Assessing the Contribution of the Marine Ecosystem to Local Communities in the Regional District of Mount Waddington

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Abstract

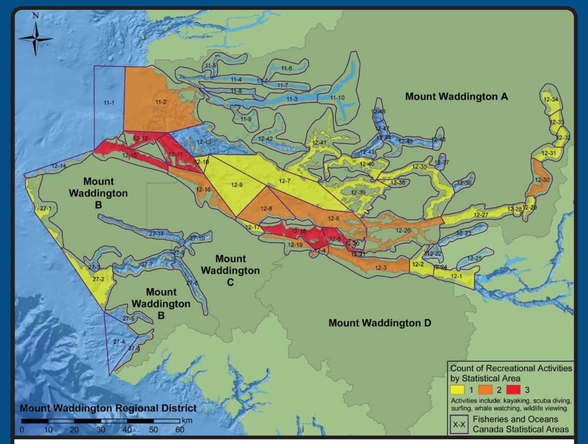
In order to fill gaps in socioeconomic data at the regional level, Living Oceans Society in partnership with the Regional District of Mount Waddington (RDMW) commissioned a study to determine the direct and indirect contribution of marine related activities to the economy of coastal communities in the region. Together with a complimentary study out of UBC on marine ecosystem services and values in the RDMW, this work demonstrates the linkages between economic livelihoods of people, businesses, communities, and a healthy marine environment. By providing spatial and economic data at a resolution that was previously unavailable, the study also serves as a model for other regional districts within the Pacific North Coast Integrated Management Area.

Introduction

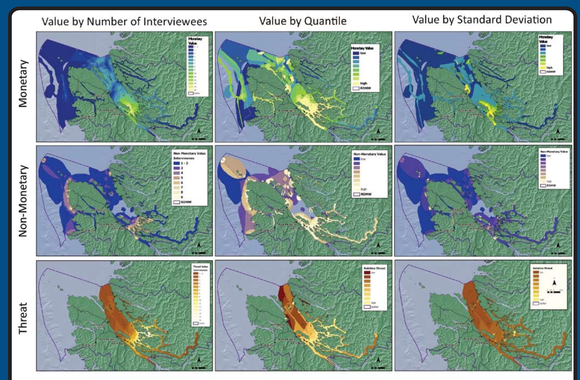
To address conservation, sustainable use, and economic development of marine areas, Fisheries and Oceans Canada (DFO) identified the Pacific North Coast Integrated Management Area (PNCIMA) as a priority Large Ocean Management Area (LOMA) for marine use planning. A socioeconomic and Cultural Overview Analysis (SECOA) was conducted for PNCIMA, but the results showed that most socioeconomic information was aggregated and important spatial links between the marine environment and the communities that rely on it were often missing.

The following two studies were conducted to address these gaps in regional information for the Regional District of Mount Waddington (RDMW), which is encompassed by PNCIMA. Most RDMW communities are coastal with many only accessible by boat. Many of the approximately 12,000 residents are economically reliant on natural resources with the ocean featuring prominently in their livelihoods.

Pacific North Coast Integrated Management Area (PNCIMA)[1]. PNCIMA covers 102,000 km² of ocean adjoining the Great Bear Rainforest, and encompasses Haida Gwaii and the northern end of Vancouver Island. The boundaries of PNCIMA were determined based on oceanographic processes, watershed boundaries that influence the marine area, and the northern jurisdictional boundary with Alaska. The Regional District of Mount Waddington (represented by the cross-hatched area) is one of five regional districts which fall either partially or entirely within the boundaries of PNCIMA.



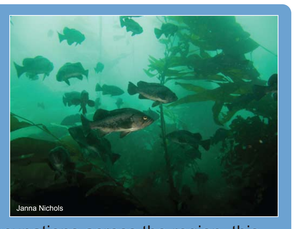
Mapping marine usage[1]. Use of the waters around the Regional District of Mount Waddington (RDMW) by commercial marine recreation operators, based on responses from a survey of marine tourism businesses[2].



