



Pioneer Array Micro-siting Public Input Process Frequently Asked Questions

The National Science Foundation (NSF) has completed the micro-siting of the moored array of the Ocean Observatories Initiative (OOI) Pioneer Array based on public input and assessment of the environmental impacts of the revised site locations. In an effort to keep all stakeholders informed of the most current information throughout the installation and operation of the array, the program has updated the following Frequently Asked Questions (FAQs). NSF and the OOI Program will continue to accept comments throughout the operation of the OOI. Comments can be submitted using the Question & Comments button on the OOI website (www.oceanobservatories.org).

How did this Micro-siting process begin and how has the public participated to date?

As discussed in the Final Site Specific Environmental Assessment (SSEA; NSF 2011), the National Science Foundation (NSF) initiated a “micro-siting process” designed to allow the public to provide input into the siting of the moorings for the Pioneer Array prior to a final siting determination. NSF and the OOI Program Office have received input into this process through several public meetings, project development and science collaborations. During the micro-siting process, input from the public, including representatives of marine user stakeholders, was both sought and encouraged.

Members of the commercial fishing community suggested the dialog regarding micro-siting and navigational safety concerns continue through smaller, informal meetings to better address issues and concerns associated with the installation and operation of the Pioneer Array. The Consortium for Ocean Leadership provided funding to the Commercial Fisheries Research Foundation (CFRF) to facilitate a series of four meetings between representatives from the regional fishing community and regional OOI scientists during the fall of 2011. The meetings were summarized in a 2012 report, *Pioneer Array Workshops – Exploration of Issues and Concerns Connected with the Planned OOI Pioneer Array Project* (CFRF 2012). Recommendations from this report informed the final configuration of the *Final Supplemental Environmental Report for Modifications in the Design, Infrastructure, and Installation of the Coastal-Scale Nodes, Regional-Scale Nodes, and Global-Scale Nodes of the OOI* (NSF; February 19, 2013; <http://www.nsf.gov/geo/oce/envcomp/>). The OOI Program and NSF

responses to the recommendations contained in the *Pioneer Array Workshops* report are posted on this OOI Environmental Compliance webpage [here](#).

What is the purpose of the OOI program?

Oceanographic research has long relied on research vessel cruises, or expeditions, as the predominant method of taking direct measurements of the ocean environment. Remote sensing, the use of satellites and other wireless technologies, has greatly advanced abilities to measure ocean surface characteristics over extended periods of time. A major advancement in oceanographic research methods is the ability to make sustained, long-term and adaptive measurements from the surface to the bottom of the ocean. Ocean observatories are now being deployed to further this goal. Building upon recent technological advances and lessons learned from prototype ocean observatories, OOI is an interactive, globally distributed and integrated infrastructure that will be the backbone for the next generation of ocean sensors, resulting in complex ocean studies that are presently unachievable.

What is included in the Pioneer Array?

The Pioneer Array will have two lines of stand-alone moorings running north-south across the continental shelf. Surface moorings would provide locally generated power to seafloor and platform instruments. All moorings use satellite and other wireless technologies to link to shore and the Internet. The western (downstream) line will consist of two surface moorings with AUV docking stations connected to the mooring anchor frame by power/communications cable up to 500 meters in length, two wire-following profiler moorings with a surface expression, a surface-piercing profiler mooring with an intermittent surface expression. The eastern (upstream) line will consist of a surface mooring, two wire-following profiler moorings with surface expressions, and a surface-piercing profiler mooring with an intermittent surface expression. Gliders and Autonomous Underwater Vehicles (AUVs) would run missions in the vicinity of the moored array. The information gleaned from the Pioneer Array will include sea temperature, winds, wave height and currents. The Pioneer Array will contain: 10 moorings located at 7 sites; 3 AUVs and 6 gliders. The array configuration, types of moorings, and scientific instrumentation to be deployed is described on the OOI website, under the Infrastructure tab (or click [here](#)).

What is the current schedule for installation of moorings?

The Pioneer Array will be installed in phased deployments starting in Fall 2013 through the end of 2014. The updated schedule for Pioneer Array mooring, glider, and AUV deployments can be found on the OOI website, under the Infrastructure tab (or click on [here](#)).

Does the science still work given revisions to the micro-siting plan?

The revised micro-siting plan does meet the science/operational requirements for the Pioneer Array.

Why do some moorings have both subsurface and surface components at 52 fathoms?

Note that in the revised Pioneer Array configuration, the inshore sites are at 50 fathoms. Both surface and subsurface moorings are used at some locations to achieve the OOI science goals of observing from the air/sea interface to the sea floor with high vertical resolution. This is difficult to achieve with a single mooring type.

A surface mooring includes a relatively large buoy, which creates a platform for mounting atmospheric sensors and ocean surface sensors, as well as housing for equipment for power generation data recording, and two-way communications. Surface moorings provide visibility to navigation equivalent to that of a guard buoy (~10 ft buoy tower, radar reflector, marine lantern, active radar pinger). A subsurface mooring provides a taut vertical line allowing a sensor package to sample throughout the water column with high vertical resolution. Some subsurface moorings in the Pioneer Array actually have a small float at the surface, but it is not large enough to carry instrumentation that the surface mooring can support, and is not as visible to navigation as the surface mooring.

