Establishing Newport, Oregon as a Hub for Ocean Observing Activities in the Pacific Northwest

A Strategic Framework

Prepared for the:

Yaquina Bay Economic Foundation (YBEF)

By:

SHOREBANK ENTERPRISE CASCADIA
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Executive Summary

YBEF funded and guided this innovative asset-based Strategic Framework to support the growing *Ocean Observing Industry Cluster* in Newport and central Lincoln County. The Framework sets the stage for ocean observing as a long-term economic development strategy for the region. It builds on a host of ocean observing related assets that are already in place, and is ultimately designed to position Newport with a long-term competitive advantage for growing this industry.

Activities that fall under the umbrella category of "ocean observing" range from more traditional ship-based ocean research, to cutting-edge radar mapping of sea surface conditions and sea floor "cabled" observatories. Moving forward, five themes will guide the actions of YBEF and Newport as they pursue this opportunity:

- **Complexity:** Effectively targeting specific opportunities in a complex system
- **Innovation:** Positioning as a nimble, early adopter of a community approach to ocean observing
- **Utility:** Emphasizing Newport's natural fit for ocean observing activities
- **Research Leadership:** Through a combination of local institutions and strategic partnerships, building Newport's reputation as the leading Pacific Northwest coastal research community
- **Effective Leverage:** Enhancing the relationship between the local community of "users" of ocean observing research and ocean research efforts

The long-term vision for ocean observing in Newport is based on the following elements:

• Newport serves as the leading US coastal location for ocean observing activity north of Monterey Calif.	• Ocean observing activities create stable, high wage employment and stimulate central Lincoln County's working waterfronts.	• Information created through ocean observing contributes to knowledge-based fisheries management and long-term access to fish and marine resources.	• Newport serves as a Pacific Northwest leader in advocating for increased ocean observing investment and activity that benefits all coastal communities.

Although the universe of ocean observing is deeply complex, and global in scale, the short and mid-range opportunities for Newport boil down to building on three key assets: ***Newport-based research vessels, ocean observing facilities and regional businesses***.

Each of these elements is detailed in this report with specific opportunities, actions and measurable impacts. The Hatfield Marine Science Center will serve as a key center of gravity to attract growth in Newport's ocean observing industry. Recruitment of new research vessels to Newport will serve as a near-term boost for the local economy, and

provide longer term "recession proofing" for the region. Small business development around the hardware used for ocean observing, and the data created through research will create the innovation necessary to diversify and grow the local economy. Finally, the data generated will supply local communities and ocean users with the vitally important information needed to guide ocean policy, management and use.

In order to accomplish this work, the community will engage in the following key strategic approaches:

- **Communication:** Develop clarity and shared understanding of key opportunities
- **Collaboration:** Get commitments for lead and supporting roles for different organizations in the community. Commit to a structure for collaboration. Build on existing strategies
- **Advocacy:** Prepare and deliver messages; request support from key players
- **Leadership:** Stake out a role as a Northwest leader in creating ocean observing opportunities

Key actions that can be taken to enhance the industry are:

- Ensure state support for new research vessels
- Further invest in shore-side docks
- Establish and enhance vessel relationships
- Institutionalize local partnerships through an Ocean Observing Coordinating Team
- Establish a coastal communities research agenda
- Advocate through Northwest Association of Networked Ocean Observing Systems (NANOOS) for regional ocean observing investments
- Support WET Labs private investment in demonstration ocean observing facility on Yaquina Bay
- Pursue state recognition and support for business in the cluster
- Convene business cluster
- Secure Ocean Observation Industry cluster-specific support resources

Key impacts and measures of success:

Vessels	**Ocean Observing Facilities**	**Regional Businesses**
Impact: Economic activity generated from increased vessel visits; use of local vessels for ocean observing activities. Measure: # of research vessel days in port; fishing vessel charters	Impact: Local usage of ocean observing infrastructure Measure: Level of usage based on web accessible sites	Impact: Growth in local businesses with ocean observation-related business lines Measure: # of research vessel maintenance / construction contracts

Successful implementation of this Framework will require the creation of a collaborative approach that engages partner organizations from within the immediate community as well as the region. An Ocean Observing Coordinating Team will be developed to coordinate partnerships and drive the mid and long term goals outlined in this Framework. The organizational partnerships that make up the Coordinating Team, and the charges of other support teams, will be formalized in a Memorandum of Understanding between partners.

Introduction

The Yaquina Bay Economic Foundation (YBEF), a non-profit economic development organization representing Newport and central Lincoln County, Oregon, is pursuing an innovative strategy to build a rural economic hub based on the emerging industry of ocean observing.

Ocean observing systems are being developed globally to improve weather forecasts, monitor climate change, understand marine resource dynamics and restore healthy ecosystems, promote maritime safety, reduce public health risks, and enable sustained use of ocean and coastal resources. These systems, made up of a myriad of public and private interests, will provide the information backbone of a vastly improved approach to marine and estuarine science and resource management for this century.

Located in the center of Oregon's 300 mile coastline, central Lincoln County represents an ideal location to establish and deliver a host of public and private services in support of ocean observing activities in the Pacific Northwest. As a community economic development group, YBEF seeks to develop strategies that will enhance the potential of Newport and its neighbors to attract more of these elements, complementing those already in place and creating family-wage employment and long-term economic development.

Process

In November of 2007, YBEF elected to explore the feasibility of building a collaborative community partnership that could play a key role in the recruitment of additional ocean observing infrastructure to central Lincoln County.

YBEF secured both State and local funding to support initial planning for this approach and hired ShoreBank Enterprise Cascadia (SBEC), a non-profit community development organization, to develop a strategic plan for further developing the ocean observing "industry" in the region.

This planning process was designed to begin to answer the following questions and position Newport to move forward with an organized strategy:

1. What are the key pieces of infrastructure (human and physical) that need to be in place in order to make Newport a competitive site for ocean observing infrastructure?

2. What kind of structure must a collaborative effort take in order to move forward in developing the infrastructure?

3. What are the steps and what is the timeline for a collaborative effort?

4. Who are the local and non-local stakeholders/gatekeepers for this process and how can the community work with them?

5. What are the desired community impacts/outcomes the collaborative would like to achieve?

In answering these questions, YBEF and SBEC have created this Strategic Framework that lays out the context for growing ocean observing in Newport and central Lincoln County. This Framework sets the stage for ocean observing as long-term economic development strategy. It builds on a host of ocean observing related assets that are already in place in the community, and is ultimately designed to position Newport with a long-term competitive advantage for growing this industry.

Participants

In order to develop this Framework, YBEF and SBEC worked with two levels of community and regional leadership, 1) a small steering committee, and 2) a group of community "stakeholders" with significant knowledge about ocean observing and/or a representative stake in community and economic development.

The Steering Committee (listed below), was recruited to represent a broad set of interests – business and economic development, local and state government, marine science, marine commerce, and fisheries and seafood. The Committee met five times during the five months needed to develop this Framework and provided guidance for strategy development and community engagement.

- George Boehlert, Oregon State University Hatfield Marine Science Center
- Chris Chandler DiTorrice, Central Lincoln People's Utility District (formerly with the Economic Development Alliance of Lincoln County
- Don Mann, Port of Newport
- Nick Pisias, Oregon State University College of Oceanic and Atmospheric Sciences
- Jim Seavers, Commercial Fishing Industry
- Gil Sylvia , Oregon State University Coastal Oregon Marine Experiment Station
- Bob Warren, Oregon Economic and Community Development Department

Approximately 50 community members were identified as stakeholders in the process. This stakeholder group was engaged over the course of the process in two distinct ways:

- SBEC staff conducted individual and/or group interviews with 20 Stakeholders. The interviews supplied the process with specialized knowledge regarding the multiple areas of expertise (e.g. marine research, ship repair, Federal programs). The interviews also provided key insights and opinions on the challenges and opportunities around developing an ocean observing strategy.

- YBEF hosted an interactive, three-hour ocean observing workshop on March 25, 2008. The workshop included presentations on ocean observing, a draft ocean observing strategy, a panel of representatives to discuss the opportunities, and a group discussion. Panel representatives included:
    - Port of Newport (Don Mann)
    - Fishing Fleet (Scott McMullen)
    - Federal Government / NOAA (Rick Brown)
    - Private industry / NANOOS (WET Labs' Andrew Barnard)
    - Marine Construction / Port of Toledo (Bud Shoemake)

Over 40 stakeholders attended the meeting. A list of all stakeholders and interviews, and notes on the March 25th stakeholder meeting are included in Appendix XX.

Context

This Strategic Framework identifies ocean observing as an "industry" for the communities of central Lincoln County. Treating ocean observing as an industry that can be developed to the benefit of the local economy, is perhaps a unique effort among rural coastal communities in the United States. But, based on the research conducted for this report, it is clear that Newport and its neighbors are staking out new ground in pursuing this area as a strategy for economic development.

Activities that fall under the umbrella category of "ocean observing" are diverse and complex. They range from more "traditional" ship-based ocean research, to cutting edge radar mapping of sea surface conditions to sea floor "cabled" observatories. The following "Vision" section of this report maps out the various activities that effect Newport in a simple chart.

Nationally, the growth of ocean observing activities is happening at an increasingly rapid pace. Multiple pressures are leveraging increasing investment at the federal and state government levels in the U.S. Key pressures include competition for ocean resources, the need for more effective ocean management structures that serve multiple interests, and increasing concerns about oceans due to global warming.

Appendix B of this report, "Talking Points" provides additional detail on the national and regional context for the growth of the ocean observing industry.

Newport's Vision

The following themes, vision and roadmap are designed to provide YBEF, Newport and the greater central Lincoln County community with a critical path to move forward in further developing the ocean observing industry. The following sections provide detail on the key assets that Newport will develop, and provides strategic actions to advance on the path.

