

## INSIGHTS INTO POTENTIAL PATHWAYS FOR INCREASING THE SUSTAINABILITY OF SMALL-SCALE FISHERIES

During 2019, Advanced Conservation Strategies and Ocean Outcomes collected primary data to understand key aspects of small-scale fisheries. In particular, we sought to collect insights into the demand for triple-bottom line approaches to small-scale fisheries improvement and perceptions on the challenges to delivering more high-quality and responsible seafood.<sup>1</sup> First, we conducted a rapid online survey focused on demand for triple-bottom line learning in small-scale fisheries. Second, we conducted in-depth interviews in Chile and Peru, which were focused on the importance, attention, and progress of different factors in increasing the amount of small-scale, high-quality, and responsible seafood. Here, we briefly present the results of these two efforts.

### DEMAND FOR TRIPLE-BOTTOM LINE LEARNING IN SMALL-SCALE FISHERIES

In a rapid effort to scope the experience and interest of triple-bottom line approaches to sustainable seafood within the small-scale fisheries sector, we conducted a brief online survey. The survey targeted individuals working with small-scale fisheries in some capacity and focused on the activities, capacity, and demand around triple-bottom line approaches. Respondents represented experience from 50 countries across the non-profit and for-profit sectors.<sup>2</sup>

With respect to the three dimensions of triple-bottom line, respondents and their organizations worked more on environmental issues within small-scale fisheries compare to financial or social issues. For example, 89% of respondents stated they work on environmental fisheries performance *a lot* or *always* compared to 53% and 62% for financial and social performance, respectively (Fig. 1). A similar pattern emerges with respondents' capacity to work on the triple-bottom line. Only 4% ranked their organization as *very weak* or *weak* with respect to their ability to work on the environmental dimension of fisheries performance. In contrast, 30% did so for the financial and social dimensions (Fig. 1). Interest in receiving training on triple-bottom line approaches to fisheries performance was high across all three dimensions, but higher for financial and social dimensions (Fig. 1).

We also asked respondents to rank the three dimensions in the countries that they work with small-scale fisheries with respect to two factors: 1) the attention (i.e., funding, programs, and resources) each has received and 2) progress that has been achieved for each over the past decade. Respondents reported that the environmental dimension has received the most attention, followed by financial and social. Fifty-one percent of respondents reported that the environmental dimension received *considerable* or *a lot* of attention, compared to 17% and 10% for financial and social, respectively (Fig. 2). Progress across all three dimensions was viewed as limited. Roughly half of the respondents reported that *some* progress on the environmental dimension of small-scale fisheries had been made. In contrast, 63% and 58% reported that there had been *none* or *a little* progress made on the financial and social dimensions, respectively, over the past decade (Fig. 2).

In the final section of the survey, we asked respondents about their experience with different points along the small-scale seafood supply chain. Respondents' activities and capacities were focused on small-scale fishers, yet they expressed interest in receiving training to work at other points along the supply chain

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<sup>1</sup> We focused on high quality and more responsible seafood. The former because improving quality is often the easiest and simplest way to augment value. We define responsible as seafood harvested or produced in ways that meet environmental and social best practices and can be verified.

<sup>2</sup> The survey was distributed using a snowball technique, as well as promoting it across social media platforms. The total number of respondents was 48, more than half coming from individuals working at NGOs (26), followed by for-profit ventures (9), government (3), universities (3), foundations (3), and fishing organizations (3). The survey was available in English and Spanish.

(Fig. 3). Over 90% of respondents claimed they work with small-scale fishers *a lot* or *always*, while <40% claimed they do so with seafood traders or buyers. Similarly, only 2% ranked their capacity to work with small-scale fishers as *very weak* or *weak*, compared to 39% and 52% for their capacity to work with traders and buyers, respectively. Last, respondents showed interest in receiving training to work at all three points in the supply chain, with between 60-70% stating they have *high* or *very high* interest (Fig. 3).

While not a random or representative sample, the results of our rapid, online survey provide some evidence for both capacity gaps and interest in receiving training to address them. Respondents tended to be working with small-scale fishers on environmental issues, which aligned with their capacities. They also worked on financial and social aspects but reportedly had less capacity to do so. Respondents worked less with seafood traders and buyers and reported having less capacity to do so. Interest was high with respect to receiving training in working across the seafood supply chain and the three dimensions of the triple-bottom line approach.

