be made by the Executive Officer (or designee).

**Facilitated Decision Making Process and Public Engagement.** For all decision milestones faced by an NMS group, public input is necessary and beneficial. All facilitators will use the following basic approach to ensure effective discussion by the NMS group and appropriate feedback by public members.

All Resource Decisions will be previously agendized and publicly noticed so that the NMS group and public know such a milestone is pending. The facilitator will move the group into it discussion about that decision topic and will initially prioritize all discussions to be held by the group members only. When the NMS group participants have completed all the discussion they wish to have, the facilitator will open the floor for public comment. Public comment will ensue. When all members of the public that wish to speak have spoken, the facilitator will check with the NMS Group to see if they have any questions of the public. If so, NMS Group members will engage with the appropriate member(s) of the public to discuss an item related to the pending decision. When this / these discussions are complete, the facilitator will bring the attention of the NMS group back to their decision-task. The facilitator will clearly read the decision for the group and will ensure the group participants know what they are voting on. The facilitator will then conduct their vote using one of the methods described above.

## APPENDIX C

### Guidelines for Engaging Technical Expertise to Assist in Conducting Scientific Investigations as Part of the Nutrient Management Strategy Science Program

## 1. Introduction

### 1.1. Purpose of these Guidelines

The Nutrient Management Strategy (NMS) strives to ensure transparency, objectivity and efficiency within the governance structure and all processes related to fulfillment of Science Plan activities. The NMS program works with scientists having a broad range of expertise to develop programmatic priorities, plan scientific studies, and carry out those studies. Some of these same scientists may also be the investigators most qualified to carry out Science Plan projects. The purpose of this document is to set forth guidelines intended to avoid real or perceived conflict of interest associated with the reliance on experts who may serve in dual capacities as scientific advisors and investigators. Toward that purpose, this document:

- Establishes operating principles to guide the NMS science program implementation.
- Defines categories of technical assistance, and criteria for identifying and retaining investigators who will conduct specific work; and
- Defines a framework for technical oversight and external review for vetting research priorities and ensuring that high quality and objective science are carried out.

Roles for three (3) categories of scientific advisors and investigators are presented, as well as the processes designed to provide a level of transparency and objectivity commensurate with the scope and available budget of the NMS. Similarly, four (4) categories of technical reviewers are identified, along with a tiered structure for programmatic and technical review.

Periodic review of these guidelines by the SC should be conducted to determine the necessity and scope of appropriate revisions. Potential causes for revision include, but are not limited to, realization of actual conflicts of interest; availability of funds to provide greater peer review; or growth of the science program and associated funding to levels that additional process is needed.

## 1.2. NMS Structure

The NMS Charter contains an Organization Structure that includes a Core Science Team, led by the Lead Scientist (LS), tasked to conduct scientific investigations pursuant to the NMS Science Plan.

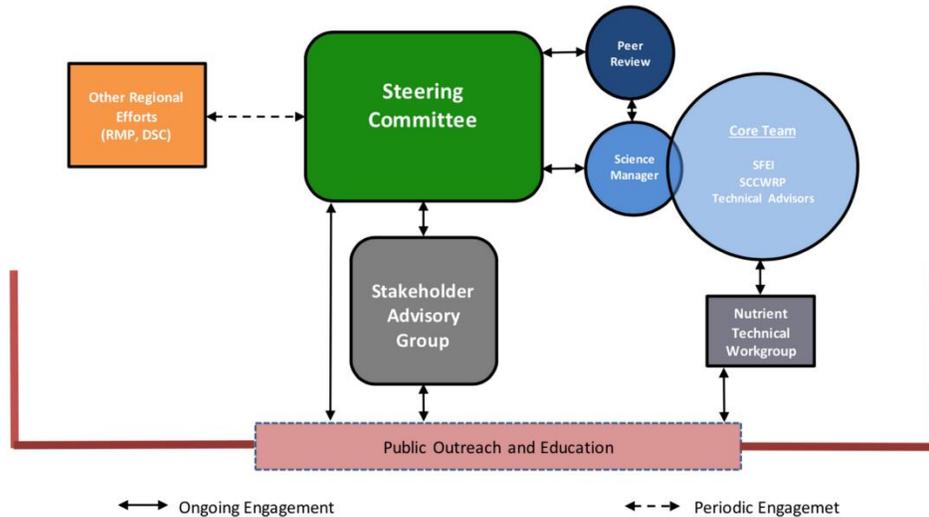


Figure 1. NMS Organization Structure

The Charter recognizes scientists having a wide range of technical expertise are needed to successfully undertake the priority scientific investigations in the NMS Science Plan. To ensure efficient and high-quality implementation of the Science Plan, the Charter indicates the Core Science Team shall be comprised of three categories of investigators and scientific support personnel:

