



FISH, FORKS AND FINANCE: THE IMPORTANCE OF WILD FISHERIES TO FOOD AND JOB SECURITY

AUDIO TRANSCRIPT

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Contents

Presenters	2
Presentations	4
Q&A.....	23

Presenters

Rob Bertram, USAID

Brett Jenks, Rare

Justice Odoiquaye Odoi, USAID/Ghana

Brian Crawford, University of Rhode Island

Barbara Best, USAID

Presentations

Barbara Best:

Welcome, everyone, to this month's Ag Sector Council Webinar: "Fish, Forks, and Finance," on the importance of wild fish, especially from small-scale fishers. I am Barbara Best from USAID Bureau of Economic Growth, Education, and Environment in the Office of Forestry and Biodiversity. And we are very pleased to have organized this event with the Bureau for Food Security.

Today, we will explore the importance of wild fisheries, so food security, nutrition, and livelihood, and the approaches that are being taking to restore and enhance the natural productivity of fisheries. There's growing interest in improving fisheries management not only by the public sector but also by the private sector through impact investments as modern management approaches demonstrate their effectiveness.

Now, Agrilinks is the knowledge-sharing platform for USAID's Bureau for food security. These Ag Sector Council events are one of Agrilinks' regular events, and to learn more, please visit, <http://agrilinks.org>. To learn about any of the upcoming events, you can also subscribe to the newsletter on the home page.

Before I introduce our experts, I would like to go over a few housekeeping items. Please use the chat box to connect with other participants and to ask questions throughout the event. We will note each question and pose as many as possible to the experts during the Q&A session.

If you have technical issues at any time, please private chat with the KDAD AV/Tech rather than in the group chat box. To do so, go to the host box above the chat box. Hover over AB Tech, and click, "Start private chat." You can also use this feature to initiate conversations with other participants, as well. And if you would like to, please tweet your thoughts on the content to "AgEvents".

Our experts today include Rob Bertram, Chief Scientist for USAID's Bureau for Food Security, who will provide an introduction to this topic; Brett Jenks, President and CEO of Rare. Rare and Bloomberg recently signed a global development alliance with USAID Philippines; Justice Odoi, the Environmental Specialist at USAID Ghana; and Brian Crawford, Chief of Party for the Ghana Sustainable Fisheries Management Project of Feed the Future activity. Last, I will provide information on some new

resources and tools that are available for USAID staff and partners on wild fisheries.

Before we start, let me just announce that we'll have "Ask Ag" online chat next week on April 27th at this time to further discuss impact investments in wild fisheries that will allow us to do a deeper dive and discussion on that topic. At this point, let me turn it over to Rob Bertram.

Rob Bertram:

Thank you very much, Barbara, and good morning, everyone. It's really a pleasure to be here today to introduce the webinar and share a little bit of an overview about the importance of wild fisheries to both food security and nutrition. I want, in particular, to thank Barbara, who has been the source of fantastic advice and knowledge about fisheries for many, many years for me. And today, is no exception.

Sustainable management of wild fisheries and especially small-scale fisheries is critical to achieving local food security and poverty reduction in many developing countries, and this includes many of the Feed the Future focus countries and aligned countries. Fish are some of the most nutritious foods, and fish are often staples in many developing countries, yet wild fish have often been overlooked in international and national food security discussions and action plans.

I'm glad to say, though, that that situation appears to be changing as the evidence of the importance of wild fish is growing and the importance of fish, overall, grows from both wild caught and aquaculture-produced systems. This slide shows you that fish are the world's most widely traded and most valuable food products. According to the FAO, the export value of fish from developing countries is greater than the export value of rice, tea, bananas, sugar, and cocoa combined. So it just gives you a sense for how critical this is as a source of income for many developing countries.

At the global scale, though, about half the fish produced comes from wild fish, the other half from farmed fish. But something like two-thirds of that farm fish comes from China alone. In many developing countries, the contribution of wild fish is greater than that of farmed fish, and this is especially if one takes into account the catch taken from small-scale fisheries.

Fish are also critical in terms of nutritional outcomes for many poor people in the developing world. For example, in this slide,

you can see that maternal fish during intake, during pregnancy, along with the duration of breastfeeding, are independently associated with better early child development outcomes. The more fish a mother eats, the better off her child is going to be.

It's also worth pointing out here that different fish have different nutritional profiles. And often, many of the small fish that are eaten by poor people in small-scale fisheries – they're eaten whole – and they are the most nutritious because they include the bones, the eyes, and other sources of critical nutrients.

Now, you can see here – I think probably many of you have heard how important fish are, but this gives you a sense for how much of the animal protein in critical developing countries where AID is active comes from fish. In several African and Asian countries, fish provide more than half of that animal protein supply, and FAO says that nearly three billion people rely on fish for a substantial part of their animal protein that is greater than 20 percent.

And new research is suggesting that the contribution of wild fish to food security may be even higher than previously thought in many developing countries. So for example, new research from a 10-year study just published involving over 50 countries and 400 researchers indicates that the contribution of wild fish is significantly higher, in some cases, up to 50 percent higher than previously reported.

So this catch from small-scale fisheries, though it's not often captured in the – no pun intended – in the reports that are produced and turned into the FAO. And this is especially true for some of the really critical fish that women take by gleaning their shore and that would never be counted in production but are actually critical in terms of the food security outcomes that we care about. And it's also important to remember that it's really coastal waters that are the really the most productive ones. And as you can see here, the red color shows the highest level of fishery productivity.

New research is indicating that the natural productivity is even higher than we thought, however. And you can see around Africa – West and East Africa, in Southeast Asia, and parts of Latin America, very substantial impacts. I think this also underscores, Barbara and colleagues, the important interactions between terrestrial-based agricultural activities and the health and sustainability and productivity of near-shore fisheries. So we wanna keep that in our view, as well, in terms of how we manage things on land, as well in the sea. Oops. Sorry.

And then, one of the most important points today is we have a positive message. We can affect positive change. This is based on a recent analysis of fishery management in the developed world, but you can see here that the opportunity to recover ocean productivity through improved fisheries management is really very substantial, in this case, leading to a 23 percent increase in food production, 112 percent more biomass, and an astonishing 315 percent increase in profits.

