

“Frequently Asked Questions” – Marine Spatial Planning Economic Analysis

24 February 2016

Methodology

1. Why model the coast as a collection of counties and not as five individual ones?

By modeling the region as a single “functional economic area” we were trying to incorporate the linkages and interrelationships between economic sectors in the five individual counties in the coastal region. Although we don’t have a complete inventory of these, it seems more likely that economic linkages do exist between the counties in the MSP region rather than there being no linkages at all, which is what is implied when individual counties are modeled separately. This is also consistent with the recommendations of the Science Advisory Panel, which preferred a multi-county approach to modeling.

In addition, certain critical inputs for the economic impact modeling are very difficult to measure on a county-specific basis. For example, economic impacts related to recreation and tourism are driven largely by the expenditures that visitors to the coast make. For out of area residents, trip-related expenditures are frequently made across more than one county. However, accurately determining how much of trip-related expenditures is made within different coastal (and non-coastal) counties is difficult because expenditure data that is geographically-specific is seldom available. This was the case for the economic analysis for the MSP project.

From a county planning standpoint, we recognize that modeling individual counties is worthwhile. However, there is a downside to modeling individual counties in terms of so-called “multiplier effects.” In general, the smaller the region being modeled, the more leakage of revenue outside the region, and the smaller are the indirect and induced economic effects that accrue in the region itself. Because the coastal counties are so small in population, the leakage of dollars to outside the county is emphasized. (See also sidebar in full Economic Report on page 1-14.)

To emphasize the importance of the coastal economy to the state as a whole, we produced expenditure and employment effects for both the coastal region and the state throughout the economic analysis report. In general, the estimates show a strong, and pronounced, role of the coast in the state’s economy.

2. Why doesn’t the coastwide model include just the coastal area?

While this may be technically feasible to use very local-level data, the parsing of an economic region into artificially small subareas does little to illuminate the nature and scope of economic linkages between employers and employees, buyers and suppliers, and stores and customers in the coastal region. It is better to try to capture these economic relationships within the region being studied than to artificially exclude or split them for non-economic reasons. See also the answer to 1, above.

3. [Spatial resolution of economic information to as fine as a zip code level is often available. Could this be used for coast impact analysis?](#)

It is possible to generate a regional model to analyze any desired level of direct effects: state, county, sub-county region, port, or even individual business level (subject to confidentiality restrictions). It makes better sense, however, to model geographic areas that somewhat resemble “functional economic regions” that incorporate places where commuters live, work, and shop. (See also sidebar in full Economic Report on page 1-14.)

4. [Why is Wahkiakum County included in the impact analysis but excluded in other parts of the report?](#)
5. [\[A similar question was asked\] Wahkiakum County does not include any portion of the Washington Coast. Why is it included in the Economic Analysis?](#)

We were instructed to include Wahkiakum County’s contribution to the coastal economy in sectors where that made sense. This was especially important with respect to commercial fishing, where landings from catch taken in off the coast are made in Wahkiakum County ports. However, since those ports and communities are located not on the coast but several miles upriver, it didn’t necessarily make sense to include Wahkiakum County in the analysis and discussion of other sectors.

Since it was included in the IMPLAN model, we also included Wahkiakum County in the economic profile chapter of the full Economic Report.

Economic Profile of the Coast

1. [Why does the coastal profile include significant areas that are not on the coast? Is there a way to do a study that only draws on coastal areas, without including data from areas not included in the MSP? For example, nearly all of the population of Jefferson County resides east of the Olympic Mountains, and Port Angeles \(in Clallam County\) is adjacent to the Strait of Juan de Fuca.](#)

Profile information was presented for the full counties in part due to data limitations for presentation at a sub-county. For example, employment data, which is already limited for small population areas, is even more limited and prone to error and disclosure limitations, at a sub-county level. Also the IMPLAN model is based on full counties (although data by zip code region is also available).

However in other parts of the report, economic activities are presented for the coastal areas only.

