

BYLAWS

Science, Technology, and Education Advisory Committee Approved June 21, 2017, Amended July 7, 2017

Description of the Science, Technology, and Education Advisory Committee (STEAC):

The STEAC is a group of experts in ecological science, technology and education who serve on a continuing basis as independent advisors providing strategic advice to the National Ecological Observatory Network (NEON) management and staff.

Purpose of the STEAC: The STEAC is primarily an advisory body to the NEON Project and will provide strategic advice to Battelle, the NEON Principle Investigator (PI), and NEON Project staff on the planning, construction, and operation of the NEON Project and other relevant programs. STEAC members also act as liaisons between Battelle, the NEON Project, and the broader scientific and education community. NEON management and staff may choose to consult the STEAC on diverse matters such as strategic planning, management decisions, policy development for NEON operations, setting priorities in research, education, and outreach, alterations of the scope of NEON, and for feedback on documents describing such activities. Specific activities include, but are not limited to the following items:

- The STEAC provides strategic guidance on how the NEON Project and other relevant projects can meet their high-level goals, such as enabling continental-scale ecology and forecasting. STEAC advises on science and technology matters such as new initiatives, procedures and protocols for additions to NEON infrastructure, and relations/collaborations with other research observatories, networks, infrastructures, and synthesis centers.
- STEAC advises on Project and Observatory science and technology matters such as the science strategy, NEON infrastructure relative to science requirements, significant enhancements to the NEON Project, design documents and protocols, algorithms, data management and data products, and how NEON data products are being managed and delivered to stakeholder communities.
- STEAC reviews and advises Battelle in support of its education objectives, and provides recommendations relative to education requirements. 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.
- It is expected that the STEAC will be formally called upon by the NEON leadership to advise when potential programmatic changes being evaluated could have a major impact on NEON science capability. STEAC will be called upon, for example, in the case that Battelle considers changing or deleting the location of a NEON Core site.
- STEAC can be formally called upon by NEON leadership for input in other key decisions, including, but not limited to: hiring decisions for senior scientific personnel, major changes in sampling design or goals, adjustments to the philosophy of deploying relocatables, and augmenting NEON sampling to capitalize on unexpected opportunities.

Specific technical matters will generally be referred to the appropriate Technical Working Group (TWG) for that area. NEON leadership and staff who wish to consult the STEAC should contact the Chair of the STEAC.

Compensation of STEAC Members: For those members whose terms of employment permit, Battelle may compensate STEAC members for their services as consultants, following standard Battelle policies; however, STEAC members cannot be permanent employees of NEON or Battelle in order to maintain the role of the STEAC as an independent body.

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

Selection 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 programmatic activities, e.g., population, community and ecosystem ecology; biogeochemistry; remote sensing; bioinformatics, cyberinfrastructure, engineering, scientific project 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 appointees.

At the completion of Initial Operations and as part of the transition to Full Operations, there will be a rotation schedule developed for the STEAC. Replacement criteria will fulfil the skillsets lost by the rotation and a STEAC self-evaluation will be done to identify new skillsets required for successful execution of Full Operations (given the other selection criteria above).

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. A STEAC subcommittee will be formed to vet nominations for candidates who wish to serve on the 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 Battelle Chief Scientist, 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 Battelle-NEON Chief Scientist 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 and then must rotate off for a term. STEAC terms will start September 1 of each year and conclude August 31. 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.
- 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 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. 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 NEON management and 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.