So I mean there's no wonder that there's growing interest in improving wild fisheries, not only in the public sector, but also in the private sector, where profitability is always very high on the agenda. And things like secure tenure and managed access have demonstrated their effectiveness in restoring and enhancing and sustaining food – fish populations.

Now, it's important, too, to remember that there are some aspects of fisheries that are similar to what we also think about in agriculture. And agriculture, in the view of the U.S. Congress, actually includes wild foods, such as wild fish, as well as crops and livestock.

First, we've seen that transformational change can come through securing land tenure in smallholder farming systems, while similar approaches with marine tenure and managed access are also critical to secure small-scale fishers and producers and can be similarly transformational. The importance of this securing tenure was highlighted in a recently published FAO Voluntary Guidelines for securing small-scale fisheries in the context of food security and poverty reduction.

Another point is that a systems approach that we know is an essential part of the way we consider agriculture is also true in a fisheries approach, whether we're thinking about enhancing and sustaining productivity or conferring and enhancing climate resilience. An agro-ecological system or ecosystem-based approach to fisheries makes sense.

Third, empowering producers, farmer associations, but also fisher associations through co-management of common resources and other collective efforts can improve value chains, inclusive development outcomes, and the sustainability. And I want to also add here that all of us dealing with land-based agriculture are thinking about climate all the time, now. We talk about climate-smart agriculture.

We see similar issues affecting fisheries with coastal vulnerabilities associated with sea-level rise and storm frequency and magnitude. We see issues around freshwater availability being less predictable, saltwater intrusion, and, of course, acidification and the impacts that has on shellfish, on corals, and across the ecosystem. So there's a lot of parallels.

Finally, I want to flag for you that this information and more is included in a new USAID resource *Fishing for the Future: The Importance of Food Security and Nutrition* that is being launched today from this webinar. A key feature of this briefing book is – for our programming – is a description of the importance of fisheries, what they plan in nine of the important Feed the Future focus countries. Barbara's going to say more about the book and other resources later in the webinar.

Finally, I just want to say from the vantage point of Feed the Future that I feel confident that the importance of animal-sourced foods is going to grow as we look forward in the – let's call it "Feed the Future 2.0," as we move into the next phase – in the next administration, hopefully. And I think issues around nutrition, income, and gender, all of which play out very significantly in fisheries – we didn't mention, for example, that 50 percent of the labor in many small-scale fisheries is provided by women. So there's a lot of opportunities there.

And I think that as we look forward to thinking about our research investments in Feed the Future, we need to think holistically about the connections across aquaculture and fisheries, around the synergies in fish systems, generally, and seek to develop a really strategic research agenda going forward that's going to help us all and to focus our partner countries achieve their food security goals and have fish play an important role in so doing. So thanks, everybody, and I look forward to a great seminar today.

Oh, and now, it's my pleasure to introduce the next speaker who is Brett Jenks. Brett is, as Barbara said, the president and CEO of Rare. And Brett, over to you.

Brett Jenks:

Well, thank you so much, Dr. Bertram. I guess I'll call you Rob – and Barbara – for all your leadership. It's great that you've provided a terrific introduction and context to this really important topic, and it's great to hear that fish is going to become a key Feed the Future priority in years to come, as I think you just predicted, so welcome news for the whole development community.

So essentially, I want to talk – I just want to continue where Rob left off, and that is with a sense of hope and a sense of optimism for small-scale fisheries around the world. Essentially, I want to talk, just briefly about four things, first, further outlining the problem and describing at least one solution.

Second, I want to share a story to illustrate what this potential solution looks like in action, and then no good idea is complete without the ability to replicate it and scale it. And then, finally, I'll close with some thoughts on how we might finance small-scale fisher reform at scale. So with that, I'll begin – the problem and the solution.

It's fair to say that wild fish stocks are crashing all around the world due, in great part, to poor management. Billions of people, often the poorest and most marginalized, as Rob outlined, depend on fish as a significant source of protein and other nutrients. And while climate change and population growth are going to exacerbate this problem in the years to come, it's definitely time for us to turn our attention to this, in many ways, neglected area of development opportunity.

This slide outlines what is projected for the future of Mozambique and small-scale fisheries. In this country, we predict about a 70 percent decrease in fish protein availability by 2030 simply as a result of overfishing. Overfishing's also really important for rural livelihoods. In Mozambique, like many tropical nations, 99 percent of fishers are artisanal, and they land a very high percentage of Mozambique's catch, in this case about 88 percent, most of which is consumed locally.

So conventional wisdom says that addressing the overfishing crisis usually means prioritizing reforms of industrial fisheries. And while clearly reforming industrial fisheries is key, the facts in countries like Mozambique provide a slightly different story. Small-scale fisheries in many nations play a critical role in food security, employment, nutritional health, and of course, biodiversity conservation given that most known biodiversity is found right along these coastlines.

Unfortunately, the challenge is that small-scale fisheries are complex, and Rob outlined several of these. Clearly, open access, which leads to a tragedy of the commons, lack of enforcement, is clearly a challenge when you're trying to provide any sort of market reform. The catch is highly disaggregated, which made it

difficult to improve the value to work on supply-chain improvement or access to markets, which is not unlike smallholder agriculture before the major land tenure movement years ago – clearly, not for the faint of heart.

Finally, there's a pervasive lack of data which makes informed decision-making and even basic management quite difficult, so these are the challenges. But as Rob said, there's a great deal of hope.

This is another analysis recently published by Chris Costello and company at University of California, Santa Barbara, and basically, what this shows is arguably the most complete set of global fisheries data created to date. This includes data from about 5,000 of the world's 17,000 fisheries, roughly. And what it shows – the y-axis there is basically a measure of fishery health, to keep this simple. And the chart illustrates the current downward trend of global fish stocks and then projects recovery scenarios under different management approaches.

Under the red at the bottom, you see the business-as-usual scenario, where the percentage continues to drop over the next 30 years as do profits. And it's important to note that small-scale fisheries are in the worst shape of all of these fisheries in many cases.