Themes

The following themes will guide Newport's effort to build an ocean observing industry:

- **Complexity:** Effectively targeting specific opportunities in a complex system
- **Innovation:** Positioning as a nimble, early adopter of a community approach to ocean observing
- **Utility:** Emphasizing Newport's natural fit for ocean observing activities
- **Research Leadership:** Through a combination of local institutions and strategic partnerships, building Newport's reputation as the leading Pacific Northwest coastal research community
- **Effective Leverage:** Enhancing the relationship between the local community of "users" of ocean observing research and the research efforts themselves

Complexity

Ocean observing could be characterized as a "holistic" approach to developing knowledge about marine environments. It is in an umbrella description that captures multiple elements (cables, ships, radar, satellites, data management, etc.) Each of these elements is individually complex and have distinct pathways for development.

Management of this strategy will depend on:

- Newport maintaining a cohesive view of ocean observing that captures and documents the success of all of these different elements
- Newport understands and manages the complexity of the different elements, but consistently focuses on prioritizing "low hanging fruit."

Innovation

Ocean observing is an emerging industry. Much of the technology and data management systems that will support cabled observatories are in still in the early stages of development. The gear that will be attached to the cables – e.g. sea floor sensors and

water column sensors, cameras, and communication systems will require constant evaluation and improvement in order to function properly in harsh marine environments.

The drive for improved ocean knowledge is also supporting innovation around traditional research platforms – ships. New naval technology has been applied to develop acoustically-quiet research vessels. NOAA is building four of these vessels, two, the R/V Oscar Dyson and R/V Henry B. Bigelow, are now commissioned. The third, the R/V Pisces will be home ported in Pascagoula, Mississippi. Construction began on the fourth, FSV Bell Shimada, in June 2007. The Shimada will have a west coast home port. The ships are designed to better assess the health of fish stocks. An additional dimension is businesses that may develop and deliver value-added products created from the data stream coming from ocean observation activities.

This strategy associates Newport with innovation and progressive thinking. The community should be seen as an early adopter of a unique rural development strategy that supports an innovative, high-wage industry. Although at a national level, full "roll-out" of the ocean observing industry will take a decade or more, this strategy constitutes early positioning of Newport for future ocean observing investments.

Utility

Of critical importance to successful ocean observing is access to "high value" marine environments. The Pacific Northwest coast is both a rich area for research and an economically important region of the country's marine territory. The study of certain features of the offshore marine landscape – the Cascadia Subduction Zone and the California Current, has immense value in helping us understand ocean conditions, climate conditions and sea life behavior and productivity in the region. Further, the study of these features contributes to understanding similar conditions around the world.

Newport should continue to position itself as the superior location for conducting ocean observing work on the Pacific Northwest coast. Geographically, Newport is the best positioned deep water access port for reaching critical nearshore and offshore research locations with a minimum of time spent traveling to them. Newport's Hatfield Marine Science Center is the pre-eminent, coast-based marine research facility in the Pacific Northwest. This world-class research facility is paired with substantial shore-side infrastructure that can handle multiple "global" class research vessels. Further, Newport's shore-side infrastructure is growing. The community approved over $20 million in spending on new Port of Newport infrastructure and is gearing up to be a significant marine resource on the Pacific Coast.

Research Leadership

Of the total national investment in ocean observing, much of the activity will happen in the Pacific Northwest. Our region is a case study for the rest of the United States in terms of the density of ocean observing activities taking place.

Current ocean observation activities based at Hatfield and Oregon State University include fisheries and habitat mapping, analysis of plant growth and chlorophyll levels, air and sea temperature, oxygen and nitrogen levels, salinity, sea floor heights and bathymetry mapping, sea surface heights, winds, currents, etc. Newport and Corvallis-based researchers are collecting this information with ocean research vessels (ships) and other smaller boats, satellites, high-frequency radar, autonomous gliders, buoys, and cable.

Local identification of ocean observing as an economic development strategy will re-enforce Newport's role as a leader in the ocean observing / marine research industry. The community should position itself as a committed supporter, educator, provider of infrastructure, and developer of an economy based on these activities. We are building new ways of understanding and managing marine environments – and moving our economy toward sustainability.

Effective Leverage

The ocean observing industry has a wide array of stakeholders, and ultimately users of the information products generated. NANOOS, the Northwest's regional ocean observing association, is charged by NOAA, its primary funder, to provide support for many different uses:

1) Improve predictions of climate change and its socio-economic consequences;
2) improve the safety and efficiency of marine operations;
3) more effectively mitigate the effects of natural hazards;
4) improve national and homeland security;
5) reduce public health risks;
6) more effectively protect and restore healthy marine ecosystems; and
7) enable ecosystem-based management of natural resources.

The Ocean Observing Initiative (OOI), the collaboration that is supporting the OSU-operated coastal observatory, has similar mandates.

Newport has staked out a role as the primary research and fishing port on the Pacific Northwest Coast. While other locations, both in Puget Sound and along the coast, have components of ocean-related activities, Newport is the major coastal crossroads of marine research, fishing and seafood, and deep water port facilities. Investment in ocean observing efforts in Newport creates natural leverage between pre-existing research assets, infrastructure assets, and key users of the research products. A successful ocean observing system must supply users with relevant and timely information. Among all potential Northwest locations for ocean observing activities, only Newport delivers this scale of leverage opportunity for ocean observing investment.

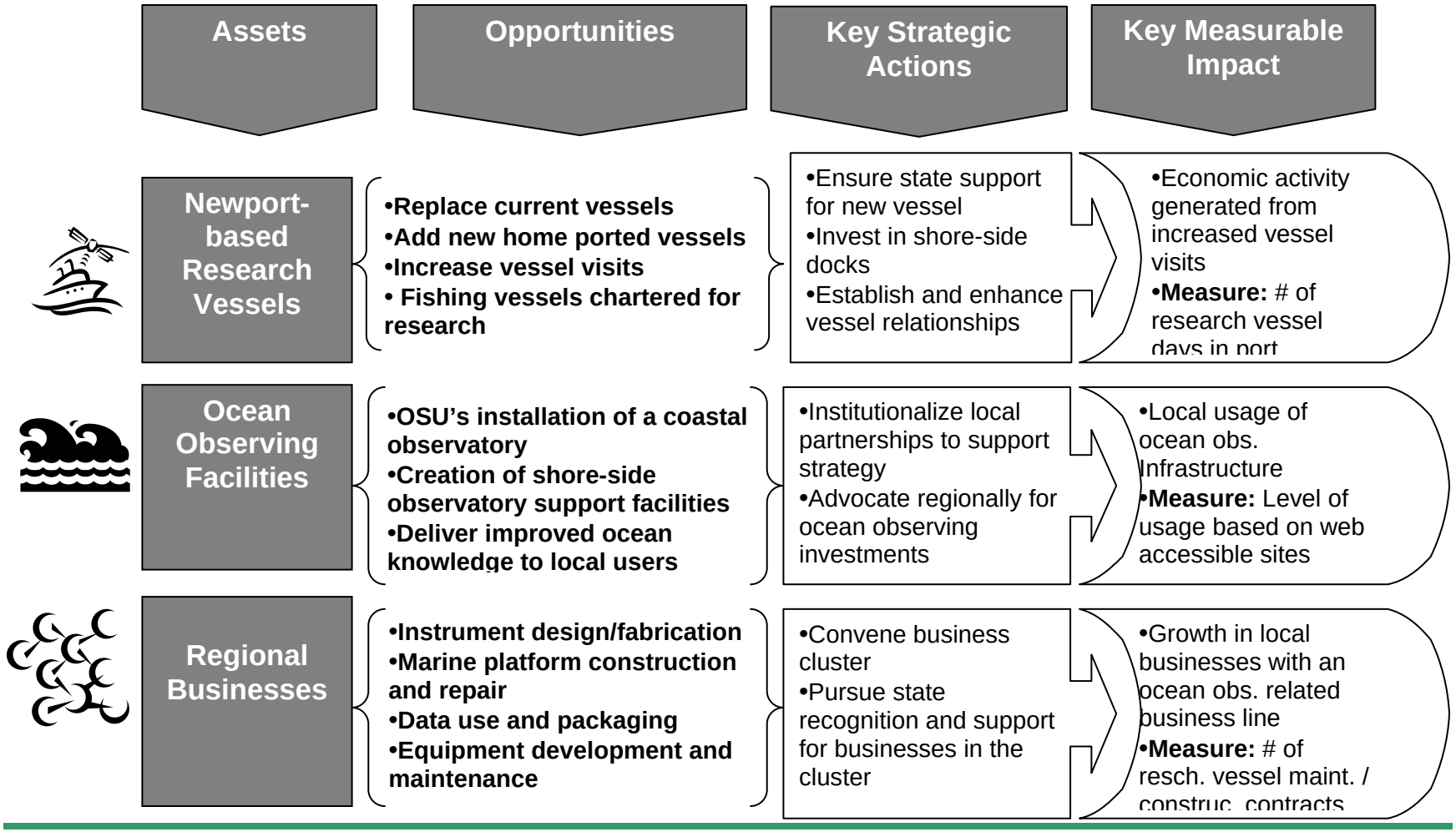
Vision

The long-term vision for ocean observing in Newport is based on the following elements:

- Newport serves as the leading US coastal location for ocean observing activity north of Monterey, CA.
- Ocean observing activities create stable, high wage employment and stimulate central Lincoln County's working waterfronts.
- Information created through ocean observing contributes to knowledge-based ocean management and long-term access to fish and marine resources.
- Newport serves as a Pacific Northwest leader in advocating for increased ocean observing investment and activity that benefits all coastal communities.

Ocean Observing Roadmap

This "roadmap" is a summary of the steps for developing an ocean observing industry and some of the specific actions the community can take to move forward. This chart, combined with the short and long-term Strategic Actions tables provide a full outline of the opportunity.



Assets, Opportunities and Desired Impacts

Although the universe of ocean observing is deeply complex and global in scale, the short and mid-range opportunities for Newport boil down to three key classes of assets:

- Newport-based research vessels
- Ocean observing facilities
- Local and regional businesses

Through a framework based on communication, community collaboration, advocacy and leadership, the communities of Newport and Central Lincoln County will seek to create opportunity for each of these asset classes.

