





**Cape Falcon Marine Reserve:  
A Pilot Study of Impacts, Outcomes and Effort Shift of  
Commercial and Charter Fishers**

Prepared by Elizabeth Marino, Oregon State University—Cascades in partnership with Oregon Department of Fish and Wildlife Human Dimensions Monitoring & Research Plan under the direction of Thomas Swearingen. Funded by ODFW through agreement #: 176-15

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**Abstract**

*This research was conducted as a pilot study of effort shift among fishers following the implementation of the Marine Reserve at Cape Falcon, which was closed to fishing on January 1, 2016. The research included nine interviews with fishers and people closely involved with the fishing community, informal conversations with other residents in the town of Garibaldi, and interviews with non-fishers involved in the marine reserve community meetings. Critical findings from this research include that there will be minimal economic impact of the Marine Reserve at Cape Falcon on commercial fishing; that fishers are concerned about the reserve being a stepping stone to future reserve protection plans; and that fishers are ultimately concerned about a reorganization of the economy of the coast away from fishing communities and value systems.*

**I. Background**

*“Scientists say it works, fishermen say it works, even governments say it works, so let’s get together to make it happen.” Greenpeace on Ocean Sanctuaries*

Investigator: *“Can you tell me a little bit about what you know about marine reserves?”*

Fisher: *“It’s people in their ivory tower hugging one another about saving the world.”*

Marine reserves are an ocean management system and subset of marine protected areas, defined by the Pacific Fishery Management Council (PFMC) as a “geographic area with discrete boundaries ... in which some or all fishing is prohibited for a lengthy period of time” (PFMC, n.d.). Marine reserves in the United States are managed by a suite of legal mechanisms depending on their distance or proximity to land, among other

conditions. Between three and 200 nautical miles off of the coast, Federal Marine Sanctuaries are managed in part via the Pacific Fishery Management Council through the Magnuson-Stevens Act. Within three nautical miles of the coast, coastal states have jurisdiction over management of fisheries within their territorial waters. The marine reserves in the State of Oregon territorial waters are under the jurisdiction of the Oregon state legislature and the governor and are managed by the Oregon Department of Fish and Wildlife (ODFW). Marine reserves are an important management tool globally (Lester et al. 2009; Lubchenco et al. 2003) as oceans worldwide continue to experience degradation including increases in: “coral bleaching, zones of hypoxic or anoxic water, abrupt changes in species composition, habitat degradation, invasive species, harmful algal blooms, marine epidemics, mass mortalities, and fisheries collapses (Lubchenco et al. 2003: S3).

Reflecting this larger national and global trend, and with the purpose of setting aside Oregon coastal waters for conservation and scientific research, the state of Oregon established three marine reserve sites in 2012, through senate bill 1510. The new reserves at Cape Falcon, Cascade Head, and Cape Perpetua were in addition to two previously established reserves at Redfish Rocks and Otter Rocks. The Ocean Policy Advisory Council (OPAC) defines a marine reserve in Oregon as, “[A]n area within Oregon’s Territorial Sea or adjacent rocky intertidal area that is protected from all extractive activities, including the removal or disturbance of living and non-living marine resources, except as necessary for monitoring or research to evaluate reserve condition, effectiveness, or impact of stressors.” In most of the marine reserve sites listed above, there are one or more marine protected areas that act in conjunction with the marine

reserve areas. Marine protected areas are defined as areas that allow some take, but are managed under a restricted set of guidelines for extraction and development.

Early in the marine reserves legislative process, the legislature expressed concern about the impact marine reserves might have on commercial and recreational fishing operations, general socioeconomic impacts to coastal communities, and impacts to other stakeholder groups. Because of this concern, the legislature developed a community team model to foster collaboration among scientists and communities and to collectively develop recommendations for potential marine reserve sites in order to minimize negative impacts and maximize scientific and conservation efficacy. Community team meetings occurred from 2007-2010 (depending on site) and were extensive and demanding of agency participants, scientists, and community representatives. ODFW facilitated community meetings, under the direction of the legislature.

Following recommendations from OPAC and the community teams, the House voted to implement pilot studies of the marine reserves at Otter Rock and Red Rocks in 2009 with HB 3013. HB 3013 also, notably, required ODFW to monitor the socioeconomic and biological impacts of marine reserves in the pilot study sites. Additional legislation in 2012 required ODFW to continue to monitor the social and economic “factors related to the reserves and protected areas” (SB 1510).