The blue line provides the contrast and essentially a great source of hope, and this is the line that shows what would happen if much of the world adopted rights-based fisheries management scenarios, which include secured tenured, catch shares, quotas, for local fishermen. So if we think about how transformative land tenure's been for smallholder farmers and all that Feed the Future has learned from its work in this area over the years, marine tenure would offer a similar promise in many ways for small-scale fishers. Given how many people depend on these fisheries for daily protein, this is both a big challenge and, if addressed, a really big opportunity.

Securing marine tenure can be a critical component of fishery recovery. And I just want to illustrate a way that Rare, with a group of partners, including Environment Defense Fund, University of California, Santa Barbara, and the governments of Belize, Brazil, Indonesia, the Philippines, and Mozambique have all been working together to begin to replicate a model like this.

So first, local authorities allocate territorial-use rights for local fishers, which the acronym would be TURFs, which is fitting. You might also just call this "managed access," as these do in some countries or marine tenure. This turns an open-access regime into essentially an asset that local communities will go great distances to help protect and eventually to manage.

Next, local fishers design and begin to protect no-take reserves inside or sometimes adjacent to their TURFs. Some people call these no-take zones or fish banks because if no one fishes in the area, what's created is essentially a natural annuity. And as the fish population rebounds inside the fish bank, the spillover accrues to licensed local fishermen. So the better they manage the system, the bigger the economic benefit.

So this approach we've called Fish Forever, and it essentially addresses these four major challenges for small-scale fisheries: open access, lack of enforcement, disaggregation, and lack of data. So that's the introduction.

I'd like to illustrate this with a story about the Philippines. So let me introduce you to Tian Cempron. He's a Rare-trained behavior-change agent – we call them "conservation fellows" – from Hambongan Island in the Philippines. Tian was the son of a local fisherman and, a number of years ago, began to see the decline near collapse of Hambongan's local fisheries.

So he started working closely with his municipal president and Rare. We worked over the course of a complete year training Tian and 12 other local leaders from 12 other municipalities and how to run what we call a "pride" campaign, which is designed to instill a sense of civic pride in local communities. It's a social marketing approach more common to public health practices, and I'm sure AID partners are very familiar with. And this is increasingly used in the environmental space to motivate behavior change and, in this case, to motivate the adoption of a sustainable fishing practice.

So after a year of planning and design and training, I happened to be there this opening day, opening of his campaign, with 2500 local citizens filling the stands, local mayors standing up and pledging their allegiance to creating these new systems for sustainable fisheries. We filed outside and led by Meloy the panther grouper mascot, traveled down to the waterfront, where we then – first time I've ever seen parade floats that actually float – we circumnavigated the no-take zone. And we were able to create a

sense among the whole population of just what the opportunity here actually was and the technique for recovering fisheries.

Now, Tian was 1 of 13 local leaders from 13 municipalities trained to employ this particular approach, Power of Pride campaign, plus TURF, plus reserve, et cetera, and they achieved pretty significant results. On average, across those 13 sites, while there was a wide range and 1 very big outlier that saw a 433 percent increase in biomass in just a year, which we know is an outlier and probably not correct – we assume a big school of mackerel swam through that day – the average was 38.8 percent increase in fish biomass inside those no-take zones over that first year. But that shouldn't be a surprise.

Sarah Lester from University of California, Santa Barbara published a paper in '09, where she aggregated a 100 peer-review journal articles, did a meta-analysis and concluded that, on average, over five to ten years, no-take zones have the potential to increase biomass 446 percent. TURFs and no-take areas are not only a promising way of recovering fisheries, but they're also a great way of restoring the natural productivity of the ecosystem. So this isn't just marine tenure. It's also about ecosystem restoration, and you can see increase in density size and diversity supported here.

The fact that local leadership, social cohesion, self-enforcement and TURFs and quotas motivate sustainable fishing is also not a surprise. Here's another paper by Nico Gutierrez who was a protégé of Nobel Prize winner Elinor Ostrom, where he looked at hundreds of very successful small-scale fisheries and identified what they all had in common. And those are the common attributes in ranked order, which should sound familiar.

So based on some early initial successes and a clear opportunity to begin to boost fish populations, create motivated communities of fishermen collaborating together to manage their fisheries in a more sustainable fashion, we began to think about replication and eventually exploring ways of scaling the Fish Forever TURF reserve model. The great news is, as of last year, a result of a long-term partnership with Environment Defense Fund, Wildlife Conservation Society, the governor of Belize, and others, the governor of Belize adopted this TURF reserve system or what they call "managed access" nationwide.

The cabinet of Belize mandated the rollout in the coming years, and so we'll look forward to seeing just how successful this

program is. But that's great news for Belize and hopefully a sign of good things to come in other countries.

Thanks to Bloomberg Philanthropies and a GDA partnership with USAID, as well as the Waitt Foundation and others, this approach is now taking off in the Philippines, as well as in Indonesia. By year's end, we hope to have 20 TURF reserves up and running across these 2 countries. And this is really just the beginning of the proof points and the momentum building to eventually replicate these on a much broader scale.

In the Philippines, we're partnering with local government units, right now. In more than 20 municipalities of the 37, where we've been active working on no-take zone protection and propagation. And so we're now beginning to think about what it would look like if we were to find a way to roll this program out with municipal presidents along the – much of the coast of the Philippines. And so we're now beginning to envision scale, and this is what we imagine it looking like.

But the big question is, "How can we justify the kind of investment that would be required to finance replicating a program like this, nationally?" So recently, we've begun to look at the costs and the benefits of this kind of effort and a potential return on that investment. And here's what we've started to see: If 650 coastal municipalities successfully adopted this approach in the Philippines, and we saw the kinds of long-term results that we expect to see based on our early work, we would see nearly a 100 percent increase in fisher revenue over about a 15-year period.

We would potentially see 350,000 families removed from poverty, a 50 percent increase in fish meals per person, per month, and a slight drop in greenhouse gases from protein production. The value in economic terms would be in the billions of dollars and, according to our analysis, well worth the investment. And we'll talk a little bit more about that in just a minute before I wrap up.