Newport-based Research Vessels

Newport is currently home to two research vessels, the R/V Wecoma, and the R/V Elakha, both operated by OSU. The Wecoma is a UNOLS (University-National Oceanographic Laboratory System) vessel that in addition to serving the Oregon University System, provides service to multiple researchers from around the world. The Elahka is a small, "day boat" that serves as a research platform for nearshore and estuarine work.

- The Wecoma has five years of functional life remaining
- There are new research vessels on the horizon via a competitive process
- OSU operates a marine dock and "yard" that has capacity to serve additional vessels

Opportunities

Replacing the Wecoma and expanding Newport's research vessel fleet is the most immediate opportunity to enhance Newport's Ocean Observing Cluster.

- Replace current vessels: Within the next 6 to 18 months, the U.S. Navy will put out a formal request for proposals from educational institutions seeking to be the operator of the vessel, potentially replacing the R/V Wecoma. OSU and Newport are not guaranteed to be the operator and homeport for the new vessel.
- Add new home ported vessels: Within the next 6 to 12 months NOAA will choose a homeport location for the FSV Bell M. Shimada (see glossary). Additionally, the Port of Newport is in discussions with NOAA regarding the possible relocation of NOAA's Marine Operations Center – Pacific, currently located on Lake Union (Seattle) to another Northwest location, potentially Newport.
- Increase vessel visits: Newport serves as the ideal geographic location for vessels conducting research on the Pacific Northwest coast. A collaborative effort between the key partners (Port of Newport, OSU – COAS (College of Oceanic and Atmospheric Sciences), HMSC) may be successful in generating additional vessel visits each year.

- Increase vessel charters: As ocean observing activities increase, Newport's fishing fleet serves as a cost-effective means of conducting research at sea, complementing limited research vessel time.

Actions

- Ensure state support for new vessel: This will be a key component of a successful proposal from OSU for the Wecoma's replacement vessel. OSU – COAS will take the lead on communicating this need to state government leaders. Newport and other local, Lincoln County partners must be active in communicating the local economic value of the R/V Wecoma and similar vessels, and must advocate for state support.
- Invest in shore-side docks: The marine dock and yard operated by OSU on the south shore of Yaquina Bay currently has capacity to absorb the homeporting needs of the Wecoma (or her replacement), the Elakha, and a third, potentially a NOAA vessel. Similarly, the Port of Newport terminal facility on the east side of the Bay will be a consistent source of moorage for visiting research vessels. A key action item here needs to be local coordination on long-term research vessel moorage needs. A "sub-team" of the Ocean Observing Coordinating Team should develop a list of key shoreside improvements that will support research vessels over the longer term.
- Establish and enhance vessel relationships: Establish a "vessel relations team" with broad representation from the community. This team should serve as ambassadors from the community to homeported vessels and visiting vessels. The long-term goal is to re-enforce the signal that Newport is "open for business" and highly welcoming and supportive of the research vessel community.

Desired Impacts and Measurement

The key economic opportunity is increasing the number of days in port by research vessels, either as a homeport or a visiting port. Port days = local business. A short-term action that the Ocean Observing Coordinating Team may want to take on is developing data on local and regional economic activity generated from vessel visits.

- Investment in large vessel marine moorage (dollars generated)
- Number of research vessel days in port (number of days)

Timing

The Ocean Observing Team should consider immediate action regarding State support for the Wecoma. The 2009 Oregon Legislative session will be the key forum to make the case for state support for the Wecoma's replacement. Conversations between the Team, OSU and local legislators should begin immediately.

Ocean Observing Facilities

This class of assets covers a broad category of locally-based facilities that support ocean observing work. For the sake of this Framework, locally-based is defined as Newport,

Central Lincoln County and Corvallis. However, most of the assets, opportunities and impacts referenced here focus on Newport.

- HMSC will be the centerpiece of an Ocean Observing Industry Cluster. As an ocean observing facility, HMSC can provide physical space, intellectual capital, and the long-term vision to drive this strategy forward. HMSC has assessed and designated campus areas that can support new facility construction. The campus has directly adjacent marine moorage facilities that can service additional research vessel visits. Perhaps most importantly, HMSC is the most visible and accessible local source of ocean observation information. Future development of ocean observing information for use by local industries and communities will be largely channeled through HMSC staff and programs. (See Appendix C: "Stakeholder Meeting Summary" for more details)
- Another key class of facilities assets is the port facilities provided by the Port of Newport and the Port of Toledo. Together, these local government entities are the primary supporters of efforts to maintain and upgrade the navigable waters of Yaquina Bay, Yaquina River, and to maintain an open bar. The Port of Newport provides temporary and permanent marine moorage, shore-side loading and off-loading facilities, and manages multiple sites usable for ocean observing storage, maintenance and office-based activities. The Port of Toledo supports a healthy marine repair and construction business cluster that services fishing, shipping and research vessels.
- In-Ocean Observation Platforms: This is a simple way of categorizing the broad array of ocean-based, non-vessel platforms designed to capture and record ocean conditions. These include buoys, cabled observatories, and autonomous "gliders." Buoys and gliders are already in operation in the waters near Newport. These "platforms" (to date primarily the buoys) are delivering heavily-used data on real time ocean conditions. These facilities are also to some extent relying on Newport-based facilities for placement, repair and data collection. They represent the first wave of a growing system of networked ocean observing stations in the region.

Opportunities

- OSU's installation of coastal observatory: While this project has been funded by the National Science Foundation, actual operation of the observatory is five years away. In the intervening period the project will need to work with other ocean users on specific locations of moorings. A related cabled observatory led by the University of Washington will need to gain consensus with the Oregon Fisherman's Cable Commission on siting. Further, both projects may require advocacy from the community level to assure that the Federal government provides adequate, long-term support for operation and maintenance. (See Bob Collier's talk in Appendix C for more detail on cabled observatory systems).
- Creation of shore-side support facilities: The coastal observatories represent a major investment in ocean observing for the Northwest. It will raise the profile of HMSC and Newport as an increasingly important service center for the industry. The observatory as well as other federal and state ocean observing efforts will over time

need shore-side facility expansion. Cabled observatory and wave energy research that use buoys will require covered space with high draft. These growing OSU programs will need additional office and research space, likely on the HMSC campus. The growth in NOAA's programs, and the potential for a new NOAA vessel, FSV Bell M. Shimada to be homeported in Newport will create an increased need for NOAA shore-side facilities development: COAS Marine dock expansion and a large storage facility near marine access will be needed.

- Delivery of improved ocean knowledge to local users: This is probably the most under-developed ocean observing opportunity for Newport, but it could likely be the most beneficial in the longer term. Implementation of ocean observing facilities and increasing vessel activity will over time exponentially increase the amount of information available regarding the Northwest's near-shore and off-shore marine environments. As a community that is heavily dependent on the Pacific Ocean, from fishing and seafood to tourism and recreational beach use, Newport has the opportunity to lead all coastal communities in ensuring that ocean observing information is delivered, and is useful to coastal communities.

Actions

- Institutionalize local partnerships through an Ocean Observing Coordinating Team: There are multiple groups in Newport and the central coast that work with ocean observing issues. To support strategy and set the stage for the community to gain the full benefits of the system, an Ocean Observing Coordinating Team will need to maintain and enhance relationships with existing and potential user groups. Relationships with municipalities (natural hazard concerns), fishing interests (access to fishing grounds), wave energy interests (ocean surface conditions), conservation groups (marine reserves) can all be used to inform a "coastal communities research agenda."
- Establish a coastal communities research agenda: Working through the Ocean Observing Coordinating Team, establish a research agenda to inform ocean observing practitioners, starting with Central Lincoln County and moving up and down the coast over time. This agenda should be crafted in language that is understandable to communities, and to start, should be all inclusive (i.e. refrain from a prioritization process that would pit user groups against one another in competition for resources). Initially, this effort is intended to get as many options on the table as possible to bolster the case to federal and state governments that the need and demand for certain kinds of ocean observing information is strong, and that more resources for these efforts is imperative.
- Advocate through NANOOS for regional ocean observing investments: NANOOS (see glossary) is currently the key channel for Northwest communities to advocate for enhanced investment in ocean observing. While the group is well populated with researchers, it lacks strong representation from a community and economic development perspective. Newport and Central Lincoln County should fill that role, and take the lead for all coastal communities that have a stake in enhanced ocean observing information.

- Support WET Labs' private investment: Philomath-based instrumentation manufacturer (see glossary) continues to make investments in Newport to demonstrate the utility of ocean observing technology. This company's contribution to this strategy should be recognized and to whatever possible extent, enhanced through local community support.

Desired Impacts and Measurement

Local usage of ocean observing infrastructure will be the key measure of the success of this industry cluster over the long-term

- Investment in HMSC facilities ($)
- Level of usage of ocean observing data based on web-accessible sites

Regional Businesses

The emergence of an Ocean Observing Industry Cluster has the potential to drive increased business activity for a several specific sub-sets of regional businesses: marine-related maintenance and construction, equipment manufacturing, fishing vessels, and data processing and research.

Increased opportunity for businesses will most likely come in two stages:

- The first stage of business activity will be driven by growth in investment and infrastructure build-out related increased research vessel traffic and the development of additional ocean observing facilities. This stage will be characterized by increased opportunity for marine maintenance and repair businesses, marine construction businesses and general construction businesses. There will be initial small spikes in construction activity related to some expansion of shore-side vessel facilities, and shore-side preparation for eventual ocean deployment of ocean observing equipment. Long-term activity will be fueled by on-going contracts and sales in the areas of:
    - Marine supply
    - Marine maintenance, repair and construction
    - Machine shops
    - Oceanographic monitoring equipment
    - Marine "platform" charters (small boats)
- The second stage of business activity is based on the expectation that the increased information on ocean conditions flowing from new facilities and vessel activities will deliver the "raw materials" for business innovations specializing in data packaging and interpretation. These businesses are not necessarily location specific. Data resources are easy to transfer, and interpretation and packaging of information could be done in many locations. There are limited models on which to base the prediction

that "data-based" businesses will emerge, and emerge in Newport, however, deliberate acknowledgement by the local community of the emerging business opportunities related to the new data streams may help increase the interest of data-based businesses in locating in the area.