As mentioned above, the community team process was challenging in part because of deeply divergent ideas among stakeholders regarding the necessity of reserves, the impacts on the fishing community, and uncertainty around the scientific justification and ecological benefits a reserve system would have in Oregon coastal waters. At Cape Falcon, the community team was particularly divisive. In the end the

community team voted 9-7 to implement a 20 square mile reserve around Oswald West State Park – with all dissenting votes coming from the fishing community. No fisher voted for the reserve.

The controversial nature of the Cape Falcon reserve made ODFW's mandate to monitor social and economic impacts all the more critical and potentially more challenging in that location. This research is, in part, an attempt to pilot test likely impacts of the Cape Falcon marine reserve to the fishing community and to determine essential concerns of the fishers, including how the effort of fishers will shift in response to these new restrictions in order to make up economic and sociocultural capital. This pilot project also has as its goal to map areas of concern for fishers so that ongoing monitoring of socioeconomic impacts will, in part, reflect the fishing community's values and address community fears and concerns. Finally, this project was an attempt to reach out to the fishing community in Garibaldi, the closest fishing port to Cape Falcon, following the controversial vote in 2010. It is my hope, and the hope of ODFW, that, in so doing, ongoing monitoring does not replicate the deep divides present in those initial community meetings and that ongoing monitoring will continue to be a collaborative process among agencies and stakeholders, including but not exclusive to, the fishing community.

## **II. Methods and Outreach**

This research took place primarily in Garibaldi, Oregon during the summer of 2015. Elizabeth Marino, an environmental anthropologist at Oregon State University—Cascades, reached out to multiple members of the fishing community in order to solicit

information regarding anticipated effort shift among fishers once the Cape Falcon Marine Reserve went into effect on, January 1, 2016. Marino interviewed a total of nine people directly involved in commercial and/or charter fishing over a period of two weeks for this report and informally discussed reserves with other community members, non-fisher participants in the marine reserves community team, as well as conducting limited ethnographic observations. Three interviewees were with fishers who were voting members of the marine reserve community meetings and voted “no” to the marine reserves. All others were familiar with the reserve process and had ideas about the impacts of marine reserves.

Interviews were semi-structured and took place in people’s homes, in public spaces, at the docks, and in residents’ offices. Dr. Marino used a snowball sampling method to locate fishers who agreed to participate. Most interviews (7/9) were recorded, unless the interviewee requested they not be recorded, in which case Dr. Marino took notes during and immediately after the interview. Sample interview questions included, “can you tell me what you know about the marine reserve at Cape Falcon?”; or “as specifically as you can, please tell me how the marine reserve will impact you,” and “where will you shift your fishing efforts as the marine reserve at Cape Falcon goes online?”. Interviews lasted between 30 minutes and 2 hours.

Many interviewees were suspicious of this research project, in part because of the contentious nature of the initial marine reserve community meetings. Because of this, there were challenges in locating fishers who would discuss this issue with the researcher (as we expected) – and interviews were often charged with political indignation and real frustration on the part of the interviewee. Because of these initial challenges, the first



week of this project involved meeting and being met by members of the fishing community. The interview process and outreach with the fishing community was ultimately successful – and interviews ended up lengthy and demonstrated expert knowledge among the fishing community about the political process of marine reserves and deep ecological knowledge of the ocean. To help dispel fears that this work would misrepresent the fishing community, the researcher has contacted interviewees from Garibaldi to vet and review this report. Notes from interviewees will be incorporated into the final report so that the dialogue with ODFW, myself as the researcher, and the fishing community remains open.

### **III. Findings**

#### ***Economic Impact***

The most surprising finding from this research is that nearly all (7/9) interviewees reported that there would be minimal economic impact from the marine reserve at Cape Falcon for commercial fishers. Interviewees stated that there would be economic impact on charter fishing boats, limited economic impact on a handful of crabbers, and potential impact on recreational halibut fishers out of Nehalem, Oregon. This is largely because the marine reserve area is *not a primary commercial fishing or crabbing location*. A typical response to this question is represented by the following transcription from the interviews:

*Interviewer:* Right. Who is it that this is going to cost money to? This particular reserve?

*Fisher 1:* In reality, probably nobody.

*Interviewer:* Okay

*Fisher 1:* I don't know.

*Fisher 2:* A couple of day crabbers.