### PERCEPTIONS ABOUT SMALL-SCALE SUSTAINABLE SEAFOOD

We undertook a larger effort to collect primary data on current perceptions on delivering small-scale, high-quality, and responsible seafood. We did so by conducting in-depth, semi-structured interviews with experts in Chile and Peru.

The interviews focused on capturing perceptions around the following objective: increasing the proportion of seafood from small-scale fisheries that is high-quality and responsible. The quantitative portion of the survey collected information across six domains:

- Knowledge,
- Skills and capacity,
- Financial services,
- Infrastructure,
- Demand, and
- Policy and regulation.

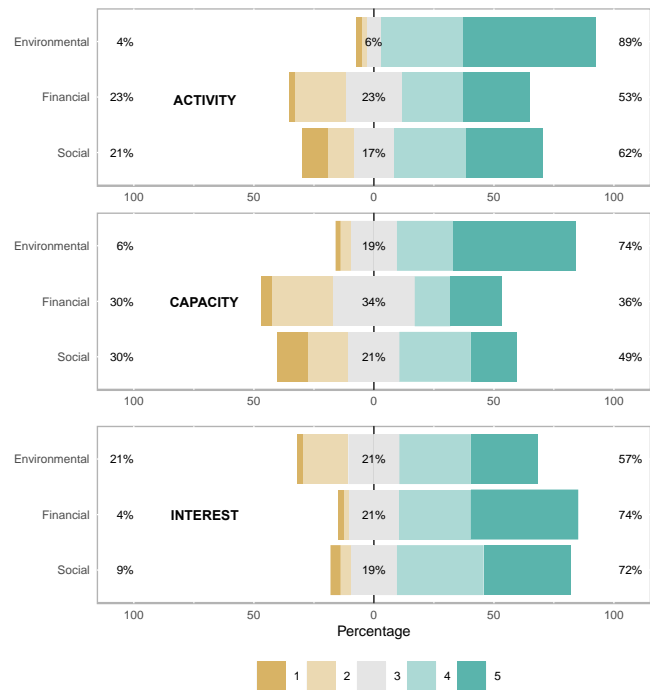


Figure 1. Respondents were asked to rank their organization with respect to 1) how often they work on the three dimensions of triple-bottom line 2) their capacity to do so, and 3) their interest in receiving training. Responses were on a Likert scale, with a 5 representing *always*, *very strong*, and *very high* interest respectively.

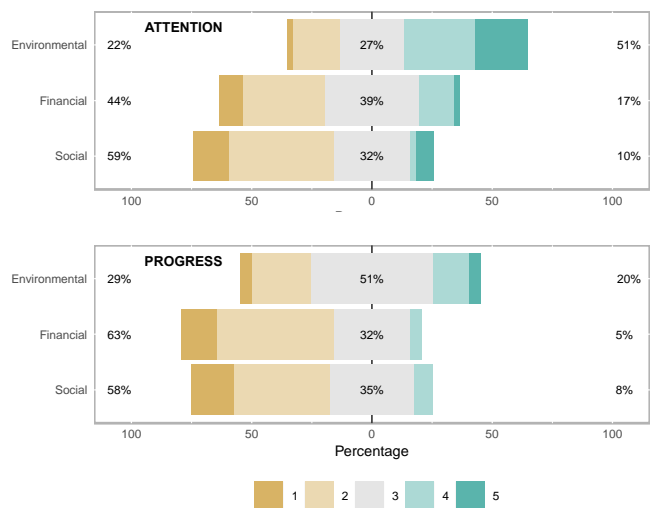


Figure 2. Respondents were asked to rank the three dimensions of triple-bottom line with respect to 1) how much attention they have received over the past decade within small-scale fisheries in the countries they work, and 2) how much progress has been made over the past decade. Responses were on a Likert scale, with a 1 and 5 representing *none* and *a lot*, respectively.