Opportunities

- Instrument design and fabrication: Both research vessels and ocean observing facilities test and deploy custom-made ocean observing instruments. In general, design and fabrication of this equipment is highly specialized. One of the current leaders in the field of instrument design and fabrication is WET Labs, a growing, 40-employee business in Philomath. WET Labs currently maintains a demonstration facility in Newport. While WET Labs is an interesting model of a private business built to service the ocean observing industry, the intent of this strategy should not be to deliberately "lure" WET Labs or similar existing business to Newport. Rather, the opportunity for the community is to be aware of the emerging demands of ocean observing activities, and track how the demands for business services and equipment are being met.

  WET Labs designs and produces specific lines of equipment for ocean observing, however, many research efforts are conducted using custom-made, one-of-a-kind equipment. In service to Hatfield-based researchers, Newport and Toledo based machine shops have developed new, specialized parts to build this equipment.

- "Marine platform" construction and repair: The Port of Toledo has a long-history providing construction and repair services to small fishing and research vessels. The deployment of a coastal observatory system off the coast of Lincoln County will require frequent use of small, "day" vessels. Additional marine building and repair contracts should become part of business as usual for Yaquina Boat Works and Wahl Marine.

- Equipment maintenance: Different from design and fabrication, frequent equipment maintenance will be needed for both the coastal observatory systems (buoys, sensors) as well as vessel-based operations and research equipment. Equipment will require regular maintenance (often retrieved by local boats) as well as "emergency" maintenance related to storm damage.

- Generation and relocation of businesses built on new data/information: Indications for the long-term are that quality data about ocean conditions will play a vital role in informing policy and businesses decisions with regard to climate change.

Actions

- Convene business cluster representative group: The State of Oregon defines clusters as groups of companies that interact based on systemic relationships among firms and organizations in a region. These relationships are based on common or complementary products, production processes, core technologies, natural resource requirements, skill requirements and/or distribution channels. Clusters are geographically bound and defined by transportation systems, and are linked to the social and cultural values of their communities.

The Economic Development Alliance of Lincoln County has long sought to enhance the County's marine industries cluster. This approach to developing an Ocean Observing Industry Cluster for Newport should appropriately be seen as a "sub-cluster" for the community's long-standing effort to strengthen marine related activities.

Initially an ocean observing cluster should serve as a forum to discuss innovation and opportunity related to new research vessels and new ocean observing facilities. Businesses, non-profit organizations and government agencies should convene together with a focus on articulating emerging business opportunities related to growth in ocean observing activities.

- Pursue state recognition and support for businesses in the cluster: The State of Oregon provides on-going support for industry clusters through the Oregon Economic and Community Development Department (OECDD). Following an initial convening of the Ocean Observing Industry Cluster (in cooperation with the Economic Development Alliance of Lincoln County), the Cluster should engage OECDD in a conversation about how they can work together to support business development around ocean observing. Ultimately, OECDD should be asked to target specific business retention and expansion resources for private businesses that are working in the ocean observing industry.

Desired Impacts and Measurement

- Number of patents on marine research equipment for companies working with Newport facilities
- Number and value of research vessel repair/construction contracts
- Number of fishing vessels with research contracts
- Growth in local businesses with ocean observing related business lines
- Annual State business assistance resources available for businesses in the Ocean Observing Industry Cluster

Strategic Principals

The following actions are organized under four strategic principals, communication, collaboration, advocacy and leadership.

Communication

Develop clarity and shared understanding on key opportunities. Clearly communicate opportunities in a way that puts ocean observing at the forefront of Newport's economic development. Opportunity: new information will support informed community dialogue about marine issues.

Collaboration

Build formal engagements between community partners to support and advance the strategy, working with regional partners to lead as a region and state in this industry. Opportunity: Assign lead and supporting roles for different organizations in the community. Commit to a structure for collaboration. Build on existing strategies.

Advocacy

Stay in front on these opportunities from a regional perspective. Opportunity: The local community delivers messaging requesting support from key players and at the state and federal levels.

Leadership

Stake out a role as a Northwest leader in creating ocean observing opportunities.

Near-term Strategies (6 – 18 Months)

Actions	Outcomes	Impacts
Communication: Develop a Strategic Vision and Plan	A plan that describes a vision of opportunity and has community buy-in	Local, regional, national acknowledgment that Newport is pursing this strategy
Collaboration: Develop an MOU for key partners (E.g. HMSC, Lincoln Co., Ports, FINE, COAS, State)	Clear roles for key partners from different sectors	Functional, accountable alliances
Advocacy: Pursue state support for research vessels	Coastal community support for OSU's effort to secure a replacement for the R/V Wecoma	Unified, "grassroots" support as part of a coastal economic development marine sub-cluster

Leadership: Begin conversations with regional ocean observing collaborative (NANOOS)	Community engagement with NANOOS – beyond researchers – to deliver knowledge for community users	Newport as identified leader of coastal communities in developing ocean observing industry

Long-term Strategies (2 – 5 Years)

Actions	Outcomes	Impacts
Communication: Articulate a shared vision by coastal communities of priority research needs	Regional discussions on key ocean research priorities from the perspective of coastal communities	Stage set for regional collaboration.
Collaboration: Formalize regional relationships with other coastal communities and researchers	A platform to advocate for increased federal resource for HMSC, COAS, NANOOS and others	Net gain in ocean observing investment in the Pacific Northwest
Advocacy: Provide community-based leadership for interactions with State, NOAA and other potential investors in Newport	A cohesive community voice in advocating for Ocean Observing as an economic development cluster in Newport	Increased financial support for Ocean observing infrastructure and related businesses in Lincoln County
Leadership: Insert Ocean Observing strategy/cluster into long-term regional economic development strategies	Visibility of Ocean Observing as economic development is elevated	Solidifies perspective that Newport/Lincoln County is the leader in this arena

Recommended Team

Successful implementation of this Framework will require the creation of a collaborative approach that engages partner organizations from within the immediate community as well as the region. An Ocean Observing Coordinating Team will be developed to coordinate partnerships and drive the mid and long term goals outlined in this Framework.

Suggested Coordinating Team Partners

- Oregon State University Hatfield Marine Science Center
- Oregon State University Coastal Marine Experiment Station
- Oregon State University College of Oceanic and Atmospheric Sciences
- National Oceanographic and Atmospheric Agency (NOAA)
- Port of Newport
- Port of Toledo
- Economic Development Alliance of Lincoln County
- Marine Business Community
- Fishing and Seafood Industry
- City of Newport

The organizational partnerships that make up the Coordinating Team, and the charges of other support teams, should be formalized in a memorandum of understanding between partners.

Additionally, the Coordinating Team may want to consider a series of standing committees that are charged with engaging the following areas:

- Vessel Moorage
- HMSC Facilities
- Research vessel relations (ambassadors)
- Ocean Observing Business Cluster
- Ocean observing data usage

Risk Management

Risk

- Closely linking ocean observing opportunities that have broad support with more contentious issues, specifically wave energy and marine reserves.

Mitigation

- Ocean observing activities provide vast amounts of raw data on ocean conditions. This data is available for multiple uses, and by multiple interests. The availability of additional information on ocean conditions should be considered a positive addition to any conversation about potential uses and/or zoning of ocean areas.

Risk

- Putting too many "items" on the list and diluting focus and support of a Coordinating Team.

Mitigation

- The Strategic Principals section of this Framework suggests some definite initial steps in building an ocean observing cluster for the region. The recruitment of new research vessels to Newport is a short-term, time-sensitive issue. Additional short-term focus should be spent on structuring the Coordinating Team and establishing "rules of engagement" through a formal MOU between partner organizations.

Risk

- Building a strategy that is too interdependent, e.g. the loss of a vessel homeport results in reduced chances for other ocean observing opportunities.

Mitigation

- The relocation of the NOAA Marine Operations Center, Pacific is not a major component of creating a successful Ocean Observing Industry Cluster in Lincoln County. The strategy described in this Framework does not require a substantial NOAA presence to achieve to desired impacts. However, if NOAA selects Newport as a new site for the Operations Center, it will enhance the strength of the cluster.

Risk

- Inability to adequately articulate the opportunity in order to gain local and state support (i.e. too confusing).

Mitigation

- This Framework delivers a concise, big picture description of the opportunities related to ocean observing and the initial steps forward. The Coordinating Team should re-enforce that this is a long-term economic development opportunity and

will need to choose issues to address on way that is sensitive to the pace the community can understand and absorb them.

Budget

Immediate budget needs for this strategy will be limited. Coordinating Team organizations will need to commit the time of participating team members (e.g. HMSC Director, Port of Newport Manager). Time commitments will vary, but team members should expect to provide three hours per month of time on average.

Additional monetary costs for this project could not be predicted at the time this strategy was finalized. The following are items that could require local community and/or regional, state or federal expenditures. The items are organized in a rough chronological sequence, with a relative indication of estimated costs.

- Production of media and educational materials based on this strategy ($)
- Travel for State and federal advocacy efforts related to the recruitment of new research vessels to Central Lincoln County. ($)
- Hosting events to update community and regional leaders on the progress of the strategy ($)
- Business expansion investments in ocean observing related businesses ($$$)
- Infrastructure investments in research vessel docking facilities and shore-side storage facilities ($$$$$$)
- Infrastructure investments in the HMSC campus for ocean observing facilities ($$$$$$)

Appendix A: Terms Glossary

COAS (College of Oceanographic and Atmospheric Sciences): Department of Oregon State University, providing expertise in instrumentation, systems modeling, field experiments, and theory. Researchers from the College continue to receive national and international recognition for its leadership in scientific research on coastal and ocean systems. Their work includes the deployment of autonomous gliders, buoys, and underwater cable to collect data that help to increase understanding of marine resources and inform management decisions.