2. [Why are employment and other economic impacts shown in port studies for the Port of Grays Harbor and the Port of Port Angeles so different from those shown in the Economic Analysis report?](#)

Port studies are typically stand-alone studies and the results tend not to be easily compared to other studies. Both the Grays Harbor and the Port Angeles studies used proprietary software and to some

degree are based on the authors' proprietary surveys. Hence it is difficult if not impossible to really determine what is causing the wide differences from the impacts shown in the MSP report.

However, we did spend some time trying to understand the differences in the Grays Harbor study. In the Grays Harbor study, induced impacts seem very high, in some cases larger than the direct impacts. We suspect some of this is due to how they treated retail expenditures. Induced impacts result from spending of directly and indirectly affected employees' income. Much of this is spent on retail goods and services. If the model allows too much to be paid directly to the retail trade sector itself the impacts will be too large because retail trade is a labor intensive (and local) sector. The proper way to handle this in input/output modeling is to assign most of the retail expenditures to the sectors that actually produced the goods and services, and then attribute only the retail margin (typically 20-40%) as the direct sales impact on the retail trade sector.

In the Grays Harbor study, there also is some switching between county and state level impacts, both of which are being called "local."

Some additional analysis of the differences between the port studies and the MSP study could be done but it would require participation of the authors of the two respective studies and possibly access to their underlying survey data.

3. Why is the Port of Port Angeles port-related employment included but not recreation impacts for that part of Clallam County?

The Surfrider Foundation and Point 97 report served as the basis for economic analysis of recreation and tourism. As shown in Figure 7-1 of the Economic Report, the Surfrider Foundation survey of recreationists included most of the area along the southern shoreline of the Strait of Juan de Fuca, extending through the Port of Port Angeles area. Although the area along the southern shoreline of the Strait of Juan de Fuca is not considered part of the MSP study area, it was included for the Surfrider study and therefore was also included in the full Economic Report.

4. Why do the fisheries-related employment figures presented in the county and tribal profiles so greatly underestimate the number of jobs in this sector? Employment data is lacking for fishing; is there a way to collect additional/better data?

This is a problem with self-employment data in general because employment statistics are mostly based on covered employment data which apply only to employees, not self-employed. Sometimes the part-time, informal nature of fishing industry employment also contributes to under-reporting of jobs in that sector.

The same issues apply with other self-employed professions, e.g., consultants. The inconsistencies in the fishery employment data are just more apparent given what we know about the importance of fisheries to these communities.

A direct survey approach could be used to collect better data on employment in fisheries and related sectors.

5. Large, industrial scale development will likely have a disproportionate impact on the southern coast due to the marine sanctuary and other restrictions on uses in the northern part of the coast. Why wasn't this evaluated? Could this be evaluated?

By “large, industrial scale development,” we assume the question refers to the proposed new uses that are discussed in Chapter 11 of the full Economic Report.

With the exception of new dredge disposal sites, there is little information on the location of these new uses. In addition to a lack of specifics about locations, the state currently had little information on size or scale of the proposals. (See page 11-7 in the full Economic Report).

Also in the full Economic Report, page 11-12, there is reference to impacts to fishing on the southern coast; on page 11-11, we identified the impacts on the southern coast from the potential new dredge spoil sites. Finally, also on page 11-11, we identified the impacts on the southern coast of offshore aquaculture pens.

Economic Profiles of Washington Coast Tribes

1. Why aren't the recreation impacts on tribal lands estimated separately (i.e., why are they just aggregated to the study area)?

Presumably, this question is asking why the economic impacts of recreation activity that occurs on tribal lands was not evaluated separately. As is discussed in responses to Questions 1 and 2 above (Methodology), the economic impact of recreation activity was evaluated within the 5-county region. One of the reasons why this 5-county area was used for assessing economic impacts was that accurately estimating the locational specificity of trip-related spending was not possible, even at the county level. What this comment is presumably suggesting is that economic impacts of recreation activity on tribal lands be evaluated on the Tribal economy. Not only is this type of geographically-specific type of analysis beyond the scope for the economic study, data are not available to develop reasonably accurate estimates.