Stakeholder perspectives on marine ecosystem service values and threats[3]. These maps reflect aggregate values across all interviewees. In the Value by Number of Interviewees column, each cell is colored according to the number of respondents who identified monetary value, non-monetary or threat value. Quantiles are sets of values that contain an equal fraction of the total number of values. In the Value by Quantile column, each color includes 12.5% of the cells associated with a set range of values or threats. For all maps, lighter colors indicate greater aggregate monetary, non-monetary or threat value.

Marine Ecosystem Services

A study on marine ecosystem services (ES), the ecological processes through which nature provides people benefits, was conducted by Sarah Klain at the University of British Columbia. Based on 30 in-depth interviews with residents from a variety of marine-related occupations across the region, this research identified residents' monetary (income-related) and non-monetary (not related to income) values associated with the ocean, as well as perceptions of environmental threats in the waters around the RDMW. Interviewees were also asked to identify specific areas of the coast and assign them relative monetary, non-monetary and threat values.



Conclusions

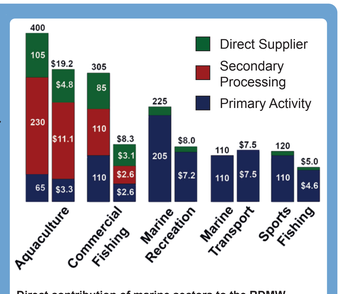
- The approach taken in the economic study, quantifying the economic benefits to local residents from the marine environment, allows unique insights into the contributions of the marine economy to a particular region. Through spatial mapping of various activities connected to the marine economy, linkages can also be demonstrated between these contributions and specific areas of the marine environment.
- This research contributes to broadening spatial planning concerns to include intangible as well as material contributions from ecosystems to people. The methods employed in the marine ecosystem services study enabled local residents to articulate a wide variety of values connected to the marine environment as well as map and quantify a subset of these values.
- Both studies provide templates for gathering important local data for future marine planning on the coast.

The RDMW Marine Economy

A study of the marine economy of the RDMW was jointly commissioned by Living Oceans Society and the Regional District. The consultant (GS Gislason & Associates) reviewed existing data, interviewed 33 members of local business, government and First Nations, and conducted a survey of 56 local marine tourism and sports-fishing businesses in order to fill gaps in data. The study focused on the direct and indirect economic contribution of marine related activities to RDMW residents in terms of employment, wages and benefits, and revenues for the 2009 year. Spatial data was also collected for the marine tourism survey, linking this economic data to specific areas in the marine environment.

Economic Contribution[2]

In 2009, local residents accrued $55.2 million in wages and benefits and 1,340 full-time equivalent jobs either directly or indirectly from the marine economy. This accounted for 28 % of private sector employment in the RDMW. Note that these values would likely have been much higher in other years, particularly for sectors which depend on wild salmon runs, as 2009 was an especially poor year for salmon returns.



Direct contribution of marine sectors to the RDMW Economy in 2009. Employment in person-years (left column) and wages and benefits in millions of dollars (right column).

Navigating Marine Values[3]

When explaining values and threats across the seascape, respondents bundled services, benefits, and values associated with ecosystems (e.g., catching and eating wild salmon was associated with the following types of values: other-oriented, provisioning, material, non-market, recreation, spiritual, sense of place, and artistic). Many interviewees explained the importance of the marine environment using metaphors that differ substantially from the ecosystem service metaphor of "nature as service provider." Some called the ocean "Mother Ocean" while others explained it as part of themselves.

People tended to assign greater monetary and non-monetary value closest to inhabited locations. There was significant spatial overlap among pairwise comparison of monetary, non-monetary and threat value. Employment in salmon aquaculture, the most divisive marine issue in the region, correlated with the perception that the ocean does not face environmental threat associated with this industry.

References

1. Map produced by Carrie Robb, Living Oceans Society.
2. GSGislason & Associates Ltd., "The Marine Economy and the Regional District of Mt. Waddington in BC", Prepared for the Living Oceans Society and the Regional District of Mount Waddington, March 2011.
3. Klain, Sarah, "Navigating marine ecosystem services and values", Masters Thesis Dissertation, University of British Columbia, October 2010.

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