Because the Cape Falcon Marine Reserve is so rarely fished commercially, it appears there will be minimal effort shift. The interviewer expected fishers to be in support of the selected location, if economic impact was minimal. While multiple fishers interviewed were thankful that the reserve did not extend north to Castle Rock, as originally proposed, fishers objected to the marine reserve location. These objections ultimately were linked to the lack of fishing. Because of the overall lack of fishing in the reserve area, the fishers interviewed saw the reserve as unnecessary. Already distrustful of scientific findings used to create fish management restrictions, the implementation of a reserve within a non-fished area fueled doubt in the management process. In other words, if the reserve protected a piece of coastal waters that did not need protecting from large-scale fisheries, then what were they there for? As one interviewee said, "I understand all of the issues involved, and I don't think marine reserves are necessary in areas that aren't heavily fished especially, and that is one of them."

Economic impact was thought to be greatest on charter fishing boats, which travel north to fish when the wind is blowing from the north ("so we're blown home"). Travel north by the charter fishing boats is more prevalent in July and August, which is also the busiest time of year for the charter fleet. The Cape Falcon Marine Reserve contains and lies between charter fishing drifting areas and provides a protective cove to fish in when the weather makes fishing in other places more challenging. The extent of impact

on charter fishers should be monitored – and likely there will be greater charter fishing north of the reserve than there has been previously.

There was also evidence of minimal economic impact on crabbers. Some crabbers and fishers in the region have long-tenured areas in which they fish and through which they have established informal territorial rights through family-lines. The marine reserve areas include some of these family-fishing areas. One interviewee was a crabber who had informal fishing rights to an area within the reserve. His observation was that the cyclical pattern of crab within the marine reserve area was on approximately a ten-year cycle in which crabs came in when the sand came in on the bottom of the ocean floor. At these times, crabbing would be affected significantly, which might occur approximately once every ten years.

One interviewee mentioned the potential for economic impacts on recreational fishers – particularly halibut fishers coming from the Nehalem area. In subsequent socioeconomic impact studies, this would be a line of inquiry to follow. It was generally agreed that recreational fishers produced an important revenue stream to coastal cities and businesses and was an underreported and underappreciated economic sector of the community.

### ***Social and Cultural Impact***

Social and cultural impacts emerged as critical outcomes of marine reserve implementation. Some sociocultural impacts are tied to the marine reserve community meeting process, political frustration, and issues regarding uncertainty and the future. These will be discussed in the following sections. Here I want to point out that the marine

reserve area contains a protective cove that offers shelter to fishers who can't get back to harbor in inclement weather. Fishers who overnight in the safety of coves such as this fish for dinner, and fishers on their way out stop here occasionally and fish for breakfast. This nearshore area is a traditional fishing ground that has deep roots in the fishing community. There are oral histories associated with this area, such as the first time a fisher overnighted on the ocean with his father (also an important member of the Garibaldi community, now deceased). My interpretation of these interviews is that this area existed as a well-known piece of the nearshore for well-respected families in the fishing community, and, as such, was a particularly sensitive piece of ocean to “reserve” for the use and benefit of all.

### ***Impact of the Marine Reserve Designation Process***

The marine reserve community meetings and establishment process did not create animosity among conservationists and the fishing community – but it did irritate already uneasy relationships. Despite the fact that this research originally set out to explore effort shift –interviewees often steered the conversation towards the marine reserve implementation process and the perceived inequity in determining whether marine reserves would go into effect. This is in spite of – and perhaps because of – the fact that the reserve is located in an area that is not extensively fished.

Conflicts over coastal and ocean resources and community value disputes have a long history in the anthropological literature and the fisheries literature (c.f., Berkes 1986; 2001; Lam and Pauley 2010, as examples). For now I want to highlight four typologies of inequity that were highlighted by the fishers I interviewed. These are

perceived inequities that should be considered by all parties, despite likely disagreements about their nature and extent.

First, the fishers believe that the community process was ineffectual and that the outcome was already decided before the community meetings began. While some interviewees acknowledged that the community meeting process did shift the marine reserve location away from Castle Rock – a critical charter fishing location – fishers believed that agencies and conservationists never really considered *not* implementing the reserves. The perception is that the stakeholder group make-up (9 non-fishers – to – 7 fishers) reflected the previously determined certainty of the reserves. More than one interviewee used the phrase, “the deck was stacked.”<sup>1</sup>

Second, some fishers, in various ways, expressed a perceived class distinction between themselves and conservationists, which is seen as a difference in political power and a spatial/geographical distinction. Marine reserves are systems of management that are perceived to come from more urban and wealthier areas of the state that are commensurate with conservation/preservation ideologies as opposed to resource-extraction ideologies. The community meeting process helped to distill this perceived disparity in political power because the fishers did not get what they wanted – and watched other stakeholders “win” for all intents and purposes. There was also some confusion regarding the final vote. Anecdotes from one interviewee indicated that there was, essentially, a last minute change as to who could vote on implementation, which caused great distrust among the fishers present.