COMES (Coastal Oregon Marine Experiment Station): Program of Oregon State University directed with the completion of interdisciplinary and cooperative research designed to better understand and manage marine resources and coastal ecosystems for economic, environmental, and social benefits at the state, regional, national, and global levels. COMES is made up of OSU faculty, staff, and students and has offices at HMSC in Newport and the Seafood Lab in Astoria.

FSV Bell M. Shimada: Fisheries survey vessel currently under construction, to be owned and operated by NOAA to complete fisheries and oceanographic research on the West Coast.

HMSC (Hatfield Marine Science Center): Research Institution, based in Newport, Oregon and affiliated with Oregon State University. 120 Employees of OSU, 180 Federal and State Agency employees with an annual total budget of approximately $40 million.

NANOOS (Northwest Association of Networked Ocean Observing Systems): Regional Association (RA) designated at the national level to oversee and ensure funding for regional research priorities for the Northwest (incl. Northern California, Oregon, Washington, and BC).

NOAA Homeport: Refers to the permanent assignment of a NOAA vessel to a port. This designation is attractive to port districts due to funding allocations for infrastructure improvements necessary for the homeport that can provide additional benefits for the district (e.g. dredging for large ship activity benefiting recreational and commercial fishing interests). Newport is one of several west coast ports (Coos Bay, Astoria, and Seattle are others) that areis being considered for NOAA research vessel homeporting.

OFCC (Oregon Fishermen's Cable Committee) : An association formed to represent the interests of Oregon trawl fishermen in their cooperative agreements with fiber-optic cable companies to maintain fishing grounds and ocean-related research through underwater cabled observatories.

OOI (Ocean Observing Initiative): A system of technology platforms developed by the National Science Foundation (NSF) that is an integral component of the Integrated Ocean Observing System (IOOS), a national framework organizing ocean observing infrastructure and data management, and providing information into global networks, Global Ocean Observing System (GOOS) and Global Earth Observing System of Systems (GEOSS). This technology platform includes continuous and real-time data collected from underwater cable, buoys, moorings, and the like.

R/V Elakha: A 54-foot research vessel, powered by a 600-horsepower diesel engine. Its range is 575 miles, and its maximum endurance is 72 hours. Scientific capabilities include a 2,000- pound-capacity A-frame and winch, and a flow-through water sampling system. The boat has a small laboratory area, berthing for four, and a galley. The R/V ELAKHA is operated and maintained by COAS.

R/V Wecoma: Research vessel owned by National Science Foundation and operated by OSU under a cooperative agreement to complete ocean realated research. This ship is homeported at the Port of Newport.

Scripps: Refers to Scripps Institution of Oceanography, based in La Jolla, California (San Diego), an internationally recognized research institution and part of the University of California system that develops oceanographic theory, conducts applied ocean research, provides leadership in

data management and analysis, and serves the science community and general public through innovation and education.

UNOLS (University-National Oceanographic Laboratory System): An organization made up of 61 academic institutions formed to coordinate the use of vessels and facilities for the purpose of completing ocean-related research.

West Coast Governors Agreement on Ocean Health: A tri-state cooperative agreement between California, Oregon, and Washington aimed at the protection of management of coastal and ocean resources (with reference to pollution prevention, habitat protection, ecosystem-based management, research, economic development, and education), as recommended by the U.S. Commission on Ocean Policy, and PEW Oceans Commission.

WET Labs: Technology and instrumentation design and fabrication company specializing in marine research tools. This small business, based in Philomath, Oregon employs 40 FTEs and its product are sold in local and global markets. They represent private industry investment and small business development interests in this economic development strategy.

Woods Hole: Refers to Woods Hole Oceanographic Institute based in Woods Hole, Massachusetts (Cape Cod), an internationally renowned institution and leader in fundamental and applied research engineering, and education related to oceanographic and earth systems.

Appendix B: Talking Points

This appendix highlights key contextual pieces of this opportunity for Newport. These items could be considered "talking points" to describe the context of this opportunity during future interactions with the local community, policy makers and legislators, and funders.

Policy and investment

In 2004, the Federal U.S. Commission on Ocean Policy fulfilled its mandate to submit recommendations for a coordinated and comprehensive national ocean policy to the President and Congress. The Commission's final report, "An Ocean Blueprint for the 21st Century," contains 212 recommendations addressing all aspects of ocean and coastal policy.

This report was national in scope and explored the broad spectrum of ocean uses, management approaches and research activities. It spoke specifically to the need to develop a much more robust system of ocean observing infrastructure.

> *"The Commission envisions a time when the importance of reliable data and sound science is widely recognized and strong support is provided for physical, biological, social, and economic research, as well as ocean exploration. The nation invests in the needed scientific tools and technologies, including ample, well-equipped surface and underwater research vessels, reliable, sustained satellites, state-of-the-art computing facilities, and innovative sensors that can withstand harsh ocean conditions. A widespread network of observing and monitoring stations provides a steady stream of data, and scientific findings are translated into practical information and products for decision makers, vessel operators, educators, and the public"*[1]

Subsequent Federal investment provided unprecedented support for new ocean observing technology. In 2007 the Federal National Science Foundation awarded $331.5 million to the Consortium for Ocean Leadership. Oregon State University, a member of the Consortium, was awarded over $20 million of the grant to develop a coastal ocean observatory off of Newport.

In March 2008 the U.S. House of Representatives passed the National Integrated Coastal and Ocean Observing Act of 2007. The Act would create an integrated ocean observing system (IOOS) that will monitor and forecast ocean conditions, including the physical, biological and chemical components of coastal waters. The Act would also increase understanding of complex deep ocean and coastal environments and promote the dissemination of information to local policymakers and the public.

[1] An Ocean Blueprint for the 21st Century Final Report of the U.S. Commission on Ocean Policy, 2004 Executive Summary

National and Regional Need

Nationally and locally in Oregon, ocean users and managers are at a critical, historical point in the need to understand oceans and climate. According to the U.S. Commission on Ocean Policy report, in 2000 ocean-related activities directly contributed more than $117 billion to the U.S. economy and supported well over two million jobs. The commercial fishing industry's total annual value exceeded $28 billion, with the recreational saltwater fishing industry valued at around $20 billion.

In Oregon, seafood harvesting and processing interests, the wave energy industry, conservation and research and recreational activities are all poised to demand long-term access to ocean resources. All of these interests will benefit from a coherent ocean management system based on the best science available. Increasing investment in ocean observing on Oregon's coast will deliver both improved information to ocean managers and users, and create an important local industry. Ocean observing activities can address all of the following:

- Natural disaster mitigation
- Need for increased scientific data and knowledge related to ocean conditions
- Addressing changing coastal economies by creating new economic activity. Current coastal economies are increasingly depending on the tourism and "transfer payment" industries. Average coastal county wage in 1976 = $36,000, average wage in 2004 = $27,000. Transfer payments up 80%.
- Navigating increasing competition for ocean resources and access (e.g. fisheries access, wave energy parks, marine reserves, liquid natural gas). 2008 Salmon closure: National Marine Fisheries Service claims that "ocean conditions" are the "likely culprit" for the collapse
- Positioning Newport in a network of Oregon coastal communities that are are staking out new economic development turf (Coos Bay: Major international shipping terminal, Astoria: Downtown renaissance, cultural tourism)

Economic Opportunity

Since 2000, several federally sponsored studies have determined that investment in, and long-term commitment to; ocean observing can create substantial economic benefits. A study on the Port of Tampa Bay determined that access to improved information derived from ocean observing activities could result in $4.4 million to $7 million in annual economic benefits, mainly related to channel usage and recreational activities.[2]

There are no studies assessing the economic benefits of enhanced ocean observing activities off the Oregon coast. However the 2008 context that includes increasingly tight fisheries regulations as well as discussions over implementing marine reserves and wave

[2] Estimating Economic Benefits from NOAA PORTS® Information: A Case Study of Tampa Bay, TAMPA BAY HARBOR SAFETY & SECURITY COMMITTEE

energy parks, speaks to an increasing need for accurate and timely information on ocean conditions.

Locally, the Oregon coast represents the leading edge in efforts to craft a coherent and fair approach to ocean usage. The current conversation about ocean use includes a rich mix of fishing interests, local communities, wave energy developers, conservationists and researchers. Current activities, both local and examples from other regions, suggest that the community is well positioned to pursue an ocean observing economic development strategy.

- The $54 million Kilo Moana generates $20-25 million a year in economic activity for Honolulu
- Local community investment in working waterfronts is in place at the Port of Newport and the Port of Toledo. These resources are backed by strong local support for improving Port facilities (recent Port of Newport bond measure)
- An emerging regional framework for building a community-based near-shore ocean research agenda
- NANOOS in place, but in need of interaction with coastal community stakeholders
- Locally there are strong community partners with HMSC and OSU

Case Study - GOMOOS

The Gulf of Maine Ocean Observing System (GOMOOS) http://www.gomoos.org/ is one of the best examples of a regional ocean observing system that delivers significant value to local users. GOMOOS serves as both a source of primary information on regional ocean conditions, as well as an organizing hub for regional efforts to improve access to ocean observing information. GOMOOS offers a very user friendly website that directs visitors to current ocean condition data. It also offers links to a variety of regional ocean observing partners, both public and private. GOMOOS is a non-profit, member-based organization. Members range from port districts, to the Massachusetts Lobsterman's Association to the New England Aquarium. All members pay an annual membership fee.

GOMOOS is an example of a regional, non-profit collaboration that has successfully created a link between marine researchers and daily users of the ocean. To date, it has also successfully managed to fund a dedicated staff for the organization. Moving forward, this Framework recommends that Newport

Testimonial supporting the Gulf of Maine Ocean Observing System:
"I have completed this survey for my husband, a lobsterman. He learned how to use the computer and go online so that he could check the weather and buoy information provided by GoMOOS. Now, when he gets up at 4 am, he fixes a cup of tea and sits down at the computer to check GoMOOS to find out whether it's a fishing day and what the conditions will be like. "
-Fisherman's Wife

build relationships and partnerships with the broader Pacific Northwest ocean observing community. GOMOOS may serve as a helpful example when Newport attempts to build a relationship with NANOOS.