But then, the question is, "How would we scale the program? So we've been thinking about a three-pronged approach, which should not be unfamiliar to many of you: one, government adoption and promotion, second, value-chain improvement and the provision of private capital, and, third, delivery efficiency. So let me just briefly show you what I mean.

So first, government adoption. In Mozambique, thanks to the Nordic Development Fund, Rare is embedded, now, in the

Ministry of Fisheries, where we're working with 16 IDEPA, which is the small-scale fisheries department staff, who are working full time on this project, while 20-plus other IDEPA staff are receiving training on fisheries management and social marketing techniques that we use in these Pride programs. Together, we're launching six pilots along the coast, so that's one example of government adoption.

To ensure the quality of the program while replicating it along the coast, we're developing a set of replicable tools and adaptable manuals and training curricula that can be modified locally so that we can build capacity and then, over time, utilize technologies and hybrid training techniques to drive down the cost of delivery to each of these communities. And then, finally, value-chain improvements and the provision of private capital is going to be key over time.

Everyone thinks about the J-curve, this infamous challenge. Some people call it the "valley of death," the sacrifice that fishermen have to make in the short term so that fish can recover before they reap the benefits of better fisheries management. So with Fish Forever, we're working on a variety of ways to reduce the depth of the pain and boost the eventual upside, this by helping to create access to better markets, premium pricing where possible, and by helping fishermen cooperate as a way, in part, to reduce their cost.

So recently, one quick example would be we launched with a group of other partners, a sustainable seafood week with some of the leading hotel chefs in Manila and partnership with USAID and Bloomberg Philanthropies and others. And for the first time, we connected these high-end markets very meaningfully with local communities. And for the first time ever, we're selling into this particular supply chain.

And as a pilot, it was a great success, and it's leading us to a number of new ideas for how to invest in boosting those supply chains, which leads me to just a couple final points. One, beginning next year, we hope to launch what we believe will be the first, if not one of the first, \$20 million private fund to invest in small-scale fisheries enterprises along the coast of Philippines and – excuse me – and Indonesia.

And the goal is simply to bring private capital for the first time to these disaggregated small-scale fisheries, where TURF reserves and community organization makes investments in this space less risky. Over time, our hope is that this \$20 million investment and

the proof points that it provides will de-risk the market enough to bring in more conventional investors over time. And so that's the three-part approach: government adoption, reducing delivery costs, and then eventually bringing... the market enough to bring private capital to bear.

So I'll just close with one final point, and that is, if we're going to think about major – this is a multi-local solution, and this requires a heavy lift to scale nationwide. Really, that's inevitably the big challenge that we all face, and so we've begun to think about how we would potentially finance an endeavor like this in 650 municipalities.

So we're beginning to work with the National Economic Development Agency of the Philippines to chart out what this would look like. This is the beginning of a four-month project. But this is our initial hypothesis that says over 15 years, as you see here, if you follow the dotted line, that's the trajectory assumed of municipal fisher revenues.

The deep J-curve, which costs out at about \$2.6 billion is what conventional wisdom would be, a huge sacrifice on the part of small-scale fishers and the kind of J-curve that most politicians or economists would just sort of laugh at and move on. It's just too big a hurdle. It's too much to ask local fishermen to make that kind of sacrifice, or it's a huge burden to finance that transition. We believe that there's several things that can be done from local enforcement to secure tenure to value-chain improvements that pull up that J-curve that reduce the pain and that make large-scale – small-scale fishery reform far more feasible.

And then, finally, I would say that the only way this ends up getting financed would be through some form of blended finance, where philanthropy enables the process to get started. The government buys in and begins to spend its own resources on this approach, partnership with multi-lateral and bilateral aid institutions who can help bring expertise and perhaps concessional financing to de-risk the market so that eventually the private sector can help so that, at the end of the day, this is managed by private sector as a fisherman themselves under a modicum of regulations.

So in summary, I would argue that Feed the Future has an incredibly promising future in small-scale fisheries and that all that it has learned about small-scale smallholder ag tenure and cooperative development and even finance would make a material difference in terms of food security, biodiversity, conservation, and

livelihood protection, if not creation throughout the developing world. So thanks. Now, I'd like to turn it over to Justice Odoi from the USAID Ghana Mission.

J. Odoi: Thank you, Brett. The next presentation is going to give a little bit of detail in terms of what USAID Ghana is doing within the wild fisheries. Just like previous speakers have mentioned, generally, world per capita fish consumption is increasingly steady. And similarly to Ghana, the per capita consumption of fish, it's high.

Fish plays an important role in meeting Ghana's food security and nutritious needs. It is estimated that about 50 percent of total animal fish protein in Ghana comes from fish, and fish is highly nutritious and provides available supplement for diversified and nutritional diet. It provides not only high-value protein but also represent an increase in important source of wide range of essential micronutrients, minerals, and fatty acids.

Despite the importance of fisheries in Ghana, the sector is faced with many challenges that we need to work through as a country with support from the donor or development agencies. Among the challenges, we have the issue of open access, where people can easily jump in and then become fishermen and then make the best out of it.

We also have the issue of over fishing and over capacity. The other issue is with poor governance, and specifically to Ghana, our other issue is with the fuel subsidies, which encourages other people to join. And just like other countries, Ghana also has the issue with IUU fishing, which is the illegal unreported and unregulated fishing.

The next slide talks about the loss that Ghana experienced in terms of 100,000 metric tons of fish brought in in the last decade. And if you look at the figure on your right, you could see that significant decline of fishers' catch, particularly for...in Ghana. This really shows the kind of issue that Ghana needs to deal with, and it tells you that there are things that we need to work on because there are risks that we need to overcome.

And if you look at some of the risk in terms of the decline and the impact it will have on the economy, about 4.5 percent of GDP comes from fisheries, and that was reported in 2000. In recent years, it's about 1.5 due to the rebuilding of the economy of Ghana. Annual yield is about 344,000 metric tons and the annual, about 74 percent, from the small-scale fisheries. In terms of livelihood,

fisheries contribute to about 2.2 million indirect workforce, you know, employment to people and directly to about 210,000. It's also, like I said, initially, it's an issue of food security and nutrition, and it's a good source of protein for vulnerable households in Ghana.