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<sup>1</sup> Interviews with non-fishers have disputed this; and instead argue that fishers were overrepresented on the community team boards. My point here is not to claim that fishers were underrepresented, but to demonstrate the strong socio-cultural salience of this narrative.

Third, the fishers balked at concepts such as “we all own the ocean” and the notion of the ocean as the commons. Marine reserve systems are built, in part, around the premise of the commonly owned ocean. Research on risk perception and cultural worldview argues that a communal worldview will often conflict with an individualist worldview (Douglas and Wildovsky 1982), and language that privileges one over the other is a root cause of cultural and political conflict (Kahan and Braman 2006). This was present in interviews such as the following,

*Fisher 1:* “They say the ocean belongs to everybody. I’ve got blood in that ocean.”

*Interviewer:* “Yeah”

*Fisher 1:* “I live there. He lives there. I’m going to claim it.”

Fourth, fishers were perplexed by the fact that the Cape Falcon Marine Reserve protects an area of the ocean that is not extensively fished, as mentioned in previous sections. To the fishing community this exemplified that there was no scientific justification for the reserves. As one interviewee said:

The first question I’d like to have answered on the marine reserves is what is the mission of it, and what is the vision of it. I think one of the reasons why the fishing community is so kind of up in arms about the whole thing is because all of the time the government people, bureaucrats, were trying to sell it, there was no real clear mandate exactly what they wanted to do.

This seeming disconnect between a reserve system that is meant to conserve fish habitat, but which reserves an area of the ocean that is not extensively fished gave rise to

concerns that the ultimate goal was to greatly expand marine reserve areas, which will be explored in the following section.

### ***Impacts of uncertainty***

*“You’re painting a target on those areas that you decided not to put reserves on at this point; but the [fishing] industry looks at it and says, well, they’re going to make a reserve out of it later.” – Fisher interviewee*

The greatest concern among fishers was that the marine reserve areas in Oregon would inevitably be extended to either link the marine reserves that are already in existence, or to increase the size of the reserves significantly in the future. These fears are modeled on what fishers saw happen with the marine reserve system in California<sup>2</sup>. There is, currently, an influx in fishers coming north from California because of increasing fishing restrictions and increased ocean management. Fishers in Oregon feel pressure from multiple ocean management systems – and fear an economic decline in their industry linked to increasing regulations. While the Cape Falcon Reserve might not immediately create significant economic impacts – fishers fear that this is the first step in creating a management scheme that will ultimately conserve greater and greater portions of Oregon’s State waters and shift coastal economies away from the fishing sector. “That would kill us,” said one interviewee.

There are significant impacts to states of uncertainty. While uncertainty is a characteristic inherent in the fishing industry, some research suggests that when

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<sup>2</sup> The social and informational networks between Oregon fishers and California fishers are extremely dense. Managers should note that any information exchange with the fishers should take into account other streams of information through which people understand and interpret local events. In this case, the experience of marine reserves for fishers in California is the primary comparison that fishers in Oregon make– at least in the small sample I have here.

uncertainty is structural, that it can be more challenging to understand analytically and to address from a management and fishers perspective (Charles 1998: 37). The structural uncertainties Charles identifies are the following:

1. *Spatial complexity*: Spatial heterogeneity, stock concentrations, migration patterns.
2. *Fish–fish interactions*: Multi-species interactions, notably predator–prey effects.
3. *Fish–environment interactions*: What effects do ocean conditions have on the fish?
4. *Technological change*: What changes will be adopted and what will be their impact?
5. *Management objectives*: What societal goals are being pursued?
6. *Fisher objectives*: What goals are driving fisher decision making?
7. *Fisher response to regulations*: How will fishers respond to specific regulations?
8. *Institutional arrangements*: How will fishers adapt to new management institutions?