Respondents were asked to rank factors, which fell under one of the six domains, as they related to their importance, attention, and progress (Box 1). The interview was designed and conducted over a seven-week period by trained and experienced social scientists. Interviewees were selected based on experience with small-scale fisheries and seafood across sectors and the supply chain. In some cases, additional interviewees were identified via recommendations during interviews. A total of 55 experts were interviewed (29 in Chile and 26 in Peru), primarily from the for-profit and NGO sectors.<sup>3</sup> In general interviewees were highly experienced in small-scale fisheries, with self-reported average expertise decreasing from fishers and fishing groups to intermediaries to fish markets, restaurants, and grocers.<sup>4</sup> Interviews typically lasted 60-90 minutes and were conducted on the condition of anonymity.

Across the six domains, the experts scored various factors (i.e., potential challenges or barriers) related to increasing the proportion of seafood from small-scale fisheries that is high-quality and responsible in their country from the perspectives of importance, attention, and progress. Not surprisingly, experts tended to think most factors were important overall. For example, the factor that can be viewed as relatively least important belonged to the infrastructure domain: *the need to improve fishing infrastructure (on the water) to be able to catch seafood in sustainable ways (e.g., boats, nets, lines)*. But, 58% of the interviewees scored it a 4 or 5 for importance. A capacity factor scored the highest, with 94% scoring it a 4 or 5: *the need to improve business skills/capacity so small-scale fishers can market and sell high-quality, sustainable seafood*.

Using this simplified comparison, the domains of capacity and infrastructure are commonly identified by respondents. With respect to attention received, factors related to infrastructure and capacity were scored the highest and lowest [% of respondents that scored the factor with a 4 or 5]:

- *The need to improve landing infrastructure (e.g., docks, ramps)* [51%]
- *The need to improve skills/capacity to differentiate, purchase, and sell seafood that is sustainable and high-quality* [2%].

The same pattern is present with respect to perceptions of progress, with infrastructure factors being viewed as experiencing the most progress over the past decade and capacity the least:

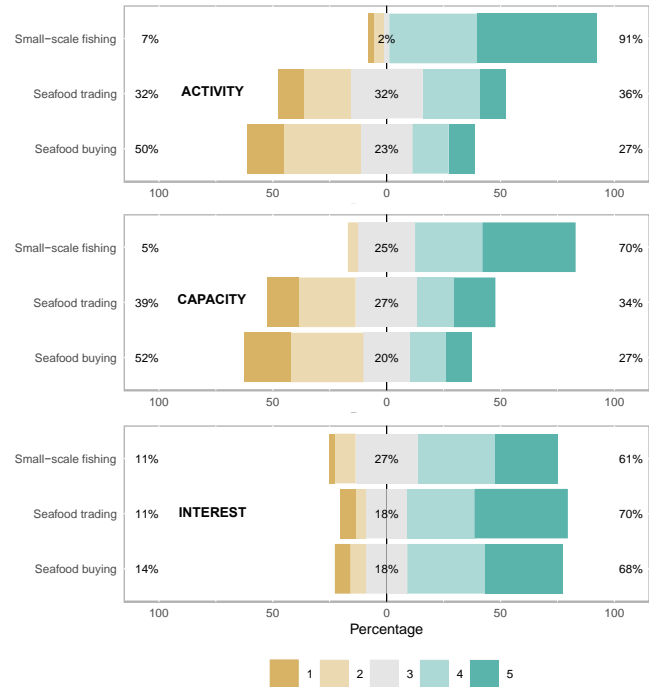


Figure 3. Respondents were asked to rank the three dimensions as they related to three points in the small-scale seafood supply chain: 1) how often their organization works with fishers, traders, and buyers 2) their capacity to do so, and 3) their interest in receiving training. Responses were on a Likert scale, with 5 representing *always, very strong, and very high interest* respectively.

<sup>3</sup> Interviewees were represented across sectors and supply chain: for-profit ventures (22), NGOs (21), government (7), fishing and industry associations (3), and philanthropic foundations (1).

<sup>4</sup> Mean Experience Scores  $\pm$  95% Confidence Intervals. Fishing and fishing groups:  $4.2 \pm 0.3$ ; Intermediaries:  $3.1 \pm 0.4$ ; Fish markets, restaurant, and groceries:  $2.5 \pm 0.3$ . Likert 1-5 scale.