To respond to some of these challenges and the other coastal management issues within Ghana, USAID Ghana developed the Fisheries and Coastal Management Project, which consists of three project-integrated projects. The first one is the Sustainable Fisheries Management Project, which has been implemented by the University of Rhode Island. The next presenter will talk a lot about this particular project.

The other project is the Coastal Sustainable Landscapes, which looks at coastal management issues in relating to mangroves and forest-related activities and estuaries because these are also important for the fishscape. The other project, which is the last one, is a capacity-building project, which focuses on building long-term and short-term capacity and providing a hub within a local university that will support future capacity to sustain because one of the things that has been identified is the capacity for the management fisheries is quite weak in Ghana.

I would like to take the opportunity to introduce Brian Crawford who is the chief of party for the USAID Ghana Sustainable Fisheries Management Project. And he will give you more details in terms of what the project wishes to achieve. Thank you.

Brian Crawford:

Thank you, Justice, and it's a pleasure to be here today and this morning. So let me just tell you a little bit about the Sustainable Fisheries Management Project. And simply put, the major goal of this initiative is to rebuild targeted marine fisheries, and I'll talk a little bit later about what stocks we're working.

Specifically, we're working on the small pelagic. These are kind of like the anchovies, the sardines, and the mackerels, which are very important for food security and local food supply in Ghana. And the project contributes to governor of Ghana's national policies and development objectives for fisheries and is supported through the President Obama's Feed the Future initiative.

Now, one of the things that's very important is when we look globally, we know that demand for fish is going to increase greatly both in Asia and Africa, basically, because of economic development and population growth. And what this means is that

it's even more important that we really focus on fisheries management to maintain the wild-caught fish supplies for these areas.

Now, getting back to Ghana, one of the things that's happening, and then Justice showed you the figure where the landings, particularly the small pelagic stocks, are in significant decline. And the reason for this is that we see effort, the number of canoes, the number of other vessels are increasing in all the fleets fishing in the marine waters of Ghana creating that problem.

Now, what we see here is a chart of kind of what are some of the challenges for fisheries management. And as you increase fishing effort over time with kind of new types of fisheries areas, basically, the yield goes up. But when you hit a certain period, a certain level of effort, then the yields start to go down, and that's the situation we have here in Ghana. So we have lots of social costs, economic costs, and losses occurring in the fishery. And government of Ghana would like to go back to a place on this chart where we have greater yields and greater profitability in the fishery.

Now, why focus on the small pelagics and Ghana? The canoe fleet is very important, and when we talk about the canoe fleet in Ghana, we're not talking about very small vessels that you paddle along. But many of this fleet is motorized. Fish is far off at shore, and these vessels can be anywhere from 10 to 20 meters in length.

But the canoe fleet really provides the majority of the employment in the fishery and also is the major – catches the most fish in the marine area. And of the fish that the canoe fleet catches, most of that is small pelagic, and that's one of the reasons why we're focusing on that.

Now, the other reason, also, is the food security and the food linkage for people here in Ghana, that the small pelagics, as the first speaker mentioned, are very – have high nutritional value. And here in Ghana, they're also low cost. So there really are a good local food supply for the poor.

Now, another thing about the small pelagics is they grow very fast, and they produce – they're very... they reproduce very, very quickly. And they can be rebound quickly if we put the right management measures in place. So it is possible that if the right things are done and the starts align, over the life of the project, we might be able to see some real improvements in the fishery.

Through this project, we formed a science and technical working group that was trying to get better information on exactly what was happening to the stocks. And in these two charts, what you can see is the abundance of the small pelagics in the ocean, the biomass, is well below that what's needed to maintain sustainable yields. And the fishing mortality or the fishing pressure, the number of vessels out there, the amount of time they spend at sea, is still well above what's needed to both rebuild the biomass in the ocean, and then eventually produce greater yields of fish in the long term. So that's some of the challenges we have is not enough fish in the sea and too many fishermen chasing too few fish.

So the project is implementing many of the approaches that were talked through by the other speakers, so I won't go into that. But trying to move from open access to managed access, managing at ecosystem scales, participatory process, and also has a strong component integrating, looking at post-harvest value chain improvement. And this is particularly important for women who are involved primarily in the post-harvest processing of the fish and the smoking of the fish.

Now, one of the visions that we really see and the hope for the project is, if we can really work closely with the stakeholders and the government agencies in charge of fisheries management and put the right fisheries management measures in place, there's tens of thousands of metric tons of food protein supply that could be recouped. And that currently is lost because of poor management. And if we can do that, we can also bring a lot more profitability, and fishermen and women can make more money in the value chain.

Now, so what has to happen? So generally, when we have a over-fishing and an over-capacity situation, we need to reduce fishing efforts. Recently, Ghana passed and adopted a National Marine Fisheries Management plan that really sets out many of the measures that are needed to reduce fishing effort and rebuild the fishery. Including in that is a significant reduction in the trawler fleet and the desire to cap the number of fishing vessels in the commercial and industrial fleets and also the canoe fleet.

Although the canoe fleet, right now, several years ago, the canoes weren't even registered. So one of the first things that's happening is get all the canoes registered so we know how many there are. And there could be – there is on the order of about 12,000 canoes out there fishing. So once they're registered, then we can think

about capping the number of them and ultimately, then, reducing the size of some of those fleets, as well.

Now, for the small pelagics, what works globally are closed seasons. And if we can close seasons during the right time of the year, that can help increase the abundance of fish in the sea. At the present, however, the canoe fleet is exempted, and one of the things our science and technical working group has done has talked about the need to consider a closed season for the canoe fishery because they do make up the majority of the catch of the small pelagics. So if the canoe fleets are not included in that, the reductions in fishing effort and the closure on the other fleets may not be enough to really have a significant impact.

Now, the science and technical working group has recommended a closure during the spawning season. So the idea here is to let the fish spawn and produce the next generation that can be harvested in subsequent years and let the fish grow to a larger size before you harvest them. And in a number of regional stakeholder meetings that we've had with stakeholders, a closed season was also one of the most preferred options of the stakeholders.