Commercial Fisheries

1. Why doesn't the report quantify long term cumulative impacts on the fishing industry, including the *Rafeedie* decision? We need a good example of what happens if we lose large chunks of coastal real estate to new industrial uses. Social impacts have trickle-down economic impacts. Why wasn't this evaluated?

We were instructed to take the *status quo* situation, analyze that, and look forward. Data provided for commercial fishing covered the past 10 or 11 years. Those data were used to describe the current situation and indicate apparent trends. We did state in the report that areas currently available to commercial fishing have been significantly truncated due to events like the *Rafeedie* decision and fishery management policies. The combination of these historical factors, plus emerging threats from processes like climate change and ocean acidification, have made the Washington coast commercial fishing industry increasingly vulnerable to systemic “shocks,” such as any additional restrictions on grounds or

seasons available for commercial fishing. In the full Economic Report chapters on “Risk and Vulnerability” and “Qualitative Analysis of the Impacts of Proposed New Uses” discuss some of the implications for an already stressed Washington Coast commercial fishing industry.

2. Why wasn't the full profile and value of tribal fisheries included?

We were unable to obtain comprehensive commercial fisheries data from the treaty tribes along the coast. We received different levels of historical fishery information from several tribes and none from others. Based on what we could get we attempted to describe the commercial fishing activities of Washington Coast tribes. However due to the irregular and incomplete nature of the data available, the description and subsequent analysis of tribal fisheries was not able to be comparable in depth or in detail with what we were able to produce for the non-tribal commercial fishing sector.

3. Why weren't fishery impacts throughout the entire food chain estimated?

Beyond harvesting and purchasing by shorebased buyers, comprehensive data on subsequent processing, distribution and retailing of locally caught seafood products is not available. We really don't even know for sure whether what gets landed in Washington coast ports is necessarily processed there, nor do we know what products get processed in Washington coast ports from inputs that are not actually landed there by commercial fishing vessels. Similarly, data on wholesale purchases from Washington coast processors, secondary processing activities, distribution to local or export markets, and retailing of locally-caught and processed products in local markets and restaurants and elsewhere is not readily available. It would be possible to estimate the nature and magnitude of some of those linkages, and to incorporate the effects into the coastal economic profile, but a considerable amount of time and resources would need to be devoted to collecting primary data through systematic surveys and interviews with economic agents at all levels of the seafood processing and distribution chain.

4. How were the fishing community interviews incorporated into the economic impact modeling?

Information collected from informal interviews and focus group meetings with commercial fishermen, charter boat operators and seafood processors were used to estimate how and where those sectors' input purchases and other operational expenditures were distributed both sectorally and geographically. Those estimates were in turn used to apportion direct economic effects to industry sectors inside and outside the coastal region, and to measure the indirect and induced economic effects resulting from current activity levels in those sectors.

5. Tables 4-4 and 4-9 present fishery catch data by management group and by species category, respectively. But some of the reported data don't seem to match up. Why is that?

Tables 4-4 through 4-6 of the full Economic Report show landings by species groups while Tables 4-9 through 4-11 show landings by fishery vessel sectors. Since a given vessel could land any or all species there is not a one-to-one relationship between the species groups and corresponding fishery vessel sectors. However note that the bottom-line, annual Grand Totals are consistent between the two sets of tables.

Shellfish Aquaculture

1. The Washington coast is highly dependent upon aquaculture for income and employment. Can the importance be demonstrated by, for example, comparing the coast to other regions?

Yes, this is entirely possible. We were asked to focus our analysis on the Washington Coast region only so did not make an attempt to compare economic impacts of shellfish aquaculture in other regions. If there is an opportunity to do some additional analysis we would be happy to provide such information.

2. Shellfish aquaculture is concentrated in Pacific and Grays Harbor counties. Why can't the impacts be measured separately for these two counties?