Case Study – Kilo Moana

The R/V Kilo Moana is a Navy-constructed, UNOLS research vessel, operated by the University of Hawaii's School of Oceanic and Earth Science and Technology (SOEST). The $54 million Kilo Moana was stationed in Honolulu in 2002. As of the writing of this Framework it is the most recent research vessel to be located in the eastern Pacific.

SOEST and the State of Hawaii provide $750,000 per year in support for the Kilo Moana's annual operating budget. The Federal government provides the University with an additional $7.5 million to cover the balance of the vessel's core operating costs. The ship carries a crew of 20 and can support up to 28 researchers. Research efforts conducted on the vessel bring in $7 – $8 million each year. The Hawaii Business Journal estimates that the ship generates $20 - $25 million in economic activity for the state each year.

It is likely that the siting process used for the Kilo Moana, as well as the cost sharing arrangement between the University of Hawaii and the Federal government, will be very similar to the process used to replace the Newport-based R/V Wecoma. While there is no guarantee that the Wecoma's replacement will land in Newport, the community should become familiar with the arrangement that landed the R/V Kilo Moana ship in Hawaii.

Appendix C: Stakeholder Meeting Summary

Newport Ocean Observing Economic Development Strategy
Stakeholder Meeting
Hatfield Marine Science Center, Guin Library
March 25, 2008
2:00PM – 5:00PM

Newport Ocean Observing Economic Development Strategy
Stakeholder Meeting Attendees

Newport Ocean Observing Economic Development Strategy Stakeholder Meeting Attendees		
Name	**Affiliation**	**Email**
George Boehlert	HMSC	george.boehlert@oregonstate.edu
Don Mann	Port of Newport	portman@portofnewport.com
Chris Chandler DiTorrice	Central Lincoln PUD	cditorrice@cencoast.com
Nick Pisias	COAS	pisias@coas.oregonstate.edu
Jim Seavers	Fishing Industry	jimbob@newportnet.com
Bob Warren	OECDD	Bob.D.Warren@state.or.us
Bob Collier	COAS, Professor	rcollier@cos.oregonstate.edu
Rich Holdren	Research, Associate VP	rich.holdren@oregonstate.edu
Jeff Feldner	Oregon Sea Grant, Lincoln Co. Extension	jeff.feldner@oregonstate.edu
Rob Halverson	Port of Newport, Commissioner	rhalverson@charter.net
JoAnn Barton	Port of Newport, Commissioner	jobarton@charter.net
Ginny Goblirsch	Port of Newport, Commissioner	ginny.goblirsch@gmail.com
Bud Shoemake	Port of Toledo, Port Manager	bud.shoemake@portoftoledo.org
Eric Knoder	Oregon Employment Department, Regional Economist	Erik.A.Knoder@state.or.us
Guy Faust	Small Business Development Center, Director	gfaust@occc.cc.or.us
Lorna Davis	Newport Chamber of Commerce	ld@actionnet.net
Don Andre	Friends of Yaquina Bay	
David Shellshear	Friends of Yaquina Bay	
Bill Bain	City of Newport Mayor	bill@yaquina.com
Allen O'neal	City of Newport City Manager	a.oneal@thecityofnewport.net
James Bassingthwaite	City of Newport, Community Devel. Dir.	j.bassingthwaite@thecityofnewport.net
Patricia Patrick-Joling	City of Newport City Counselor	msdolphin@charter.net
Don Lindly	Lincoln County Commissioner	dlindly@co.lincoln.or.us
Terry Thompson	Lincoln County Commissioner	tthompson@co.lincoln.or.us
Wayne Belmont	Lincoln County Legal Counsel	wbelmont@co.lincoln.or.us

Marguerite Nebeta	Governor's Office	marguerite.nabeta@state.or.us
Rick Brown	NOAA	Rick.Brown@noaa.gov
Scott McMullen	Cable Commission	smcmullen@ofcc.com
David Jincks	Mid-Water Trawlers Cooperative, Pres.	jincks@pioneer.net
Dave Wright	Pacific Shrimp Company	dwright@pacseafood.com
Fran Recht	Oregon Shores, Pacific States Marine Fisheries Commission Habitat Eduaction Program	franrecht@centurytel.net
Paul Englemeyer	Audubon	tmnas@harborside.com
Fred Postlewait	Oregon Coast Bank	fred@oregoncoastbank.com
David Green	West Coast Bank	greend@wcb.com
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Adam Zimmerman	SBEC	azimmerman@sbpac.com
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Maggie Kirby	SBEC	mkirby@sbpac.com
Caroline Bauman	Economic Devel. Alliance of Lincoln County	ecdev@orcoast.com
John Lavrakas	GPS technology consultant	lavrakas@rmi.net

Project Summary: George Boehlert, HMSC

George gave a brief introduction on what ocean observing is, but referred the audience to the summary information that was provided to them by mail, and to the presentation by Bob Collier, to follow. He discussed the fact that significant investments are being made by governmental agencies for infrastructure and observation platforms (e.g. cabled observatories, large research vessels) and indicated that while Newport will not play a role in laying cable or building large ships, certain sectors in the community will be utilized in the maintenance of such platforms, and manufacturing smaller components included in an ocean observing system. He said that there is an opportunity for Newport to build part of its economy around these activities, beyond what is already being done.

He discussed the Yaquina Bay Economic Foundation's (YBEF) role in this project—that this strategy is its first actionable project, having previously been involved in principally supporting the efforts of others and fostering communication. He explained that matching funds for this project are from YBEF, Oregon State University (OSU) and the Port of Newport; the majority of funding came from Lincoln County economic development funds. The funds were used in part to hire ShoreBank Enterprise Cascadia (SBEC) as a consultant in leading the planning process.

He said that this project is unique in that no other community is attempting to build a strategy to recruit ocean observing activities and resources, and so there are no clear models for how to attract them. He said that these activities are centralized in Woods Hole, Massachusetts for the northeast, Miami, Florida in the southeast, La Jolla/San Diego, California for the southwest, and that the northwest hub for these activities will become focused only in Seattle, Washington (where some of these already occur) if Newport does not attempt to attract them. George discussed the logical arguments for why Newport is ideal -- its geography, located only 2 miles from the ocean is an advantage over the long navigation through the Puget Sound from Seattle; that it offers assets from the science community from OSU, HMSC, and other affiliated governmental

agencies (NOAA, ODFW, etc.); and that it has a fishing fleet that has engaged in cooperative research projects with scientists in agencies and universities, including the Coastal Oregon Marine Experiment Station (COMES) through Project CROOS and others.

George referred to the goals of the meeting:

- Clearly communicate the scope of the ocean observing "industry", both now and in the future;
- Share the emerging opportunities for Newport in the ocean observing "industry";
- Create recognition of Newport's assets and challenges with regard to recruiting ocean observing activities; and
- Gain further insight through group discussion.

However, he emphasized that this project is not meant to make HMSC competitive with Woods Hole, Scripps, or other research institutions. He said that the analysis of data and much of the scientific work can be done anywhere, but that this project is about building an opportunity to make investments in and service infrastructure to allow for these ocean observing activities to take place. He closed by saying that building this strategy will require partnerships and collaboration and that the audience members were invited to the meeting to build the team of individuals and organizations that will ensure the success of this economic development strategy. For more information, see the project summary (attached).

Introductions: Adam Zimmerman, SBEC

Adam briefly described the general scope of the planning process, which included research, stakeholder interviews, the convening of this stakeholders meeting through which to deliver information collected to the community and engage a working group to deliver the strategy, which will be further articulated in the development of a plan (document). He introduced the Steering Committee, which includes George Boehlert (HMSC) and Don Mann (Port of Newport), co-chairs of this project, and Chris Chandler di Torrice (Central Lincoln PUD), Nick Pisias (OSU), Jim Seavers (fishing industry), Gil Sylvia (COMES), and Bob Warren (OECDD). He introduced the SBEC consulting team, including himself, Mike Dickerson, Executive Vice President, and Maggie Kirby, Mid-South Coast Strategy Coordinator. Adam reviewed the agenda and introduced Bob Collier, to follow.

"The Big Picture:" The Future of Ocean Observing: Bob Collier, OSU College of Atmospheric and Oceanographic Sciences (COAS)

Bob explained that his presentation would cover what ocean observing is, why it is being completed, what information is being collected now and in the future, what ocean observing is from the perspective of the scientific community, but also from that of other user groups, from global to local scales, and the emerging technologies that will increase the scope and depth of ocean observing in the future.

Bob said that Newport should look at this as an opportunity to play a role in this industry, whether as a user, educator, provider of infrastructure, developer of an economy based on these activities. Bob explained that of the total national investment on ocean observing, much of this activity will happen in the Pacific Northwest because it provides an

interesting case study for the rest of the United States, from an environmental (physical) perspective (e.g. coastal upwelling caused by winds and currents from the Pacific Ocean) that have a significant impact on the ecosystem, but also in that there is already a density of ocean observing activities taking place here. He explained that ocean observations they are currently conducting include fisheries and habitat mapping, plant growth and chlorophyll levels, air and sea temperature, oxygen and nitrogen levels, salinity, sea floor heights and bathymetry mapping, sea surface heights, winds, currents, etc. He also described a variety of ways that this information is being collecting, including ocean research vessels (ships) and other smaller boats, satellites, high-frequency radar, autonomous gliders, buoys, and cable. He said that changes in the climate system that are global in scale have an impact on our local oceans. Long-term observations are needed to understand why these changes occur and to predict and better manage them. He discussed healthy ecosystems and the economic impact of those conditions; better information allows us to act to control and mitigate for damage to protect coastal economies. He said that this information also helps respond to natural hazards.