- San Francisco Estuary Institute (SFEI)
- Southern California Coastal Water Research Project (SCCWRP)
- Recognized topic-specific, technical and collaborative advisors from academia, regulatory agencies, and local, state and federal science agencies and/or agency partnerships.

The Charter also recognizes that, in some circumstances, private or non-governmental technical consultants may be used to efficiently implement priority projects within a limited budget. To date, the LS has reached out to several research groups from the region to assist in the completion of the scientific work. The individuals or groups tapped to assist were selected based on the relevance of technical expertise and depth of experience, and their availability and interest in participating.

## 2. Guidelines for Securing Technical Assistance

### 2.1. Operating Principles

The NMS was developed to explore whether anthropogenic nutrient inputs are adversely impacting the health of San Francisco Bay. Depending on the outcome of NMS investigations, billions of public dollars may need to be directed toward reducing nutrient loads or otherwise mitigate adverse impacts. As such, nutrient management decisions must be informed by the best possible science. The costs of a comprehensive science and monitoring program, however, far outstrip the NMS's available funding. The NMS process for engaging technical experts, therefore, needs to be guided by the following principles:

- Scientific rigor
- Efficiency
- Timeliness
- Cost-effectiveness

### 2.2. Categories of Technical Assistance

Three categories of Technical Assistants have been identified for those engaged in the selection, design and implementation of Science Plan projects: Science Advisors, Scientific Collaborators and External Technical Specialists.

**Science Advisors (SA)** are recognized scientific experts that, when serving in this role, provide advice to the Core Science Team. They may be paid an honorarium or may simply be providing in-kind unpaid service. SA are generally sole sourced, after having been vetted through a SC-approved process. SA may also conduct NMS-related work as a member of the Core Science Team, necessitating appropriate review and oversight to minimize conflicts of interest.

**Scientific Collaborators** are members of the Core Science Team engaged in scientific work on an on-going basis. Investigators in this category generally consist of SFEI or staff from USGS and regional universities, and in practice serve as primary or adjunct NMS staff. In other situations, they may be under contract following selection via Request for Proposal (RFP) or through sole source selection. Some Collaborators are not paid but provide in-kind service.

**External Technical Specialists** engaged in work on an as-needed basis. They are technical experts but are not members of the Core Science Team. They often operate under contract and are selected sole sources or via a competitive RFP process. Some technical specialists provide unpaid in-kind services.

Attachment A summarizes the categories of Technical Assistants, their differentiation, and the process for retaining their services.

### 2.3. Criteria and Approach for Selecting and Retaining Technical Assistants

Technical assistance sourced outside of SFEI or SCCWRP must be selected either competitively or through transparent sole sourcing standards. The following criteria are proposed for selecting Technical Assistants:

- Area of expertise
- Level of expertise
- Knowledge related to San Francisco Bay/Delta
- Depth of experience related to nutrients in complex estuaries
- Interdisciplinary expertise
- Availability and willingness to contribute and provide in-kind services

To address the NMS science and management questions, scientists with expertise across a range of disciplines are needed, including: nutrient cycling in aquatic environments; phytoplankton ecology, including harmful algae; estuarine ecology; hydrodynamic and water quality modeling; ecosystem health assessment; and monitoring program design. Fortunately, the Bay Area hosts a number of world-class research institutions and international experts in these disciplines with active research programs focused in SFB.