By modeling the region as a single “functional economic area” we were trying to incorporate the linkages and interrelationships between economic sectors in the five individual counties in the coastal region. Although we don't have a complete inventory of these, it seems more likely that economic linkages do exist between the counties in the MSP region rather than there being no linkages at all, which is what is implied when individual counties are modeled separately. Also, the smaller the region the less the indirect and induced economic effects that accrue in the region itself. (See also sidebar on page 1-14 of the full Economic Report.). The NEI (2013) study does in fact outline economic impacts by county. These estimates are included in our report.

3. Why weren't shellfish impacts throughout the entire food chain estimated?

Beyond harvesting, processing and distribution of shellfish product, comprehensive data on any additional subsequent processing, distribution and retailing of locally grown shellfish products is not available. Data on wholesale purchases from Washington coast harvesters and processors, secondary processing activities, distribution to local or export markets, and retailing of locally-caught and processed products in local markets and restaurants and elsewhere is not readily available. One of the biggest challenges is that *if* we could determine where product ends up (retail market or restaurant), we do not have a clear means by which to assess economic impacts of shellfish in particular as expenditures in the market or restaurant are difficult to tease apart. There is one company currently operating in Coastal Washington counties for which, assuming willingness to share information on the company's part, we could determine the value of the impact of their products as we can follow the chain from harvest to table. It would be possible to estimate the nature and magnitude of some of those linkages, and to incorporate the effects into the coastal economic profile, but a considerable amount of time and resources would need to be devoted to collecting primary data through systematic surveys and interviews with economic agents at all levels of the shellfish processing and distribution chain. In addition, instead of trying to estimate the economic impact of shellfish production (harvest to table), it would be possible to conduct a consumer demand analysis that takes into account people's willingness to pay of these locally grown.

4. The caption under Figure 5-9 in the full Economic Report is not accurate. It states:
Note: Most respondents reported oyster production in bushels. One bushel is assumed to equal 8 gallons. One gallon of oyster meat is assumed to be equivalent to 8.25 pounds in meat weight.

You are correct. We misunderstood the conversion factor supplied us by Pacific Shellfish Institute (who got it from WDFW). We have recalibrated the production output estimates. What we estimated originally (for just the growers that process) was an over-estimate of actual production. There is no change to the economic impact estimates as they are based on expenditures and not production.

Recreation and Tourism

1. The report states that responses in the recreation study are available only from Washington residents. How important or significant to the analysis is information about non-Washington residents that visit the coast?

Although the recreation study conducted by the Surfrider Foundation and Point 97 included data from surveys of Washington residents only, estimates of recreation activity and associated spending for trips to the MSP study area were estimated using data from sources other than the Surfrider Foundation/Point 97 study. This is explained on page 1-11 of the full Economic Report. These estimates, although not derived from data collected for the Surfrider Foundation/Point 97 study, are considered reasonable.

Recreational Fishing

1. How sensitive are the economic impact results to the reliance on “old data” for the expenditure patterns for recreational fishing? In other words, are changes in the cost of recreational fishing captured in the analysis?

The question is likely in reference to the percentages of spending within different geographic regions derived from The Research Group (1991) report. As explained on page 1-11 of the full Economic Report, even though the survey results are dated, there is no reason (e.g., major shifts in the relative geographic characterization of recreation spending activity) to believe that the proportions of spending by area (at home, enroute, and at the destination) derived from the survey data should be considered unreasonable approximations of present conditions.

1. Does the ocean salmon discussion and numbers on page 6-14 table 6-10 in the Recreational Fisheries chapter include the estuary gillnet salmon fisheries? The Industrial Economics (IEc) sector report broke ocean salmon and gillnet salmon out, so it’s not clear if the Recreational Economics profile did the same or if it is all salmon.

Salmon landings by Ocean troll and estuary net (i.e., gillnet) commercial fisheries sectors are displayed in Tables 4-9 through 4-11 of the full Economic Report. The commercial gillnet salmon fisheries occur in

the Columbia River, and also in Willapa Bay, Grays Harbor and their tributaries. But we're unaware of any recreational gillnet fishery for salmon associated with the Washington Coast.

