

STEAC Charter

6/10/19

1 APPOINTMENT OF CHAIR AND MEMBERS

The Chair and Co-chair of the NEON Science, Technology and Education Advisory Committee (STEAC) are elected by the members of STEAC in consultation with the NEON Principal Investigators and senior program scientific staff. STEAC membership election and length of service, rotation frequency etc. are determined according to the STEAC by-laws, which are appended to this Charter. The STEAC membership should represent a range of specific sub-disciplines needed to advise the program. The STEAC membership will also include gender, ethnic, geographic, career stage, and institutional diversity to the extent that is practicable.

2 REPORTING AND AGENDA

The STEAC provides strategic advice to Battelle regarding the science, technology, and education aspects of the NEON program, and reports to Battelle's PI for the Cooperative Agreement with NSF. The PI retains the authority to remove any member of the STEAC for violation of the terms of the agreement between the member and Battelle, or for lack of participation. For administrative matters, scheduling and agenda coordination, the point of contact for the STEAC is the Chief Scientist of the NEON program.

The agenda of STEAC meetings will be prepared by the Chief Scientist and the STEAC Chair, or their designated representatives, and will be made available to the STEAC membership a minimum of five working days prior to the scheduled meeting or conference call.

3 ROLES AND RESPONSIBILITIES

The STEAC will provide strategic advice to Battelle regarding scientific and technical issues relevant to the NEON Program, and any other closely related programs identified by Battelle. Specific activities include, but are not limited to:

- The STEAC provides strategic guidance on how the NEON Program can meet its high-level goals, such as enabling continental-scale ecology and forecasting. STEAC advises on science and technology matters such as new initiatives, collaborations, relations with other Observatories and networks, research infrastructures, and Research and Synthesis Centers, and procedures and protocols for additions or modifications to NEON Observatory infrastructure.
- STEAC advises Battelle on science and technology matters such as the science strategy, the NEON infrastructure relative to science requirements, significant potential enhancements of the NEON Program, design documents and protocols, algorithms, data management and data products, and how NEON data products are being managed and delivered to the stakeholder communities.
- STEAC reviews and advises regarding Battelle's support of education objectives as described in the Science Strategy and recommends metrics to be used to assess performance relative to education objectives. STEAC advises on science community engagement such as efforts to engage formally and informally the ecological research

community and other stakeholder groups, such as US Government agencies, natural resource managers, computing and data scientists, and international observatories and networks.

- STEAC will be formally called upon by Battelle to advise when potential programmatic changes being evaluated could have a major impact on NEON science capability.
- STEAC will be formally called upon by Battelle for advice regarding other key decisions, including, but not limited to: major changes in sampling design or goals, adjustments to the philosophy of deploying relocatable assets, and augmenting NEON sampling to capitalize on unexpected opportunities, and other matters as they arise.

4 COMMUNICATIONS

- In light of the fact that the STEAC is an advisory body to Battelle, all written communications regarding the NEON program shall be between the Chair of STEAC and Battelle's PI for the NEON Program. All formal reports by STEAC and recommendations to Battelle shall be communicated to the NSF Program Officer and posted on the NEONScience.org website within 10 days of receipt. Any communications on behalf of STEAC regarding the NEON Program with NSF, NSB, or other USG entities shall be conducted by the STEAC Chair, or her or his designated representative, with prior notification of the NSF PO and the Battelle PI for the NEON Program.

APPENDIX

5 BYLAWS

Science, Technology, and Education Advisory Committee

Approved June 21, 2017, Amended 6/10/19

Consulting Agreement for STEAC Service: Prior to joining the STEAC, each member will execute a consulting agreement with Battelle which includes basic terms and conditions, a description of the scope of work consistent with the STEAC Charter, stipulated compensation for members whose employment contracts with their institution permit outside employment, and a non-disclosure agreement covering confidential information.

Number of STEAC Members: The number of members of the STEAC will be a minimum of 10 and a maximum of 20 individuals.

Desired Qualifications of STEAC Members: STEAC members should have a solid scientific reputation in their discipline and possess the following professional attributes: 1) understand the challenges of incorporating new technology into ecology/environmental science, and 2) are thoughtful and engaged scientists who understand the mission of the National Science Foundation Bio- Directorate, NEON, other research networks (e.g. Long-Term Ecological Research Network, Long-Term Agroecosystem Research Network, and Critical Zone

Observatories) and, 3) hold considerable credibility within the broader scientific community. Because the scope of NEON is broad as well as deep, the membership will represent a range of specific sub-disciplines needed to successfully advise Battelle regarding the NEON program, e.g., population, community and ecosystem ecology; biogeochemistry; remote sensing; bioinformatics, cyberinfrastructure, engineering, data management, science education, community engagement, etc.

The STEAC membership should also represent geographic and gender diversity, as well as career stage and institutional type. Both scientific and educational expertise must be represented in the STEAC.