To achieve its operating principles (scientific rigor, efficiency, timeliness, cost-effectiveness), the NMS has adopted a model of maintaining a small internal scientific staff (i.e., SFEI staff) who work with regional scientists and some experts from outside the region. The NMS has invested in and formed strong partnerships with other regional research programs through collaborations with investigators from those programs (e.g., USGS Menlo Park, USGS Sacramento, UC Santa Cruz, UC Berkeley, SFSU-RTC). In practice, those research programs and their considerable resources (lab and field instrumentation, boats/ships, field equipment, technician support) have become world-class and cost-effective extensions of the NMS science program. Similarly, the collaborating investigators have in practice served as NMS adjunct NMS.

Attachment B lists Technical Assistants engaged thus far, their affiliation, and projects on which they have already assisted or may in the future assist. Attachment C summarizes the roles played by Science Advisors in the preparation of the Assessment Framework, the Science Plan, the Modeling Plan and the Conceptual Model.

The flexibility provided by this model has been key thus far to ensuring the scientific rigor, efficiency, timeliness, and cost-effectiveness of NMS scientific investigations. This basic approach for implementing the NMS Science Strategy through a Core Science Team comprised of NMS staff and NMS adjunct staff - will continue for the foreseeable future, with the following guidelines serving to ensure proper oversight and to minimize the risk of conflicting interests:

1. The NMS science program and the Science Plan will undergo triennial external review (e.g., 2017, 2020, etc.) to provide high-level review of major work products and vet science priorities for the subsequent several years.
2. Annual Work Plans and budgets will be developed by the LS, guided by the Science Plan, and with input from Science Advisors and stakeholders, including the Nutrient Technical Workgroup (NTW) and SC.

3. In many cases, Annual Work Plans will identify proposed investigators for particular projects, either from the Core Science Team or be External Technical Specialists.
4. External Technical Specialists will be identified either by sole-sourcing (based on expertise, availability, and cost-effectiveness) or through an RFP process. Given the funding outlook, major or frequent RFPs are not currently anticipated. Detailed RFP guidelines have therefore not been developed here, but shall be as the requirement arises.
5. When a scientific study has been proposed in the Annual Work Plan but the investigator has not been identified, the following approach shall be used:
  - a. If the proposed work is expected to exceed \$25,000, selection will proceed through competitive process;
  - b. If the proposed work will be less than \$25,000, selection may proceed through sole-sourcing; and
  - c. In rare circumstances there may be need for an exception to this rule; in such a case, the SC would be informed.
6. Annual Work Plans, including proposed investigators, will be reviewed by the NTW, the Core Science Team, and the SC, prior to final approval by the SC. Annual Work Plans or specific projects within the work plans may receive external review, as needed.
7. The SC maintains discretion to 1) Approve the Annual Work Plan and its projects as presented; 2) Reject the Annual Work Plan or individual project(s); or; 3) approve a project but reject the identified investigator in favor of an RFP process through the following appeal process:

These guidelines are intended to establish a transparent process for retaining Technical Assistants that minimizes the risk of potential conflicts, or allows for potential perceived or real conflicts of interest to be openly declared, and decisions on Technical Assistants vetted by the SC. Even so, circumstances may arise when one or more SC members feel that a Technical Assistant has too great of a conflict. If such circumstances arise, any SC member can appeal the selection of a proposed Technical Assistant selection. The SC member would then state their case to the SC body as a whole and a vote will be taken as to whether the appeal should be upheld, as determined through majority vote.

### **3. Technical Oversight and External Review**

Technical oversight and external review of the NMS Science Program takes place at multiple stages to help ensure the highest priority projects are undertaken to answer the most appropriate science-based questions. The process for technical oversight and external review aims to strike a balance between achieving high quality science with an appropriate level of associated process and cost. The categories of reviewers and the types of review outlined below present the overall approach.

#### **3.1. Reviewer Categories**

Four categories of reviewers have been identified:

**External Science Panel:** A group of nationally-recognized experts with technical background and experience that cover the depth and breadth of core issues related to the NMS program. The Panel will be convened to provide periodic program-level review or review sets of major work products.

**External Peer Reviewer:** A scientist with relevant expertise who did not work on a specific project or proposal and who is engaged to review a specific work product or proposal.

**Stakeholder Technical Reviewer:** NMS stakeholder (including SC members) or representative of a stakeholder group who participates in NTW meetings or by providing written comment or review.

**Collaborator Technical Reviewer:** NMS Scientific Collaborator (as defined above) with relevant expertise, who may or may not have collaborated on the project, who provides comment or review during team meetings or electronically.