We do not believe that recreational salmon caught inside Willapa Bay, Grays Harbor and their tributaries are included within the tables in Chapter 6 (full Economic Report). The value shown for recreational salmon catch in the "Total Ocean Streams" column of Table 6-10 seems too low to have included the numbers reported in IEC's report Exhibit C-9 (which are taken from PFMC's Review of 2013 Ocean Salmon Fisheries tables B-23, B-24, B-25 and B-26).

The values in Table 6-10 for Marine Catch Areas 1 through 4b include salmon caught in recreational fisheries in the marine waters of Willapa Bay and Grays Harbor. This information is provided by WDFW, as cited in the table.

Ecosystem Services

1. Is it possible to prepare a rough quantitative estimate of the value of ecosystem services to the coast?

In concept, it is possible, but in our opinion not advisable, to assemble quantitative estimates from other studies of the value of ecosystem services to the coast. A number of studies have attempted to estimate the value of ecosystem services in watersheds, small regions, or even particular land parcels. These studies have utilized a wide variety of site-specific physical and biological data to derive estimates. Such information is not generally available in uniform measure or degree of detail at the full scale that can be applicable to all counties.

The report does cite several studies that have attempted to show the value of ecosystem services at the county level for several coast studies. However, even those studies suggest that the derived values are highly subjective and some of the "borrowed" values (from yet other studies) may or may not be truly applicable.

In summary, presenting even rough quantitative estimates may introduce greater uncertainty than leaving ecosystem services unquantified.

Social Impacts Assessment

1. Is there a way to incorporate the results of the social indicators research into the social impacts assessment?

If this question is referring to the studies cited in our Social Impacts Assessment chapter, none of these projects have been completed. These studies developed methods for indicator selection and identified relevant indicators of human well being but work is on-going to collect baseline data on selected indicators. If further work is requested we could update this chapter with whatever data comes available.

Risks and Vulnerabilities of Marine-Dependent Industries

1. Are there measures of risk or uncertainty available that could be carried through the analysis to provide a greater sense of the variability of the economic impacts?

For purposes of considering the uncertainty associated with the estimates of visitor spending and associated economic impacts described in Chapters 6 and 7 of the full Economic Report, looking at the annual variability in the number of trips would serve as the best indicator of how much variability there could be from year to year in the measures of economic impact.

Likewise the estimated impacts reported for commercial fisheries landings and primary processing were based on the most recent complete year's data available at the time: 2014. However looking at the range of annual landings and exvessel revenues recorded during the 10 years prior to that shown in Tables 4-4, 4-5, 4-9 and 4-10 (in the full Economic Report) provides an indicator of the inherent variability in Washington coast commercial fisheries. Although the varied portfolio of different fisheries and species pursued off the coast helps to provide some stability, the effects of adverse events that simultaneously constrain multiple fisheries may also become magnified.

Qualitative Impacts Analysis of Proposed New Uses

1. Why isn't climate change accounted for in the impact analysis? Rising sea levels will take some land out of production impacting marinas, resorts, cranberry farms, oyster farms, etc.

We were presented with developing an analysis that considers a 20-year time horizon. Although climate change is a long-term reality and threat, economic forecasts beyond 20 years are extremely difficult to generate for meaningful results. Nevertheless, there is some discussion of the potential risks attributable to climate change in the full Economic Report, Chapter 10 on "Risks and Vulnerabilities."

2. Why weren't the proposed oil trains included in the analysis of "new uses" chapter?

Concerns about the proposed oil trains were raised by several audience members at the June 1, 2015 presentation in Montesano. However, at the same time, the Washington Department of Ecology was engaged in a separate environmental review process (SEPA) for the proposed oil projects. Since the SEPA analysis was not complete, it was not addressed under new uses.

However existing reports (e.g., an ECONorthwest report prepared for the Westway and Imperium companies, and the Quinault Indian Nation report prepared by Resource Dimensions) were reviewed and discussed to identify potential risks associated with these oil train projects. This summary is included in the full Economic Report, Chapter 10 "Risk and Vulnerability of Marine-dependent Sectors." See Section 10.6.1.