Filling Vacancies: Announcements that STEAC vacancies need to be filled, along with a roster of current STEAC members and their biographical sketches, will be made available to the broader science and education communities as part of engagement activities, external meeting announcements, and on the NEON webpage and email newsletter. The Chair may form a subcommittee to vet nominations for candidates who wish to serve on the STEAC, or may decide to have them vetted by the full STEAC. The broader community will have 30 days from the initial announcement to contact the STEAC nomination committee with potential candidates. Self-nomination or peer nomination is allowed. Nominations must include full name, contact information, a curriculum vitae, and a one paragraph description of the interests and skills the candidate would bring to the STEAC. Candidates may also be provided to the STEAC by the NEON PI, the Director of the NEON Observatory, and NEON staff. Overall acceptance of a candidate will be determined by a yes vote of the majority of the standing STEAC, and then the STEAC will recommend the addition of the new STEAC member to the

NEON PI for final approval. The invitation to join STEAC is tendered from the NEON PI and the STEAC Chair. The selection and publication of the STEAC membership for the upcoming year will be published on the NEON website by September 1 of each year.

STEAC Member Terms: Members of the STEAC are appointed for 3-year terms. A STEAC member can serve up to two consecutive terms, if mutually agreed to by the Member and the NEON PI and STEAC Chair, and then must rotate off for a term. STEAC terms will start September 1 of each year and conclude August 31, although the Chair may bring exception to the full STEAC in unusual cases. Appointments should be made so as to have a steady rotation of committee members, and terms may be extended or shortened by one year to accomplish this by agreement between the STEAC Chair and Battelle.

STEAC Officers: The STEAC will select from among its members a Chair, Co-Chair, and Secretary by majority vote. These officer positions will have one-year terms that can be renewed.

- **STEAC Chair duties:** The STEAC Chair serves as the point of contact for the STEAC, works with the NEON leadership and staff to develop agendas for STEAC meetings, runs those meetings, and draft consensus statements and reports that represent the ideas, recommendations, and findings of the STEAC for communication with the NEON leadership and staff and other entities and stakeholders. The Chair will engage other members of the STEAC in drafting written materials as needed, and all documents will be distributed to the entire STEAC for review before sharing outside the STEAC.

- **STEAC Co-Chair duties:** The STEAC Co-chair assists the Chair in agenda development and preparation of reports and substitutes for the Chair as needed.
- **STEAC Secretary duties:** The Secretary will take minutes at each meeting and will distribute these to STEAC members for approval. If the Secretary is unable to be present at a particular meeting, another member of STEAC can be selected by the Chair to serve in this role on a temporary basis. The Secretary will also prepare short (e.g., 1 page) reports on the activities of the STEAC to be released to the broader scientific community at least two times annually. The report will be read and approved by majority vote of the STEAC before public release.
- **Delegation of Authority:** The Chair and Co-chair may delegate their authority for specific duties or periods of time to other members of the STEAC. Such delegations shall be communicated in writing to all active STEAC members for clarity.
- Battelle will provide logistical support for the STEAC in terms of arranging conference calls, electronic meetings, face-to-face meetings, and making travel arrangements.

STEAC Ad-Hoc Members: Additional members may be added to the STEAC on a temporary basis (e.g., for a 6-month appointment) in order to bring in certain kinds of expertise or professional perspectives that are not represented in the current makeup of the STEAC. These ad-hoc members can be proposed by any member of the STEAC to the Chair, with a limited term of membership specified. The Chair will consult with Battelle's NEON leadership, and the Ad-Hoc member will be approved by the STEAC with a majority vote.

Removal of STEAC Members: Members of the STEAC who do not engage consistently in the business of the STEAC or who engage in behavior potentially damaging to the interests of the NEON Project can be removed from the STEAC at the discretion of the NEON PI in consultation with the STEAC Chair. Consistent engagement in STEAC is evidenced by attendance at meetings or conference calls and participating in document reviews or electronic discussions as requested, barring extenuating circumstances, such as health concerns, that would prevent these activities.

Meetings: The STEAC shall meet at least quarterly, or more often as needed. Meetings can take place via conference call, webinar, or another electronic medium, or in person. Ad hoc meetings or consultations with subsets of the STEAC may also be conducted as needed to address required decisions or to provide or seek specific guidance. At least one meeting per year should be in person.

STEAC Quorum and Opinions: The STEAC is representing the scientific/education community and so has an important role to play in terms of representing community concerns, opinions, and feedback to Battelle management and NEON program staff. It may be useful to the community to have a metric for gauging the degree of support for NEON decisions by the diverse individuals of the STEAC. To allow for clarity in this regard, in-person or virtual meetings of the STEAC will be recorded as being at quorum (meaning at least 50% of the STEAC members are present) or not at quorum. **If at quorum**, written opinions communicated by the STEAC to the NEON management and staff will be recorded as

consensus (meaning all present agreed with the opinion), majority (meaning the majority present agreed with the opinion), minority (being opinions shared by subsets of the STEAC that differed from the majority) or individual (meaning these are a list of individual opinions by STEAC members and no majority or consensus was reached). **If the STEAC meeting is not at quorum**, then any opinions that emerge can only be communicated as individual opinions.

Amending the STEAC By-Laws: If amendments to these By-Laws are needed, the proposed amendments must be presented in writing to the STEAC at least 7 days prior to the next STEAC conference call or in-person meeting, and the proposed amendments must be formally placed on the conference call or meeting agenda by the STEAC Chair. Amendments must be approved by at least a two-thirds majority vote in a STEAC meeting or conference call that is at quorum.