### **3.2. Criteria and Approach for Selecting and Retaining External Reviewers**

External Reviewers, either for an External Science Panel or for reviewing a specific project, shall be selected by the LS for review and confirmation by the SC. Criteria for selecting External Reviewers shall follow the criteria used for identifying Technical Assistants:

- Area of expertise
- Level of expertise
- Knowledge related to San Francisco Bay/Delta
- Depth of experience related to nutrients in complex estuaries
- Interdisciplinary expertise
- Availability and willingness to contribute and provide in-kind services

Every three (3) years, at least six (6) months prior to the prior to the triennial-review process, External Reviewers shall be re-evaluated by the LS and re-confirmed by the SC, to ensure the highest level of review. Factors influencing the need for this periodic review and confirmation process include, but are not limited to, expert availability, prior performance of existing External Reviewers, and conflicts of interest.

The appeal process, through which SC members raise concerns with External Reviewers proposed by the LS, is similar to that for the selection of Technical Assistants. Where one or more SC member feels a proposed External Reviewer maintains significant conflicts, or is otherwise unsuitable for the role, any SC member can appeal the appointment of that External Reviewer. The SC member would then state their case to the SC body as a whole and a vote will be taken as to whether the appeal should be upheld. Appeals must be made on a case by case basis, meaning an appeal must apply to an individual External Reviewer.

### **3.3. Tiers of Review and Oversight**

Technical oversight and external review for the NMS will follow a tiered approach. Proposed tiers are presented below, from highest-level review (informing NMS program priorities and trajectory over the subsequent few years) to more hands-on and frequent technical oversight (monthly to quarterly).

## **Programmatic Technical Review**

An overarching review of the NMS program will occur on a triennial-basis (2017, 2020, etc.), performed by the External Science Panel. The SC will develop objectives and questions for the External Science Panel address, which may include:

- Key science and management questions, and prioritization of science activities toward answering those science and management questions;
- High-level technical review of major work products;
- General programmatic review, which may include assessment of science to date, resource allocation decisions, etc.;
- Composition of the Core Science Team related to the areas of technical expertise and areas where additional expertise may be needed; and
- Other specific charges identified by the SC.

The first Programmatic Technical Review will take place in CY2017 or CY2018 focusing on reviewing the science priorities identified in the NMS Science Plan. An essential role of the Programmatic Technical Review, in both its inaugural year and subsequent years, is to provide independent review of upcoming program priorities by reviewing the Science Plan and the associated Annual Work Plans. In that sense, the Programmatic Technical Review also serves as an intentional check designed to minimize the risk of real or perceived conflicts of interest related to specific projects and investigators identified in the Annual Work Plans.

This check is emphasized here given the dual role some Science Advisors and Scientific Collaborators may play in the NMS – advising on Annual Work Plan development and potentially receiving funding to do some of the work. The Programmatic Technical Review’s independent vetting of the Science Plan priorities, and their evaluation of the Core Science Team composition ensures the most important projects are being funded and the right people are doing the work.

## **External Review of Work Products and Proposals**

Some major work products will undergo external peer review, on a case by case basis, to ensure high quality science, and that appropriate conclusions are being reached based on that work. External peer reviewers will be used for these reviews. When relevant, NMS results will be published in the peer-reviewed literature, and this will be considered part of the NMS peer review process.

The SC will determine the need for external peer review of work products, with input from the LS and the NTW. When possible, the need for peer review will be identified at the outset of projects, so the project’s budget and timeline include this step. In other cases, the need for external review will be identified during the project or at its completion. More specific criteria remain to be developed. However, examples of work products that may receive external review include:

- Major work products that represent a compilation or synthesis of findings, especially those likely to strongly influence the focus of future science activities and funding decisions (e.g., conceptual model report, Science Plan, materials used for and final product of Suisun/Delta Workshop)

- Major technical reports or work products related to water quality model development and application
- Work products that have the potential to more directly inform regulatory decisions than others (e.g. major assessment framework work products)

During the proposal phase of major projects, solicited either as a sole-source or RFPs, external peer review of the proposal(s) may be sought, either to decide among competing proposals, or to ensure that the best study designs are being employed. The SC, with input from the LS, will determine when peer review is needed, with the dual objectives of ensuring that the highest quality science is informing management decisions and maximizing program resources that are directed toward science activities, as opposed to program management process.