### Box 1. Excerpt of interview script under the knowledge domain

*I'd like to start with challenges related to knowledge. By knowledge I mean that people have easy access to useful information related to delivering high-quality and sustainable seafood to markets.*

*The first challenge is that "[challenge]." We'd like to know on a scale of 1-5 where 1 is not at all and 5 is a lot, to what degree do you think [challenge] continues to be a problem in Chile [or Peru]? Second, how much attention do you think that the [challenge] is receiving today? Finally, how much progress you think has been made toward solving the challenge in the last 10 years?*

Challenges:

1. Organizations within the small-scale fishing sector need more knowledge about what the best fishing and handling practices are for catching and maintaining high-quality seafood (e.g., information related to fishing equipment, onboard handling)
2. Organizations within the small-scale fishing sector need more knowledge about what the best fishing practices are for minimizing environmental impacts (e.g., catch size, types of fishing gear, better resource management, how to decrease bycatch)
3. Organizations within the small-scale fishing sector need more knowledge about best social practices (e.g., labor laws, unions, inclusion of women, fair wages)
4. Organizations within the small-scale fishing sector need more knowledge about best business practices (i.e., how to increase sales, decrease costs, technology).
5. The general public needs more information so that they can make informed decisions about buying sustainable, high-quality seafood.

- *The need to improve fishing infrastructure (on the water) to be able to catch seafood in sustainable ways (e.g., boats, nets, lines) [27%]*
- *The need to improve skills/capacity to differentiate, purchase, and sell seafood that is sustainable and high-quality. [2%].*

A more insightful way to view the interview results is to collapse down importance, attention, and progress into two dimensions. A statistical technique called Principal Component Analysis reduces multiple dimensions into two orthogonal dimensions that are not correlated. Doing so allows one to easily compare all factors with respect to their importance, attention, and progress in a single graphic. In this case, the plots are particularly useful because experts' beliefs about attention and progress are highly correlated and account for ~60% of the observed variation in the responses. Importance accounts for an additional ~30%. The result are plots that show the relative importance of each factor plotted against the relative attention and progress (Fig. 4).

The results show similarities and differences between Chile and Peru. In Chile, of the five factors that are considered the most important with the least attention and progress (i.e., upper left quadrant), three are related to capacity and knowledge (Fig. 4):

- Business skills to market and sell products (capacity).
- Business skills to differentiate products (capacity).
- Public information about sustainable seafood (knowledge).
- Infrastructure of end market locations for seafood (infrastructure).
- Lack of public demand for sustainable seafood (demand).

Of the seven factors that are considered most important with the least progress and attention in Peru, six are related to capacity and knowledge (Fig. 4)

- Business skills to market and sell products (capacity).
- Business skills to differentiate products (capacity).
- High-quality transport practices (capacity).

- Fish-handling skills (capacity).
- Best business practices (knowledge).
- Social best practices (knowledge).
- Infrastructure of end market locations for seafood (infrastructure).

In both countries, factors related to capacity, knowledge, and infrastructure tend to be viewed as more important today, with the latter getting more attention and achieving more progress. This is in comparison to factors related to financial services, policy, and demand—with some exceptions. For example, lack of demand for sustainable seafood is viewed as more important of a barrier in Chile compared to Peru. These general patterns are supported by results of the qualitative sections of the interview. For example, experts were asked what they would invest in to help small-scale fishers deliver high-quality and sustainable seafood to markets. Many responses related to learning and building capacity toward triple-bottom line approaches and supporting innovation processes for local solutions:

