Values, Interests and Ways of Knowing with Participatory GIS

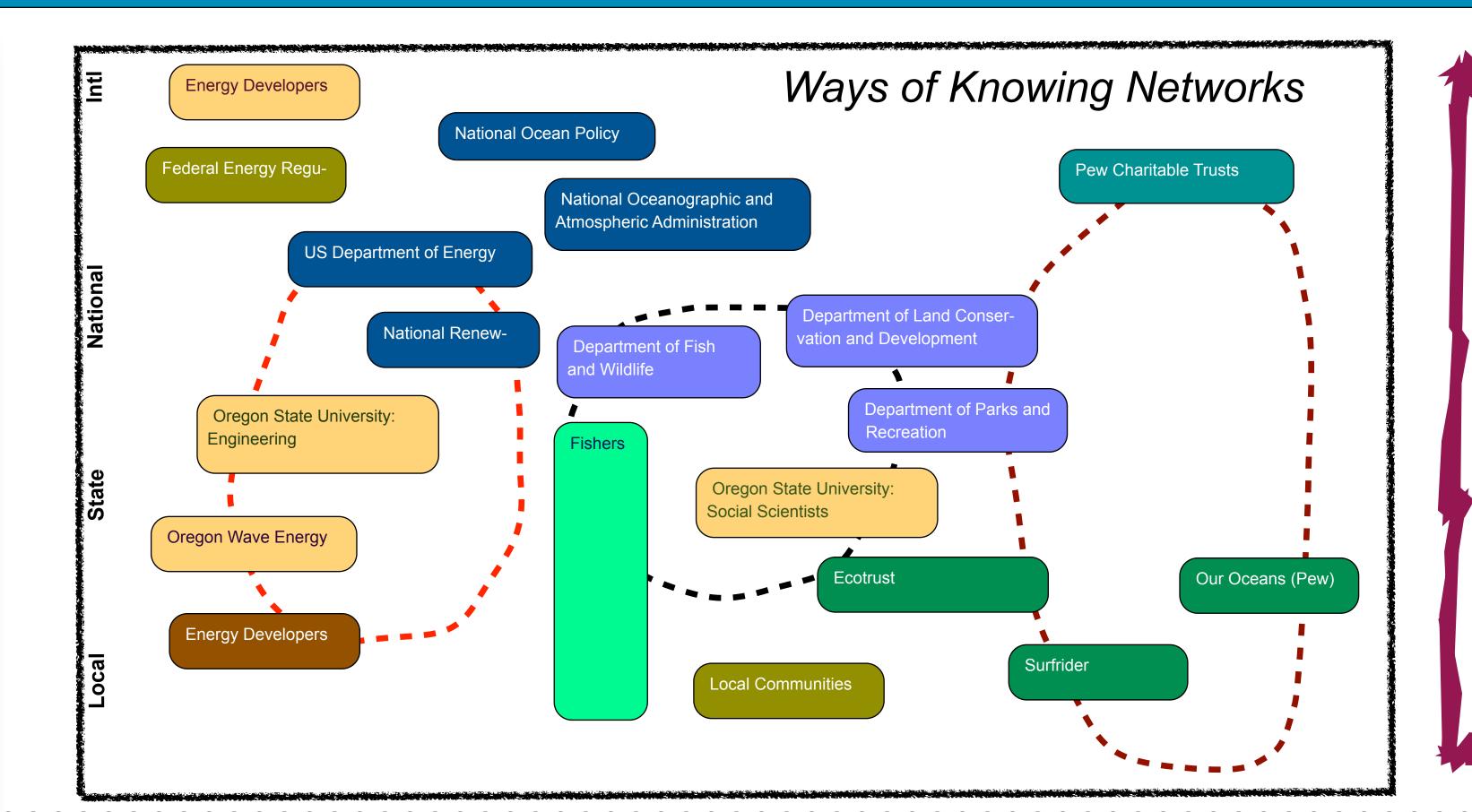
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Policy Problem

Oregon's ocean has new users that want to develop new renewable offshore energy production from waves and wind. These users are responding to a stated goal for more sustainable energy. Ocean renewable energy technology is only just being developed. Prototype wind and wave devices are still being designed - and prototypes have only just started being deployed. The technology is attractive because of the ease of predicting long periods of wave energy - allowing for fossil fuel systems to be shut down on land.

At the same time commercial fishing, recreation and local communities want to protect their portion of the ocean. To resolve these competing claims, the state initiated a marine spatial planning process to apportion and organize the ocean for each group using a participatory geographic information system (pGIS). This poster documents research on how the various interests and groups oriented themselves during the planning process through pGIS technology which captures groupings of "Ways of Knowing" (Lejano and Ingram 2009). These WoK interact with the political and organizational institutions in Oregon. This case illustrates how values in sustainability decisions are relationally defined based on networks.

Lejano, Raul P., and Helen Ingram. 2009. "Collaborative Networks and New Ways of



How Ways of Knowing Functioned

Local communities believe the best way to understand the ocean is experientially. This is different from economic or other use values. The dominant planning system required spatial WoK. Fishing effort was easily conveyed in a spatial logic. This was the most politically important group and this logic spread to other uses. The response from communities was to develop a spatial set that extended their knowledge on the sea. Interests that wanted to share their views on the ocean had to learn to think spatially.

By co-developing the method in a public process - the WoK became official and helped prevent ocean energy development by creating exclusion areas.