So the stakeholders do not want business as usual and are ready for change in the fishery. So the challenge now is really working to kinda implement some of the management measures that are in the plan and even considering additional measures that aren't in the plan yet, but maybe needed to kind of rebuild those fisheries.

Now, another thing that's very important in our project and that's shown in this slide is that there's another very big donor initiative here. World Bank supported West Africa Regional Fisheries Project. So on the left-hand column, you can see a number of the selected activities that our project that – or needed or included in the National Fisheries Management Plan. And then, what the USAID project is doing to contribute to the implementation and support the implementation of those initiatives compared to what the World Bank is doing.

So it's very important to make sure that our efforts of the two donors are very complementary in what we're doing. And we've worked hard working with the Fisheries Commission and the Ministry of Fisheries and Aquaculture Development to make sure that that happens.

Just to highlight another thing that we're doing, and other speakers have talked about this, stakeholder involvement and decision-

making, we feel, is very much key and a good practice in fisheries management globally and needs to be implemented here in Ghana. Now, one of the challenges has been is that the Fisheries Act and related regulations do not really explicitly talk about co-management. So there's a real need to consider amending the legislation to ensure that the enabling conditions are better and promote co-management, which currently is not really done very strongly.

But one of the things that we've been looking at, Ghana had an experiment in co-management about 15 years ago that failed. And one of the reasons for that is they tried to use a cookie-cutter approach, where they wanted one system, one approach to co-management, for all types of fisheries and all types of locations. So in some of the meetings that we've been having with stakeholders, we've really been working to think about, "What is the management unit, the ecosystem that we're trying manage, in which the fisheries are contained?"

And then, really, think about that these sort of ecosystems need different varieties of management approaches. So for small-scale ecosystems, like rivers and lakes, estuaries, and lagoons, community-based management is considered to be probably more appropriate for managing these systems. But particularly in Ghana, we don't have reef systems like you see in the Philippines.

But most of the fisheries here are large pelagics, small pelagics. They range widely throughout the country and the region. The fishermen follow the fish so that the management units have to be thought about at larger scales, and therefore, the co-management systems that need to be developed to support the management arrangements need to be thought of a little bit differently. And they can't really be every single landing site and fishing community, having a community-based fisheries management plan, or making regulations that differ from place to place. You gotta look at it at a larger scale and a little bit more holistically.

So in a nutshell, that kinda gives you an idea of some of the things that we're trying to do here in Ghana. Our project has been in implementation for about a year and a half and has about another three and a half years to go. So we're still in the early phases of the work that we're doing here, and I'm sure in a few more years, you can hear a lot more about many of the accomplishments that we're having. So I'd like to, at this stage, then, turn it back to Barbara and let her take over. Thank you.

[End of Audio]

Q&A

Barbara Best:

Thank you, Brian. As Rob mentioned, we would like to highlight several new and existing resources that are available to USAID staff and our partners. Sorry about that. We are pleased to announce release of a new briefing book, *Fishing for the Future: The Importance of Wild Fisheries to Food Security and Nutrition*.

This briefing book presents evidence of the importance of wild fisheries in global development from food security, nutrition, livelihoods, poverty reduction, the role of women, and climate adaptation. This report covers information from Rob's wonderful introduction, plus much more.

The briefer also showcases several successful USAID fisheries programs in Bangladesh, Ghana, and the Philippines, and I've noticed that several people have asked if we're talking about marine or freshwater. We're talking about both in terms of fisheries. The approaches are similar to both marine and freshwater with some slight differences, but basically the same approaches.

The briefing book also highlights the importance of fisheries in several key Feed the Future countries. And so what's included in the briefing book are some key statistics, showing, for example, what the percent of each country that is land or marine based, nutrition and food security statistics, such as percentage of population experiencing food and security or stunting in children under five and percentage of dietary animal protein from fish in their diet. The link to this resource is included in the Agrilinks website to this webinar and can also be found on USAID's Development Experience Clearinghouse or the DEC and the Biodiversity Conservation Gateway portal.

In addition, we produced several in-depth country profiles on the importance of wild fisheries to local food security in these same nine Feed the Future countries. The country profiles cover a range of topics as to how wild fisheries relate to broader development objectives and include some of the topics that you see here on this slide. The briefing book and country profiles were produced are the Food Security Integration Working Group, and we'll continue to move forward to look at ways that way we can do a more integrated approach to food security development.

In addition, several years ago, we produced a technical guide called Sustainable Fishing Responsible Aquaculture, which is still very relevant today. This guide provides basic information on how

to design programs to reform wild fisheries, also called "capture fisheries," and aquaculture or fish farming to ensure sound and effective development.

Certainly, as Rob pointed out, in the face of food insecurity, global climate change, and increasing population comparative that it's imperative that development programs help to maintain ecosystem resilience and the multiple goods and services that they provide, such as fish, by taking a more integrated approach to food security and development. We cannot afford to neglect global fisheries and expect aquacultures to fill that void. Global food security will not be achieved without reversing decline of fisheries, restoring fisheries productivity, and moving towards more environmentally friendly and responsible aquaculture, as well.

And as Rob mentioned, this concept of secure tenure is important for both small scale of farmers and small scale of fishers, and I think the presentations by Rare and also Ghana also emphasize this important role. So we are developing and piling resources to help implement secure tenure for small-scale fishers, as recommended by the FAO Voluntary Guidelines for securing small-scale fisheries and securing marine and coastal tenure will also be critical for climate adaptations as we see rising sea levels and migrations of people.

One reference is on small-scale fisheries and marine tenure. It's a pretty comprehensive source book on good practices and emerging themes. The other is a shorter primer called *Looking to the Sea to Support Development Objectives*. The primer has job aids or assessment tools to help design marine programs.

We have several pilots planned around marine tenure to test these assessment tools in the field. And I need to give a shout-out to my colleague Steven Brooks in our land tenure office who is leading these efforts, as well as the tenure and global climate change program, which is helping us in this effort.

