


Ocean Observatories Initiative


NSF's Ocean Observatories Initiative (OOI): Long-Term Ocean Observing Infrastructure for the NE Pacific

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Ocean Observatories Initiative – Permanent Presence on a Global Scale

OOI will support the construction and operation of an interactive, integrated ocean observing network.

The OOI will provide transformative technology to give current and future generations the ability to study multidisciplinary ocean processes.

It will transform ocean science research and education by providing unprecedented power, an interactive connection with diverse sensors, and near real-time access to data.



Funded from NSF's Major Research Equipment and Facilities Construction (MREFC) account

3104-00015
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Five Integrated Transformational Themes

- ◆ High Latitude Observing
- ◆ Coastal Dynamics
- ◆ Regional Cable - Interactivity
- ◆ Cyber-'Space' Delivery
- ◆ Education & Public Engagement



Ocean Observatories Initiative

Final Design Review

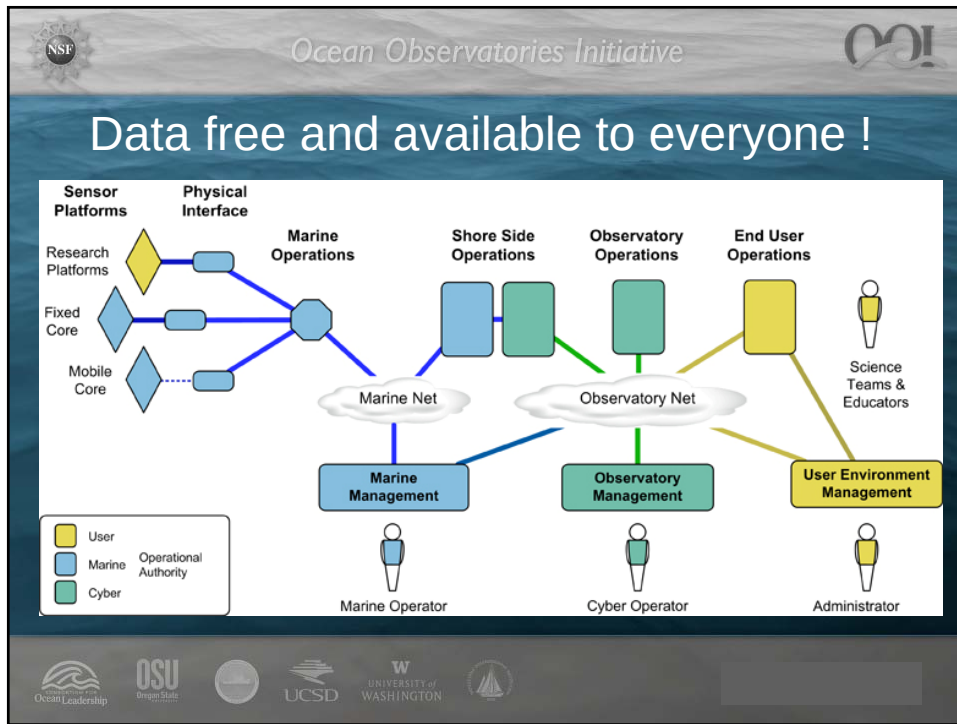
OOI Science Themes

- Ocean-Atmosphere Exchange
- Climate Variability, Ocean Circulation, and Ecosystems
- Turbulent Mixing and Biophysical Interactions
- Coastal Ocean Dynamics and Ecosystems
- Fluid-Rock Interactions and the Subseafloor Biosphere
- Plate-scale, Ocean Geodynamics

Additional Science Focus on:

- Ocean ecosystem health
- Climate change
- Carbon cycling
- Ocean acidification

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OOI Status

- **Milestones**
 - Variant Final Design Review, 03/09, “OMB/NSF input”
 - National Science Board recommendation to begin, 5/15/09
 - Approved for MREFC, 9/1/09
- **Pilot Period 10/2008 – 12/2009**
 - Risk Reduction, preparation for MREFC start
- **MREFC started 9/1/2009 with ARRA Funding**
 - Start is 10 months ahead of former plan due to ARRA funding
- **Construction: 5 years (2009-2014)**
- **Operation and Maintenance: 25-30 years (2014-2040+)**