Bob explained that in order to maintain and expand ocean observing systems, continued investment in infrastructure is a necessity. He used the example of ships, which have long been and will continue to be a mainstay in ocean observing. He said that the R/V Wecoma, operated by OSU, was commissioned in 1975 with a life expectancy of approximately 35 years and that we are quickly approaching the time when it will no longer be adequate for emerging research needs. He mentioned the buoy under the OrCOOS network along with those from the NOAA National Data Buoy Center; loss of these instruments is a risk during storm events and that they need better ways to prevent loss of applications and data, and replace when and if necessary. Bob discussed underwater cable projects, VENUS and NEPTUNE, which provide real-time information, provide still images and videos of ocean conditions over time, that do not require the same high level of maintenance as data capacity is greater and there is a constant power supply, eliminating the need for batteries.

Bob explained that a significant component of this project is the provision of information to the public, as well as the larger scientific community. Through several global, national, and regional initiatives, a broader and deeper knowledge of ocean and coastal systems is available to a larger audience. He discussed the Integrated Ocean Observing System (IOOS), administered by NOAA, a framework for collecting and analyzing a broad range of ocean observing data to provide consistent and continuous information to user group, which includes regional organizations to manage applied research initiatives (e.g. NANOOS). He also discussed the Ocean Observing Initiative (OOI) and Science and Technology Center, administered by NSF, and others (see presentation for more information, attached). On upcoming research, Bob explained that continued work is critical to the research community in furthering science and information and achieving its intended societal goals. He said that the cabled observatory work is moving forward, but has been met with delays. Planning and permitting on these projects should be completed, he said, within the next few years, however.

Current and Emerging Opportunities for Newport: Adam Zimmerman, SBEC

Adam explained that his presentation would include a description of the vision and context/background for the strategy, the assets that the community has upon which to build, the actions that could/should be taken, measurable outcomes and timing for when these actions should/will be completed.

Adam summarized what ocean observing is and which applications and platforms are utilized in collecting information on coastal and ocean systems (e.g. marine vessels, buoys, cables, autonomous vehicles, high frequency radar arrays, data streams, real-time monitoring (constant), fish tracking (e.g. ProjectCROOS), habitat mapping, ships, air satellites, etc.) Adam said that the NSF and the federal government will talk about ocean observing that is valuable to them, but that Newport can talk about it in ways that are important to this community, under its own umbrella. He reiterated arguments previously made for why Newport is well situated to take on this strategy (e.g. geography, infrastructure, human capital, etc.).

He said that ocean observing is economic development and that there is an opportunity for business development and recruitment around these activities. As an example, Adam mentioned WET Labs, a small technology manufacturing firm based in Philomath, OR, and the fact that they do the work 'here,' but have customers all over the world and bring those dollars to the state and community in which they are based. He brought up boatbuilding in Toledo, an industry for which the community is known, and the work that they do in manufacturing and maintaining small boats can and is utilized to complete research on the ocean. He discussed the fact that a more formalized ocean observing economic sector will require and provide enhancements to shoreside operations at HMSC and the Port of Newport. All of these opportunities, he said, will create living wage jobs, increased publicly-owned infrastructure (which can be leased to the private sector), long-term investor commitment, a more detailed knowledge base from which to manage natural resources/ecosystems and grow businesses whose bottom lines are affected by coastal and ocean system dynamics, further diversifies the economy, and delivers a strategy that builds on Newport's, Lincoln County's, and Oregon's interest in "clean" and "sustainable" industry.

Adam explained that ocean observing is happening (with density) in San Diego and Seattle, but that between these two hubs of activity, Newport provides the leading location, for the reasons previously listed. He said that it creates stable, high-wage employment, builds on working waterfront preservation efforts, provides information that contributes to knowledge-based fisheries management and long-term access to fish, builds on social capital and collaborations and positions Newport as a leader in advocating for increased ocean observing investment and activity that benefits coastal communities.

Adam explained that this strategy is set within a context of innovation, urgency, regional change, and opportunity.

- Innovation: There is currently emerging interest and investment in ocean observing. Substantial investment is made in cabled arrays, marine platforms, etc. (e.g. R/V Kilo Moana, homeported in Honolulu generates approximately $25 million/year in total operations, and approximately $10 million is in payroll.).

- Urgency: We are at a critical point in history and need to better understand oceans and climate to address issues like global warming, dependence on fossil fuels, decreasing fishing numbers, and the like.
- Regional Change: Regional economies are changing and coastal communities need to find ways to reinvent themselves. Wave energy parks, liquefied natural gas, container shipping, and tourism are all examples of strategies that communities are using to rebuild coastal economies.
- Opportunity: Local and regional foundations are in place and form platforms for these activities to occur. Newport created a bond measure to improve port facilities, there is a regional framework in place for building community-based ocean research (NANOOS), and HMSC, OSU, and governmental agency partners bring a history of research excellence.

Adam described significant ongoing activities and existing assets in the community. Activities include in-ocean observations, research vessels, data usage, equipment development and maintenance, and assets are human and organizational, including HMSC, OSU/COAS, Ports of Newport and Toledo, and the business community. Adam explained that the R/V Wecoma will be fully depreciated in 3 years and that new vessels are being built and could be attracted to Newport. He said that Port days are equivalent to increased local business and that Newport has an interest in homeporting research vessels. He said that small businesses are conducting instrument design/fabrication, boat construction and repair, data usage and packaging. Port facilities include an open bar, a marine terminal, shipyards. HMSC has a new master plan. Newport has more capacity for build out. There are partnerships in place within the governmental agencies (USFWS, NOAA, ODFW, EPA, etc.). Potential impacts from this strategy, he said, could be HMSC facilities expansion, COAS marine dock expansion, boat building and repair contracts, development of existing and relocation of new small businesses to Newport.

Adam reviewed emerging economic development strategies around four major areas: communication, collaboration, advocacy and leadership.

- Communication: development of clarity and a shared understanding on key opportunities included the development of a strategic plan and shared vision for the community's research needs.
- Collaboration: assignment of lead and supporting roles for different organizations in the community, a commitment to a structure for formalized collaboration, and building off existing strategies included the development of MOUs with obvious key partners (HMSC, OSU, Lincoln County, Ports, State) and the creation of formalized partnerships with other coastal communities and researchers.
- Advocacy: delivery of consistent message and the making of requests of support from key players, included pursuing requesting State support for research vessels and the provision for community-based leadership around interactions with the State, Feds, and other investors.
- Leadership: positioning Newport as a leader for the Northwest in creating ocean observing opportunities, included beginning conversations with regional ocean observing collaborative (NANOOS), and the inclusion of

an ocean observing economic development or cluster strategy in long-term regional and state planning activities.

Adam explained that the timing of these activities would occur in the near-term (6-18 months), beginning with the completion of the strategy plan (document) through this project, but that others were long-term commitments that would occur in the next 2-5 years. Finally, he reviewed initial thinking on measurable outcomes to determine successes, which included financial investment in HMSC facilities and large vessel marine moorage, and number of research vessel days in port and patents on marine research equipment for companies working with Newport facilities. For more information, see presentation (attached).

Panel Presentations

Port of Newport: Don Mann

Don explained that he has been having conversations with George and others at HMSC for the last two years, when YBEF began discussing this opportunity. He continues to meet with Port Commissioners about expanding research capabilities in Newport with HMSC/OSU, has in the past several months had discussions with NOAA. He said the Port is very interested in formalized partnerships and committed to building and implementing this economic development strategy. He said that the Port is currently working on the marine terminal project, which will allow for increased capacity for research vessels. He said that there is an opportunity with the expansion of OSU and NOAA docks and facilities as well. He also said that the Port is dedicated to maintaining infrastructure and services which benefit the fishing industry, and want to ensure that their efforts are not at cross-purposes. He emphasized the importance of the replacement of the Wecoma, and improvements to NOAA facilities, partnerships with OSU, OECDD, and the like. He said that Newport has a base and the right ingredients for this strategy to be successful and that Newport should expand on what they already have and make it better.

Fishing Fleet: Scott McMullen, Oregon Fishermen's Cable Committee (OFCC)

Scott showed a map of where the cable is currently being laid and emphasized clear communication in cable routing. He said that there are lessons to be learned from the process around siting wave energy buoys and that clear and consistent information and engagement is a necessity. He also discussed the benefits of working with the fishing industry to complete research and the benefit of timeliness in deploying fishing boats for ocean observing that comes from a lack of bureaucracy that exists when dealing with federal or institutional resources. He also said that it is particularly useful that fishermen are innovators and problem solvers and are well suited to engage in research activities, but that there is often a conflict with researchers who go aboard with the expectation that the fishermen will just drive the boat. He also discussed the fact that while we need information about ocean conditions, it will not necessarily mean higher catches, but it could mean efficiencies that will have an economic benefit (decreased time, fuel, and other resources, increased safety, etc.)

Federal Government: Rick Brown, NOAA

Rick discussed NOAA's distribution of resources from the national level down to regional organizations, like NANOOS, and that they are still committed to ensuring that these organizations are successful in promoting and delivering on regional research interests. He discussed the $3MM available to these entities, and that Newport could capture some of this funding through its involvement with NANOOS. He agreed with past statements about how Newport is a place of choice for ocean observing activities in that it has the needed infrastructure and industry to set up and maintain these systems. He said that great science needs a well maintained framework with a strong application platform, consistent and continuous data collection and analysis, and a connection to user groups to achieve its greatest impact. He said that as the need for expansion of these systems increases, so do the connections to the private sector, which drives innovation to create better tools to collect information, and increased quality and quantity of data helps governing bodies make better decisions and industries better project their business models from year to year. He used the example of the fishing industry and the decreased numbers of certain stocks—that it's not just a matter of overfishing, but rather there are other conditions at play and the research can help to better understand this. He said that this system removes information from silos and brings all of the pieces together towards a goal of ecosystem management. He said that NOAA has significant funding for ecosystem-based initiatives and that if a community is united on vision and the infrastructure is in place, they are better positioned to capture these dollars and are more interesting to the larger research community.