So the presentations today cover the importance of wild fisheries to food security, nutrition, and livelihoods with an emphasis on small-scale fisheries and certainly have highlighted some of the approaches being taken to restore and enhance productivity in fisheries. Just a reminder that next week, on April 27th, please join us for an "Ask Ag" online chat, where we take a deeper dive into impact investing in wild fisheries.

Now, at this time, we'd like to go to some of the questions that you have been sending to us. And please take this time to add other questions into the chat box. One of the questions that's been posed was talking about, "What is the role of women in wild fisheries?" And maybe we could have both Brett and our Ghana colleagues respond to that.

J. Odoiquaye Odoi: Hello, this is Justice from Ghana. When it comes to the role of women, basically, in Ghana, women play a significant role, first of all, in the processing of fish. And so they kind of have the capabilities to control what happens within the sector in the sense that sometimes they are even the financiers of this industry. They also very much involved in the marketing and the value chain of fish.

So they have a very significant role. I can speak more in terms of Ghana, but I know the dynamics may be different for other countries. But for Ghana, women have a strong role when it comes to wild fisheries.

Zachary Baquet: Hello, everyone. My name is Zachary Baquet. I'm going to help moderate some of the Q&A here. I'm the senior knowledge management advisor for the Bureau for Food Security. Question is – it's related to value chains, but "What are some specific challenges with small-scale fishery value chains? What approaches have been considered to tackle them?"

J. Odoiquaye Odoi: Basically, in Ghana, the value chain for fisheries is very informal, and so financing is one of the key issues that needs to be looked at. So basically, it's a very informal process that is usually led by women in terms of processing and marketing and making it available to the consumers.

For Ghana specifically, you could have fish that is processed – be dried or smoked. That goes all the way to the Northern region, in terms of Ghana, and to other West African countries. However, there's limited funding in terms of these activities. And also, one other issue is the hygienic nature by which some of these products handled.

So there is a need to improve the market channels and develop them further and then provide women with best processing systems to help them to make these available and also to improve the product itself because very little value is added to the product. So as much as possible, we want to improve the product to make it more valuable so that fisher folks can earn more money from that,

and then, they may not have to have a small fish. There is also the issue of post-harvest losses and handling, and that needs to be looked at.

So basically, in summary, I would say that these are some of the challenges. Our project in Ghana is actually looking at some of the processing. We are trying to help improve the fish smoking systems. We are introducing more efficient tools for fish processing. We are also working with a lot of the women group organizations to let 'em understand the skills that they need to have to improve their products so that they can earn more from such products. Thank you.

Zachary Baquet: Thank you, Justice. One of our speakers, Brett, had some technical difficulties. He has rejoined the room. And so, Brett, do you want me to repeat the question about the challenges around value chains for small fisheries?

Brett Jenks: Yeah. If you can, that would be great. I hope you can hear me.

Zachary Baquet: Yep. Hold on. Where did I see it? Got scrolled down past the question. There it is. Sorry. So around value chain programs, "What are some specific challenges with small-scale fishery value chains? What approaches have been considered to tackle them?"

Brett Jenks: So this is a very big question that everybody faces as soon as you address what we think is the most basic question, which is that of tenure. It's tough to start working on value chains in any way without rule of law, without enforcement, licensing, registration, without a secure tenure. It seems, in many ways, like without some of those basic assurances, it's pretty difficult to bring to bear any potential market reform. So let's assume, first, that those things are in place.

Then, in many ways, it's like the world of smallholder agriculture, in which case, for such disaggregated local units, there's the need to organize around cooperatives. There's a need to improve the value of the product, whether in fisheries it's through drying, through cold storage. There are marketing opportunities teaming up with several sites.

In the Philippines, we're joining forces with sustainable fish middlemen whose procurement guidelines are being merged with the Fish Forever Production Guidelines in a sense. And that way, this buyer, this aggregator is able to market a sustainably caught

fish with a premium price garnering story about the benefits of the sustainable approach in these communities.

So whether it's a value-added technology or aggregation and marketing schemes or delivering to domestic markets, most often fishery reform by NGOs in our arena, at least, has focused premium commodities for export under some kind of certification, like MSC. It's not as common, but hopefully, in the coming decade, it will be much more common for these emerging marketplaces to be able to boost the value of these products in country so that they don't need to be exported. So there's a variety of opportunities.

I was talking with a friend of mine, Willy Foote, from Root Capital who's a leader in the smallholder agriculture finance arena. And we talked about the possibility, at some point, of organizing – I think he coined the term a "farmers-to-fishers exchange," where all of you folks in the arena of smallholder ag could transfer your past 25 years of learning to small-scale fisheries. There's a big opportunity there. Many of the same things – same lessons apply.

Zachary Baquet:

Thank you, Brett. This is Zachary again. So going on to our next question. This is for all the presenters. So we gave a question, "Do you have specific experiences in ways that we can learn from around holistic landscapes and seascape approaches? What specific advice would you give in implementing landscape/seascape approaches?"

Brett Jenks:

So this is Brett. I'd be happy to at least think out loud about that. It depends on how you're defining what's the size of the seascape. But essentially, Luis, we've been working, increasingly, on a pilot basis in the heart of the Philippines in a place called Tañon Strait, where we're seeing increased adoption by municipal presidents and local fishers of this TURF reserve concept.

And increasingly, it's expanding outward from villages managing their own small MPAs, which has traditionally been coastal resource management default practice in the Philippines to managing how TURFs around those MPAs. And over time, there's greater interest in expanding both of the size of the MPAs and, of course, the size of the TURFs.

Essentially, because of decentralization in the Philippines, each municipality manages its own water. So one could say that the municipal water is up to 15 kilometers out from the coast, and the Philippines are a TURF. They just have not been managed as such.

So there's a big opportunity to build networks of municipal TURFs, and we have begun to do that.

What's required is, initially, a great deal of community participation, a collaboration between local authorities, local fishers, a variety of stakeholders, and then a team of... fisheries, ecologists, and designers to help, essentially, shard out and map priority resource conservation areas, priority fishery recovery areas, building on the maps – the mental maps that fishers have of their own waters to achieve both fish recovery, biodiversity conservation practices, and then, of course, equity. Not without its challenges, but over the course of the next – by the end of 2016, we hope to have 20 such examples of – just in these first couple of years from Indonesia and the Philippines.