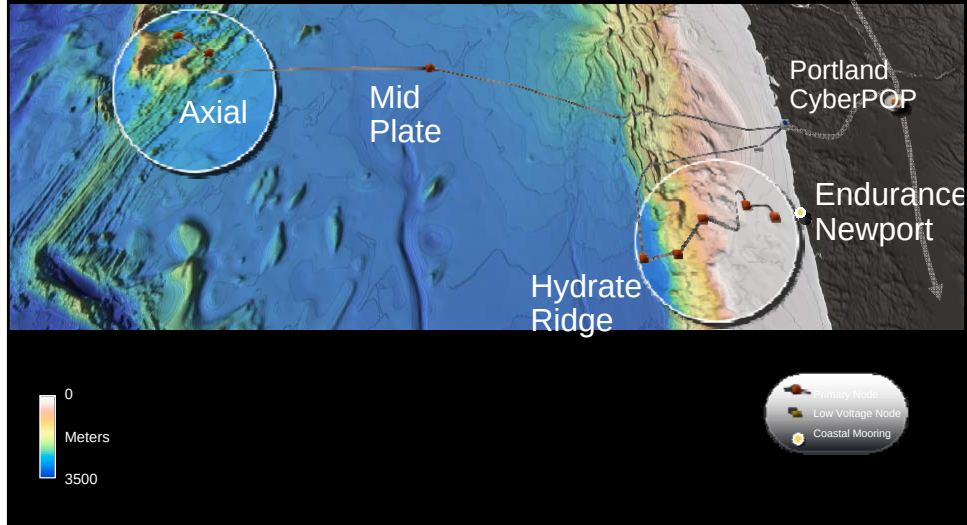
OOI Funding Levels

- **Construction Cost: \$385M for total OOI**
 - Regional Cabled Network ~ \$126M
 - Pacific Northwest Coastal Network ~ \$14M
- **Operations and Maintenance: \$60M/yr for total OOI**
 - Regional Cabled Network ~ \$14M/yr
 - Pacific Northwest Coastal Network ~ \$7M/yr