With regard to UNOLS and NOAA vessels, he said that they were targeting replacements in the 1990s and were fortunate to receive funding for 4 ships, which include the Bell Shimada, which will work predominantly in the Pacific Northwest. He said that he thinks there are strong reasons to stage cruises from Newport - for its location and the associated time and fuel cost efficiencies. He said that it is critical for NOAA to continue to work with HMSC on the master plan implementation, and with the Port of Newport, to ensure financial resources and infrastructure to continue ongoing research.

Private Industry: Andrew Barnard, WET Labs

Andrew explained that WET Labs is a small business based in Philomath that designs and fabricates technology to observe ocean and freshwater systems. He said that they started as a garage shop and have grown to 40 employees, serving domestic and international clients. He said that their customer base includes researchers and agencies at the local, state, and federal levels. He said that there is significant investment made at the federal level to develop platforms and instrumentation and that there is a recognition that we need better tools in the ocean. He said that entrepreneurial opportunities in the ocean observing industry will include service, operations and maintenance, and technological application development. He explained that while they are based in Philomath, they are invested in Newport: they have a small test site at the Embarcadero in Newport where they deploy their instruments from a small vessel moored there. He also explained that they supported a marine resource management student at OSU, who completed work on ocean observation measurements and what they mean to the larger community (an outreach display is located at HMSC). He said that opportunities, from the small business perspective, are broad and will be advantageous for those who can innovate.

Marine Construction: Bud Shoemake, Port of Toledo
Bud explained that approximately 20 years ago, the Marine Trade Association formed and was active for approximately 6 years and that this development was integral to bringing the service industry together. He said that this industry has been driven by fishing interests and Newport has always had an aggressive fishing fleet, and that this industry was always pushing for increased innovation. He explained that Toledo's service industry expertise allows for any improvements above the water line and that they have leaders like Yaquina Boat Works and Fred Wahl Marine leading the innovation. He said that the Port of Toledo recently received a grant to complete a feasibility study to retain Fred Wahl Marine and preserve its services for the community. He stressed that the community (Toledo) has a great group of individual service professionals that are crucial to this industry and that the Port would like to see that they be retained.

Open Panel Discussion: Audience Q&A

Research Vessels & Homeporting

- **Q: Could you provide some additional clarification on the 10-year timeline for the replacement of R/V Wecoma previously described during the presentation?**

  A: Bob explained that the U.S. Navy is currently planning its next series of ocean-class research vessels and that we could see an RFP in the next 2 years; if OSU competes successfully, the new vessel would replace the Wecoma. He said that there could be an option to continue to operate the vessel beyond that time, but that efforts need to be in place for OSU to position itself for a new research vessel when they are being built. A follow-up question was asked about the economic impact for the homeporting of a research vessel in Newport. Bob said that the figures he has are between $2-3MM, but that if a larger ship replaced the Wecoma, those figures could increase up to $10MM. He explained that the impact is based on the operation of the ship and that the more days in operation, the greater the economic impact.

- **Q: Which entities own and build research vessels?**

  A: Bob explained that the NSF built the Wecoma, but that the current fleet of ships that are being built are by the Navy. He said that the NSF provides support for ships built by other entities, however. A follow-up question was asked about whether this future ship is different from the NOAA ship that could be homeported in Newport. Bob said that these are two different ships—that they were seeking a replacement for the Wecoma, but that a NOAA homeport ship would have significant impacts on the local economy. He explained that there are collaborative programs around NOAA ships, but that they are used mostly for agency observations. A follow-up to that statement was whether joint/collaborative efforts have been established to attract both a Wecoma replacement and a NOAA homeported ship, which Bob confirmed.

- **Q: Are bigger ships are more efficient?**

  A: Bob said that they are used for different purposes, and that one is not necessarily better, or more efficient. He said that to support ocean observing systems, a vessel of

a certain size is required. He explained that the Wecoma is just on that edge, but is still well equipped to navigate the ocean. He said that the larger ships have the capacity for approximately 35 scientists and that they are gone for 30-40 days at a time, and allow for larger equipment to travel on board. He said that bigger is not necessarily better, but that a ship slightly larger than the Wecoma would allow for a little more flexibility, however. Nick Pisias followed up by saying that the NSF is planning on building a ship slightly smaller than the Wecoma, and the Navy is building ocean-class ships, slightly bigger than the Wecoma. He said that if they were to put their efforts into attempting to attract one of these ships that the vessel built by the Navy would be the better option, for the reasons Bob described.

- **Q: What is the Port of Newport's thinking on the recruitment of the cruise ship industry?**

  A: Don said that this may provide some economic return for the community, but as far a long-term economic strategy, that ocean observing and investments in the scientific community are a bigger priority because it has already been established in Newport. He said that the cruise industry is not integral to their long-term plan, but that they want to remain in a position to provide infrastructure for a variety of activities and tourism is something that they want to preserve and build in Newport. He also said this has to be balanced with fishing interests.

- **Q: How will ocean observing/ship homeporting affect dredging activities?**

  A: Don said that Newport has always been fairly successful at obtaining money for dredging, but as the Federal budget continues to be tightened, the presence of more import requests for research vessels in Newport would improve the likelihood of receiving federal funding for dredging.

Other Ocean Observing Platforms

- **Q: Do the cabled ocean observing activities discussed occur in the nearshore or further off-shore?**

  A: Bob said that in the cabled observatory, there are three sites, in 25m of water, 80m, and 500m, and that these have been identified through research on being critical areas for observation, so activities range from near to further off-shore to take measurements in multiple habitats.

- **Q: Will the buoy platforms connected to the cable generate better real-time weather data, for transportation, storm tracking, and fishing conditions, etc.?**

  A: Bob said that ideally, this project will increase this information, but that funding is limited. He also noted that physicists think that every wave measurement is contaminated by the buoy, so they need additional input from the users to articulate whether the information is accurate. The hope is that by having more platforms, they will be able to increase their accuracy. Bob also explained that the cable can be built over time and expanded as resources become available.

Infrastructure Improvements

- **Q: Does the HMSC master plan include pier improvements?**

  A: George confirmed this for the seawater pier.

Scope of Ocean Observing

- One participant applauded IOOS' and OSU's (through cabled observatory) focus on ecosystem-based versus single species management. They said that the conservation community would likely endorse this strategy and be interested in being involved in partnership opportunities.

Communication with Stakeholders

- **Q: Has there been communication between various interest groups around marine reserves, wave energy, and ocean observing in order to allow for all activities to take place, but not to have significant impact economic activities like fishing?**

  A: Don said that there have been some conversations, but not enough. The involved parties need to do a better job at mapping out how all of these initiatives fit together. Scott agreed, but referenced Bob Collier's presentation to the fishing industry. He said, however, that he is less concerned about the cabled observatory and fishing interests, but some of the other activities are not and more consistent communication needs to occur regarding the intersections of those interests. On the cable, he specified that there are instrument nodes on the cable where fishermen would have to avoid, and the placement of those nodes should be a decision that results from collaboration between the research and fishing community (e.g. locate a node where there are already fishing restrictions: location of a shipwreck). Bob said that he understands that they have not closed the loop on conversations around water column observations and that this must be completed. He said that it is everyone's best interest to be a part of the conversation and that forums like this is a great way of starting the process.

- **Q: Is it OSU/COAS' intention of engaging in two-way communication with all user groups, not just the fishing community? They commented that consistency in communication and creating a plan for this to occur over a period of time is important so those involved know when these events will take place and when decisions must be made from a timing perspective.**

  A: Bob explained that this type of engagement is in the budget and they understand that they need to expend resources on communication for the project to be successful.

Articulating Benefits

- **Q: How can Newport ensure that community benefits are fully realized and that the public is engaged in this strategy? How do you maximize the benefits to the community, but minimize risk (e.g. development in unprotected natural areas)? How can you build into the strategy an ethic of "do no harm?"**

  A: Adam said that the cabled observatory requires a programmatic environmental assessment (one step down from EIS) and that other projects will have environmental reviews, thus minimizing and mitigating for these risks individually. The participant said that it's not about waiting for the EIS process, which is often too late, but in creating a community ethic around natural resource protection. Don said in reference to the participant's concern about the Sally's Bend area, that no development is currently planned there. Rick responded by saying that investment in ocean observing and this process, of having public meetings, helps the community have greater access

to data, and prepare them for responding to potential risks. He said hopefully, any development completed under this strategy would be smart development that would not be regretted down the road. Andrew said that in looking at how Newport could take advantage, there is going to be some top-down model forces, but that there is also going to be an opportunity for the community to create a bottom-up momentum to seek a balance in how the strategy is moved forward. Bob said that OSU's interest is educating and working with the community and they have a strong track record for having done so. He acknowledged the concerns, however, and agreed that they should be aware of how to protect this place as it grows. It was noted that there was significant discussion around this item that it should be addressed in future meetings and in the plan.

Capitalizing on Opportunity

- Mike Dickerson emphasized the West Coast Governors Agreement and discussed the states' efforts to decide which science is important so that they can collectively seek funding for those initiatives. He said that California has formed a 30-member science advisory board and as they are more organized than Oregon and Washington, they are better positioned to take advantage of research dollars and Newport and Oregon should be aware of this. He explained that this project cannot be looked at as an event, and opportunities to leverage investment have to be part of the long-term thinking. He said that there is no silver bullet and that economic development does not occur overnight; stable communities plan over time. He stressed that this work will happen and that it can be done to the members of this community or with the community.

Closing

Adam closed the meeting by thanking all the participants for their input. He said that the notes and presentations would be made available to the audience. He explained that the consulting team would next complete a draft plan that will be presented to the Steering Committee, and that they would determine their next steps at that point. He said that if anyone had questions, they were welcome to contact him by email at HYPERLINK "mailto:azimmerman@sbpac.com" azimmerman@sbpac.com or by telephone at (503) 235-9635.