Visual Evaluation Criterion

Landform: The steepness of vertical relief, rocks, cliffs and diverse landform features.

Vegetation: The mix and diversity of colors and patterns in the vegetation at the site.

Water: Additional water features to capture rivers, lakes, lagoons, or unique wave breaks.

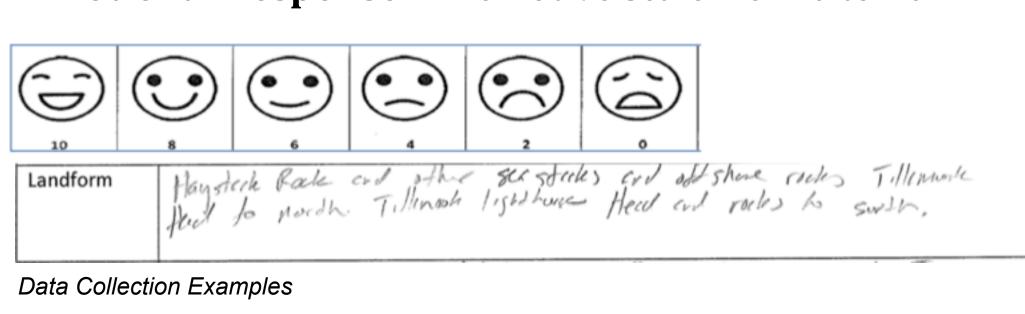
Color: The diversity of colors in multiple natural media, sand, soil, water and rock.

Adjacent Scenery: The level to which the area around the view contributes to the view.

Scarcity: A relative judgment by the surveyor on how common or scarce the view is.

Cultural Modifications: The beneficial and detrimental human activities and developments with in the view.

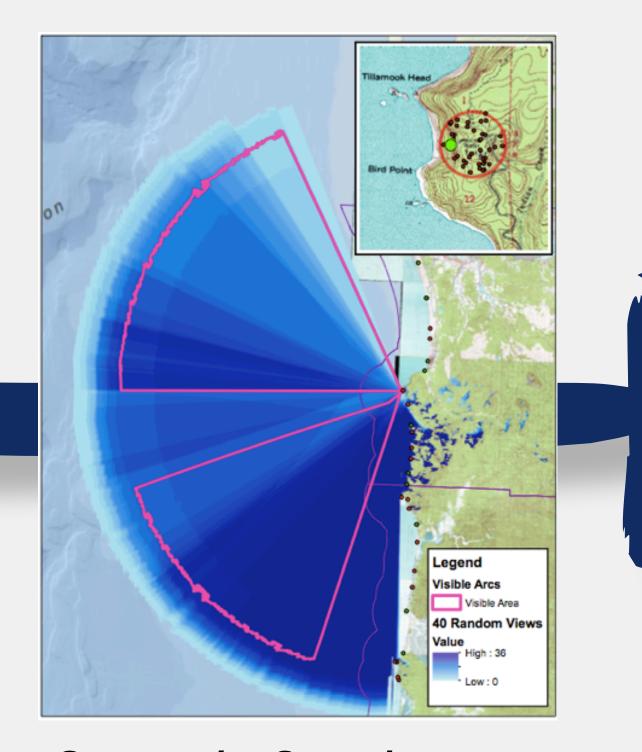
Emotional Response: An emotive scale from 0 to 10.



Community Visual Resource Assessment Process



Community Participants Evaluate Site Views



Community Committee Co-Develops GIS Model

Composite Value Map

The Oregon Story

Oregon's oceans are managed through a complex set of agencies and regulations. No single entity manages the water column from top to bottom - but rather many overlapping agencies (Figure 1.) This structure leaves no one in charge - or as one informant noted, "No lifeguard is on duty." Many interests have increasingly converged on this confusing environment. Trans-local conservation groups have arrived pushing for biodiversity protection. These groups bridge local chapters to international NGO ideals. Federal scientists similarly bridge the local to the national. Finally, state agencies wrestle to manage their missions in the context of professional pressures, national policy changes, and local demands. These actors, their linkages, and their scales are captured above in the figure "Ways of Knowing Networks."

To resolve the planning challenges the state's planning agency created MarineMap – a participatory and open source spatial system. In addition, many of the interest groups mobilized to create spatial data to represent their interests. These include:

- Commerical and sport fishing effort mapped by Ecotrust through interviews.
- Recreational use mapped by Surfrider "and Ecotrust to show areas of interest, and economic values."
- Wave developers created suitability maps to prove their case.
- Local communities lobbied for visual resource assessments to extend their int erests out to sea.

This poster documents the last example to show how pGIS worked to mobilize local values and make a particular policy argument through one relational WoK. The local cities and counties asked the State of Oregon to help them produce maps of their viewsheds that could be included in spatial analyses. A public working group developed the method with agency personnel. The method then collected data on 150 viewpoints on the Oregon coast. This was processed in GIS to model the visible areas and then assign development restrictions on wave developers based on the visual quality of the view.

AGENCY PROGRAMS AND AUTHORITIES in Oregon's Territorial Sea and Ocean Shore Counties & Cities Beach Access Pollution laws Yaquina Head USFWS Refuges Shellfish inspection Boat licenses

Figure 1: Oregon Agencies on the Ocean (Source: Sate of Oregon)

State Seabed (3 Nautical Miles)