Costs are primarily for OOI's science **research** mission

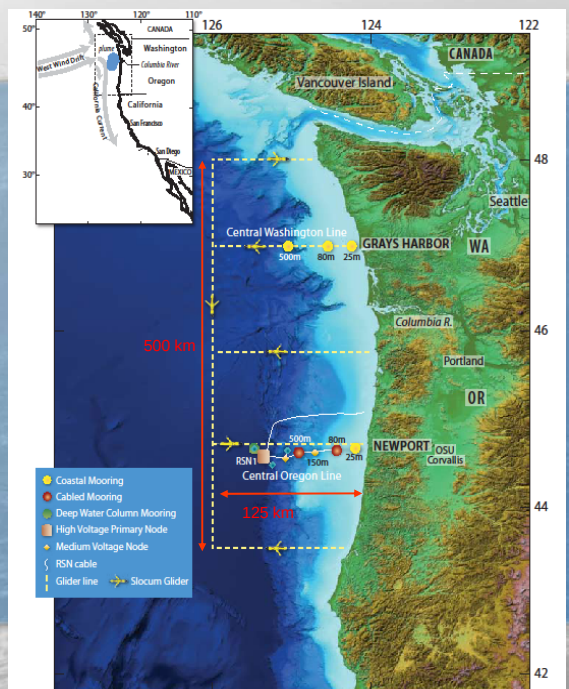
Regional Scale, Cabled Nodes

Endurance
Grays Harbor



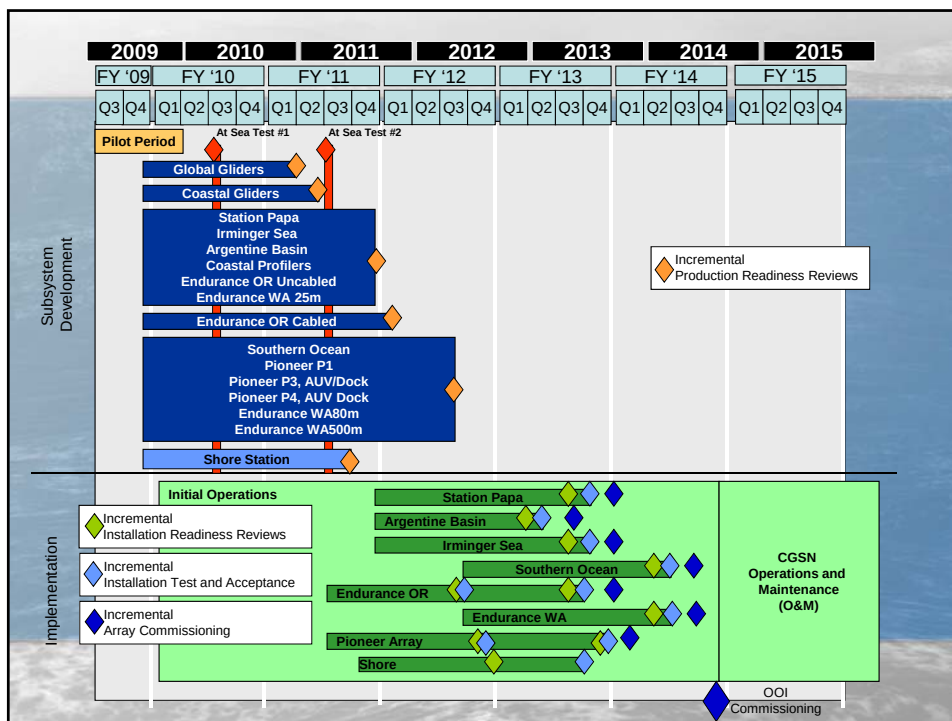
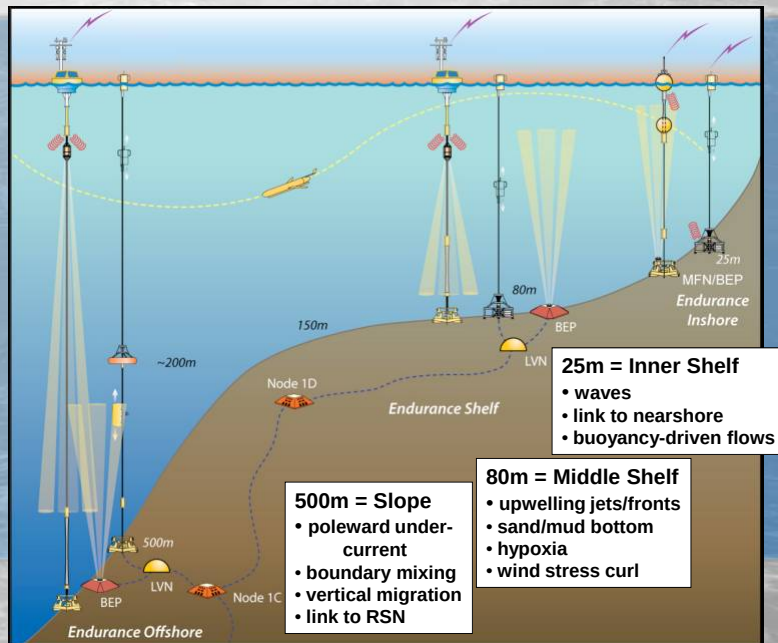
Endurance Array

- Multi-platform, multi-scale
- Fixed and mobile assets
- Cross-shelf arrays at Newport and Grays Harbor
- Oregon Line Cabled to RSN



Endurance Array: Oregon

- Full water column
- Cross-shelf resolution
- High power, high bandwidth via cable to 80 & 500m
- Benthic platforms





Ocean Observatories Initiative



Criteria for setting priorities

- NSF: science and education community input
- Ocean Leadership (JOI+CORE): Program Advisory Committee
- OOI: Facilities Advisory Committee, Facility Operators Committee



Ocean Observatories Initiative



Strengths

- Interdisciplinary science
- Leading-edge technology
- Interactive and adaptive
- Open data access
- Education and outreach
- Long-term support

Weaknesses

- Not as much infrastructure as originally envisioned !





NSF's Ocean Observatories Initiative in the NE Pacific

Websites:

<http://www.oceanleadership.org/programs-and-partnerships/ocean-observing/ooi/>

<http://www.whoi.edu/page.do?pid=22317>

<http://www.ooi.washington.edu/portal/Observatories>