3. Couldn't quantitative estimates be made of the new uses? What if some assumptions were made about the size of facilities, based on some general outlines or proposals?

With additional information it might be possible to develop quantitative estimates of impacts from new uses. This would require not only specific geographic locations for the proposed uses, but also general

assumptions about the technology and scale of the specific project. For example a specific kind of offshore energy (wind, wave, or tidal technology), assumptions about scale and a specific coastal location could be used to better analyze impacts on commercial fishing.

However, without better information about specific proposals, it would be highly speculative to devise assumptions and then present quantitative impacts based on them.

4. How do you quantify the economic cost of eliminating large geographic areas of commercial and recreational fishing ground? [Recreational fishing is very geographically centered; can just move as the fish move (i.e. the port will always be Westport and if fish leave or fishing areas made unusable, there will be economic impacts). This cannot be replaced with another activity.

Chapters in the full Economic Report on Risk and Vulnerability and Qualitative Analysis of the Impacts of Proposed New Uses discuss some of the implications of new shocks on already stressed Washington Coast fishing sectors and commercial shellfish aquaculture.

5. Can we evaluate the economic consequences of losing or reducing commercial and recreational fishing in the south coast (based on the assumption that new uses such as wind energy will not be sited north of Copalis)?
6. [A similar question was asked] When you eliminate a certain percentage of fishing grounds (pick your percentage) south of Copalis, this will create economic loss for fishing industry. How does that trickle out into the broader community (tourism, local economy, etc.)? The whole is greater than the sum of the parts, and the loss could trigger the straw that broke the camel's back.

The contribution of individual components of the commercial and recreational fishing sectors is greater than the sum of its parts. We tried to capture this by identifying indirect and induced income and jobs effects generated by the basic activities themselves as well as by other associated activities like seafood processing and non-fishing related tourism. However those types of modeled economic effects tend to be linear and fail to identify where a breaking point might occur or when the critical mass of basic industry and associated support activities in a region is no longer locally viable. It is difficult to predict quantitatively when “the last straw” would occur, but qualitatively we have tried to describe some of the risks and vulnerabilities facing the industry in the full Economic Report chapters on “Risk and Vulnerability” and “Qualitative Analysis of the Impacts of Proposed New Uses.”

Additional Research and Study Needs

1. Had there been greater funding available, could the results have been more comprehensive and detailed?
2. How did limited time or a lack of funding restrict the study in terms of what information could be generated?

Several areas of analysis were restricted due to lack of information and the amount of time available to collect it in sufficient detail, or the specific timing of the study:

- Time and resource constraints precluded our ability to describe and quantify effects of processing, distribution and retailing of locally caught seafood products once they leave the primary processor.
- Similar restrictions on time prevented greater interaction with aquaculture growers and processors; more time may have increased participation by the sector.
- Limited information was available about specific geographic areas for future use, limiting the team's ability to quantify impacts from these uses.
- Participation from the Tribes may have been greater were it not for concurrent legal proceedings that limited participation of key Tribal leaders and staff in direct interviews. This was particularly true for the fishing sector analysis.
- The recreation user surveys conducted by Surfrider Foundation and Point 97, which was the primary source of data used for recreation and tourism, did not include out-of-state residents. As a result of this limitation, data from other sources had to be used to estimate the effects of out-of-state visitors to the MSP study area.

As discussed in much greater depth in Chapter 12 of the full Economic Report, detailed results can only be developed when there is good source data, adequate modeling, and specific proposals to analyze. We have identified a number of places (e.g., the seafood sector, aquaculture, and tribal fisheries) where additional data developed over time could add to the information base, and help to generate a more detailed foundation. In addition, as specific proposals are formulated for new uses, more detailed information on direct and indirect impacts can be generated. Fortunately, this project developed tools that could be modified and updated in the future and used to estimate impacts when new proposals are put forth. One of the greatest challenges that we face is lack of data. Industry will have to be willing to support any further research efforts.