### **Regular/On-going technical review of projects and work plans**

To ensure the highest quality science, regular/on-going technical input will be regularly solicited on most major projects (e.g., on a quarterly or semi-annual basis). This type of technical review will be considered the NMS baseline review. External Review may also occur, as deemed necessary for some work products. Regular/on-going technical review will occur in several ways.

1. Periodic project updates and draft work products will receive Collaborator Technical Review. A number of nationally-recognized experts are already counted among NMS Collaborators and Science Advisors, and are considered Collaborator Technical Reviewers. While these reviewers are not external to the NMS, they have a vested interest in the highest quality work emerging from the NMS, especially when they participate as co-authors or are listed as technical advisors. Their engagement at regular intervals throughout a project's life will help ensure a baseline high level of technical rigor. These experts will be consulted periodically depending on the required feedback, either through electronic input, project-specific meetings, or through convening a subset of Science Advisors.
2. Stakeholder Technical Reviewers will also provide technical review or comment periodic project updates and draft work products. Their review will come during NTW meetings or in written comments on draft reports or progress updates.
3. Annual Work Plans and individual project proposals will receive technical review from Collaborator Technical Reviewers and Stakeholder Technical Reviewers. Stakeholder Technical Reviewers will provide input during NTW meetings, through written comments, or at SC meetings during planning for the subsequent fiscal year. Collaborator Technical Reviewers will provide input on proposals during planning meetings or electronically. In general, most proposals for new work will follow the NMS SC calendar, and be proposed as part of the annual work plan budget for the subsequent fiscal year. As noted above, the science priorities will already have been established by the Programmatic Technical Review of the Science Plan.

## Attachment A: Summary table for retaining Technical Assistants

Category	Type of Engagement	Example Affiliation	Type of Compensation	Selection Process**	Authorization	Notification
Science Advisor	Advice, not work*	Federal agency (i.e. USGS), academia (UCB, UCSC)	Honorarium, contract, or no compensation but provides in-kind services	Sole source	LS can sole source if <\$25k	Immediately notify SC
Scientific Collaborator	Doing work on an on-going basis	Academia, federal agency, SFEI staff	Contract, staff salary or no compensation but provides in-kind services	RFP or sole-source for contracts, sole-source for in-kind services	LS can sole source if <\$25k	Immediately notify SC
External Technical Specialist	Doing work on an as-needed basis	Outside of SFEI	Contract or no compensation, providing in-kind services	RFP or sole-source for contracts, sole-source for in-kind services	LS can sole source if <\$25k	Immediately notify SC

\* In some instances, Science Advisors will also serve as External Technical Specialists.

\* Applies where SC has not already designated the appropriate Technical Assistant

## **Attachment B: Overview of Technical Assistants used to date**

	Expertise	Affil.	CM	AF	Model	Science Plan	Collab
Cloern	Phyto, biogeochem Estuarine ecology	USGS	X	X		X	X
Sutula	Biogeochem, assessment	SCCWRP	X	X		X	X
Kudela	Phyto, HABs	UCSC	X	X		X	X
Stacey	Hydro-dynamics	UCB	X		X	X	X
Kimmerer	Zooplankton, biogeochem estuarine ecology	SFSU-RTC	X			X	
Dugdale	Nutrients, phytoplankton	SFSU-RTC	X	X			X
Lucas	Hydro/phyto	USGS	X		X		X
Hollibaugh	Biogeochem, estuarine ecology	U-GA	X				
Harding	Biogeochem, estuarine ecology	UCLA		X		X	
Bricker	Biogeochem, assessment	NOAA		X			
Hagy	Biogeochem, estuarine ecology	USEPA		X			
Berg	Phyto, HABs	AMS		X			
Gross	Hydrodynamics, modeling	UC-Davis			X		
Jones	Hydrodynamics, modeling	Sea Eng'g			X		
Fitzpatrick	Water quality modeling	HDR			X		
Deltares	Biogeochem modeling	Deltares			X		
Fringer	Hydrodynamics, modeling	Stanford			X		

# Attachment C: Science Advisors used to date

## Advisors to Date