I wish to highlight structural uncertainty number five in this conversation: *What societal goals are being pursued?* There may be an underlying feeling of uncertainty regarding marine reserves that at a broader level the primary societal goal in Oregon of human-ocean interactions are changing from resource extraction-based goals to conservation or preservation-based goals. Fishers could object to the marine reserve system, therefore, as a demonstrable outcome of this broader social change.

### **Discussion**

Many of the findings in this report are not novel – nor are they indicative of new



cultural and social processes operating on the coast, but they may be indicative of an increased tension on the coast between fishing communities and conservation communities. Conservationist ideologies and fisher ideologies are long-documented breeding grounds of cross-cultural misunderstandings and areas where divergent value systems come into conflict. There are two caveats here. First, it is important to note that fishers consider themselves conservationists as well – though ideologically different than non-fisher conservationists/preservationists – and all my interviewees expressed deep concern for the health of the ocean. Second, many people I have spoken with over the course of this year indicate that Oregon is “different” and that communication among diverse ocean stakeholders (including conservationists and fishers) is more likely to be productive and pragmatic here than it might be in other places. This suggests to me that achieving common ground and civil discourse among stakeholders is possible.

Identifying common goals among diverse stakeholders might be aided through careful construction and framing of conservation efforts. Emerging research indicates that understanding environmental conservation through the value systems already present in communities has great promise to expand conservation practices and environmental concern (Wolsko et al. 2016). Research also demonstrates that environmentalist and conservation discourses often fail to do this, and specifically environmentalist discourses can alienate politically conservative communities (Feinberg and Willer 2013; Feygina et al. 2010; Kidwell, Farmer and Hardesty 2013). In other words, research suggests that framing conservation practices, such as marine reserves, widely and with all stakeholder value systems in mind, might help in preserving civil communication among diverse stakeholders.

What is critical in this report are three basic findings: a) that effort shift at Cape Falcon will be minimal because the reserve is not a prime commercial fishing or crabbing location, and therefore will have minimal economic impact (notably fishers think it will also have minimal biological impact); b) that the reserves are creating uncertainty regarding the future plans of marine conservation in Oregon state waters; and c) that uncertainty makes decision-making and planning for the future challenging and could create unnecessary conflict.

These three findings have significant implications going forward for ODFW's ongoing monitoring plans and outreach. While ocean management is a system that must inevitably make decisions under conditions of scientific uncertainty (Fulton et al., 2010) – it may be important for fishers and other stakeholders to understand the goals of the marine reserve systems, the biological and species thresholds and indicators, and the social and economic thresholds that the state will use to maintain, increase, or disband the marine reserves as they are today. These thresholds need to be summarized and made clear to fishers.

Finally, it is important to consider that more than one interviewee identified the ultimate impact of the reserves as being a “personal” or “emotional” impact. While effort shift monitoring often focuses on economic indicators – the vote among the stakeholder group for Cape Falcon was the most contentious and was, surprisingly, not a high economically-valued space. Nearshore waters in particular are pocketed with socio-cultural spaces for fishers who identify the ocean as home-turf and community and family stomping grounds. This is not to discount the economic impact of marine reserves, but ODFW and OPAC should be cognizant that social spaces and cultural capital emerge

as unifying issues for close-knit communities, like the community of fishers along the Oregon coast. Of course non-fishing community members have relationships with the ocean as well. These personal, sociocultural relationships can either be a basis on which to maintain community cohesion, or can be a wedge in which community cohesion erodes.

In conclusion, there should (and presumably will) be ongoing and larger-scale modeling of the impacts of marine reserves and how fishers shift effort in order to navigate the marine reserve system. It might be beneficial to send out a small team of qualitative researchers in each of the communities prior to a coast-wide survey distribution. There may be surprising findings from interviews that would help inform coast-wide monitoring systems, as we find here.

**Fisher Comments after reading this report:**

- While there are troubles globally, fisheries in Oregon are very well managed.
- If they put it [marine reserves] in the wrong place – what are they going to do?
- When they put us down to three miles, it took out ½ of our reef; because there are not very many reefs within 3 miles. Perhaps there is not a need because of the lack of density of the population and because of the difference in habitat. If an area isn't over used, then why does it need protection?
- The reserve area is naturally protected – there are too many rocks, it's too dangerous to go there. It doesn't need policy protection.
- You're putting pressure on the areas that are left.

- There are significant difference between fisheries in the north and south of pacific city. Huge ecological differences. Fishers in other areas can better afford to lose fishing ground to marine reserves.

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