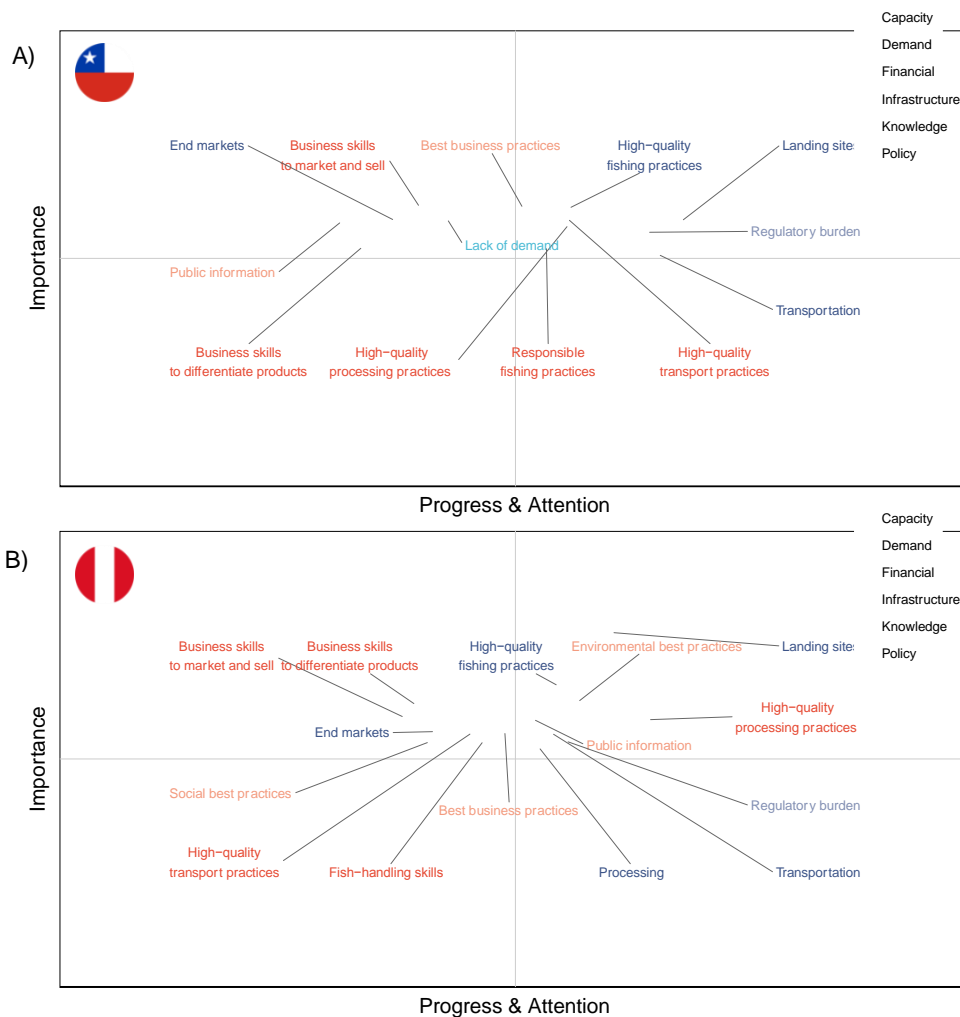


Figure 4. Multivariate plots showing the relative 1) progress and attention and 2) importance of various factors under six domains as viewed by small-scale fisheries experts in A) Chile and B) Peru. Factors in the upper right quadrant can be viewed as more important and having received more progress and attention. Factors in the upper left quadrant are more important and have received less progress and attention. Factors above the importance mid-point are labeled. Many capacity and knowledge factors fall into the upper left quadrant for both countries.

- *Invest in people...capacity and skills are very limited...train in-country professionals to follow a school of thinking, who are open to information, learning, committed to the goals of improving fisheries and promoting conservation...create a school of thinking and practice.*
- *Work on differentiated markets—a lot of groups are ready to play with sustainable and high-quality products. They just want consistent products.*
- *Train them, professionalize them, and strengthen their leadership.*
- *Make links between environmental best practices and how those practices can translate into more profits. Right now, these concepts are completely siloed.*
- *Create value-added products from small-scale fisheries and measure the impacts of the projects. Encourage entrepreneurship.*

A clear result from the interviews is that, in general, experts in Chile and Peru view knowledge and skills (i.e., capacity) as important barriers to increasing the proportion of seafood from small-scale fisheries that is high-quality and responsible. And, many of those barriers have received less attention and achieved less progress than other factors.

#### **CONTACT**

Josh Donlan | [jdonlan@advancedconservation.org](mailto:jdonlan@advancedconservation.org)

Hoyt Peckham | [hoyt@oceanoutcomes.org](mailto:hoyt@oceanoutcomes.org)