How far apart are the mooring sites?

In the final micro-siting plan, the distances between mooring sites range from 4.0 nautical miles (nm) in the east-west direction (i.e., along-shelf) to 8.5 nm in the north-south direction (cross shelf). Refer to the [plan view figure](#) for the Pioneer Array for distances between all mooring sites. Note that these distances are measured from the edges of the proposed, voluntary “areas to avoid”.

How is the micro-siting public comment process related to the Site-specific Environmental Assessment/National Environmental Policy Act (SSEA/NEPA) process?

The micro-siting process came out of the SSEA/NEPA process. Although the NEPA process is now completed, the micro-siting process allows the public to have another opportunity to provide input into the final siting of the Pioneer Array within the area already analyzed in the SSEA.

Will NSF have a supplemental Final SSEA that addresses comments on socioeconomic impacts?

The socioeconomic impacts analysis was conducted in response to comments made on the Draft SSEA. The results of that analysis confirmed the findings in the Draft SSEA, and no new information was brought to light by the socioeconomic impacts analysis. Therefore, there is no further need to provide an additional NEPA process.

During the public meetings, concerns were expressed regarding whether NSF intends to regulate fishing?

NSF stated both orally (at the public meetings) and in writing (in the Finding of No Significant Impacts and in the recent invitation letter to the June 7, 2011 public meeting) that it has no interest in seeing fishing areas closed by deployment of the OOI. NSF has reiterated that it does not have any legal authority to regulate fishing. NSF's mission is to fund cutting edge science and technology; it is not a regulatory agency.

How does NSF plan to address issues involving gear entanglement?

NSF will follow traditional maritime/admiralty law and ensure that notice to mariners of the locations of the mooring buoys is provided. In response to concerns raised about gear entanglement, NSF plans to take the extra steps of putting lights and other notification devices on the mooring buoys. During micro-siting discussions, NSF offered to install guard buoys near the Pioneer Array as additional aids to navigation and demarcation of areas to avoid. However, after further consultation with the fishing community, it was determined that this was not a preferred solution. Therefore guard buoys may not ultimately be installed. If gear becomes entangled with Pioneer Array moorings, mariners should contact the U.S. Coast Guard (USCG) if a safety issue exists, and, if a mooring buoy is damaged, a telephone number of the OOI Field Operations Manager will be provided.

What have you done to ensure safety and/or make known the presence of the Pioneer Array buoys?

In order to ensure safety and make known the presence of the Pioneer Array buoys the program will follow all U.S. Coast Guard (USCG) Private Aids to Navigation (PATON) regulations and recommendations for moorings, including the following:

- Reflective panel and designation letter on hull
- USCG approved lighting (strobed marine lantern)
- Passive radar reflector (on all buoys)
- Contact information on buoy hull
- Inclusion on the Notice to Mariners, Local Notice to Mariners, and Light List
- Location marked on NOAA digital charts

In addition, OOI will also provide:

- Active radar transponder (on some buoys)
- Recommended Area to be Avoided (voluntary, non-regulatory areas to avoid of 0.5 nm radius around each mooring site)
- Boatracs (broadcasts buoy positions to nearby, receiver-equipped boats) and/or NOAA VHF weather radio broadcasts immediately before and after mooring service cruises.

- In advance of the initial deployments, OOI will direct mail informational materials containing a description and location of Pioneer Array moorings and laminated glider/AUV interaction instruction cards to fishing permit holders.

Will there be a gear entanglement fund associated with OOI moorings?

No, there will be no gear entanglement fund. As stated above, NSF and the OOI will follow traditional maritime/admiralty law, consistent with the practice of other federal agencies that maintain persistent moored arrays in federal and international waters. The NSF and OOI Project will work with the USCG to ensure that OOI surface moorings meet or exceed the requirements of USCG permitted PATONs. The positions of OOI moorings will be available to the public through inclusion in USCG Local Notice to Mariners (LNM), Light Lists, and marked on NOAA digital navigational charts. Surface buoys will be marked per regional USCG requirements, with all required lights and markings. OOI will work with USCG to develop guidance (to appear in LNM and/or chart annotations) regarding the suggested distance from Pioneer moorings to prevent gear entanglement (as suggested “areas to be avoided”).

If fishing gear becomes entangled or a ship strike occurs who should be contacted?

The U.S. Coast Guard should be contacted if a safety issue results from fishing gear becoming entangled or a ship strike occurs.

If OOI mooring equipment and instrumentation is found damaged, drifting, or off station (including gliders, AUVs) who should be contacted?

The OOI Field Operations Manager will be the point of contact. Contact information will be provided to the USCG and marked on OOI mooring buoys, AUVs, and gliders in advance of deployment.