Zachary Baquet: Thank you, Brett. Do any of our other presenters have comments? For additional kind of context, we said put in that in Central America, one of the problems is that the number of artisanal fishermen is growing. This probably implies that to protect coastal resources and oceans, a landscape approach, looking upstream, is needed to provide additional opportunities to the people so that the people will refrain from fishing from right space and no-take-zone mechanisms. Has Rare considered a more holistic landscape/seascape approaches? Are there experiences to be learned from?

Brett Jenks: So we have – and I wouldn't see that would answer your question satisfactorily because about a multigenerational land and sea strategy because, just in this case, we've only been at this for a few years. I would say in the Western Pacific, in Palau and Pohnpei, we've been working on what is essentially a terrestrial and marine joint strategy working with a similar model of TURFs and reserves and then watershed protection upstream. But the populations are much smaller than what I imagine Luis is dealing with in certain coasts in Central America. So I don't believe we've cracked that code yet. We certainly we have some ideas, but no.

Zachary Baquet: All right. Thank you, Brett. Do any of our other speakers have comments?

J. Odoiquaye Odoi: – but that in terms of the work in Ghana. So with USAID Ghana, we designed them into integrated fisheries and coastal management project, where we have one project looking at the seascape and another project looking at the landscape. As you can understand the landscape is very important to make sure that the seascape is also doing well in terms of mangroves and in terms of estuaries.

But again, the issue of livelihoods, because of the significant decline of fisheries, it's important to look at alternative livelihood for fishermen. So our seascape program is looking at – our landscape program – sorry – is looking at working with fishermen and other farmers to introduce alternative livelihood mechanism, as well as some behavior change activities.

We're also looking at improving the saving culture of fishermen and farmers. So we've introduced what we call a "village savings and loan program." So that gives – help farmers and fishermen to kind of save something for the future and for periods where they are in need and when they are not getting enough cash from their livelihood. And this has really shown some promising figures at this point.

And there's a story where one farmer who would actually go into a coastal forest to hunt illegally because he was able to save some money through the village savings and loan scheme, he would not do that again, and that alone has really helped in terms of looking at the issues of the wild fisheries and then the landscape issue. So there are many examples to give for Ghana, but for now, I'll say just a few of these. Thank you.

Zachary Baquet:

Thank you, Justice. And thank you, Brett, for your comments. So for the next question, we had a few questions about co-management and the role of government: What are the presenters' experiences in ensuring that adequate government participation in the governance fishing management?

Brett Jenks:

This is Brett. I'd say that's a absolutely critical question, and so while Rare and his partners are working at the grassroots level with local fishers throughout five different countries now, we are also working hand-in-hand with the Ministry of Fisheries, Ministry of Environment, and local municipalities. So form follows function in many ways, and each country manages its fisheries differently. In some cases, like Belize, which is a small country, there's a national fisheries office, which is part of the Ministry of Environment, and the fisheries officer there is the one who issues the licenses. So it's a federal license.

In the case of the Philippines, because of decentralization, local municipal presidents or mayors have, essentially, the jurisdiction over their near-shore waters, up to 15 kilometers off the coast. So it's a different government relation, different system. In each of these cases, though, there need to be provisions at the national,

sometimes subnational, and certainly local level for ways of securing marine tenure and escalation protocols for enforcement, such in the case of the Philippines where the LGU or local government unit, essentially deputizes local fishing groups to enforce their own local waters. There has to be an escalation process when they, in fact, encounter illegal fishers.

And so there's legal systems that need to be put into place if they don't already exist. So that support, locally and nationally, is essential to create the kind of security that would enable any fishermen to trust the system enough to work within a TURF and reserve approach.

Zachary Baquet: All right. Thank you, Brett. Do we have comments from any of our other presenters? Okay. If not, we'll go into the next question. We have...Nina...who has a question for Brian. She has heard that the voluntary guidelines on the responsible governance of tenure are being promoted, implemented in the fisher sector in Ghana. Do you have experience with this in your USAID project working on this? This is also probably a question for Justice, too.

J. Odoiquaye Odoi: Hello? This is Justice. Brian is not here, so I would want to take that question, but if you don't mind repeating it so that I can be clear on it.

Zachary Baquet: Okay, Justice. So the person asking the question has heard that the Voluntary Guidelines on the Responsible Governance of Tenure are being promoted implemented in the fisheries sector in Ghana. And she was wondering if Brian had experience with this in his project or has been involved with it.

J. Odoiquaye Odoi: So basically, I'm not too sure we have that voluntary system here in Ghana.... What our project is trying to do as much as possible is to kind of give a voluntary plans to some of the illegal fishing activity so that we educate the fishermen in terms of some of the illegal things that they are doing and the need to have an ecosystem understanding of the impact of these activities on the marine fisheries.

And by and large, they're beginning to understand that their actions is contributing to the significant decline of the marine fisheries catch in Ghana. And they're beginning to understand and appreciate the need to be involved in the collaborative management of their resources.

So we are working with both government. We are working with communities. We are working with the regulatory agencies to help, to understand, and to let everybody be onboard and appreciate the need to have a collaborative management of the resources.

So for example, we been supporting and giving trainings to the marine police. We've been giving some trainings to the judges, the prosecutors. We've been giving trainings to local communities to support self-compliance and voluntary compliance. So we've been doing quite a number of things on that front. But specifically, to the guidelines she or he may be referring, I'm not too sure about that.

Brett Jenks:

Zachary, this is Brett. I wanted to add to Justice's comments, whether this person might also have been referring to the FAO of Voluntary Guidelines for securing small-scale fisheries. This is a major effort – major publication in the work of thousands of people in multiple countries who have put together, under the auspices of FAO, some strong guidelines currently being adopted in a variety of countries that basically map very closely and I think would underscore many of the approaches that this webinar has covered. And I know that Rebecca from FAO, I can see her on this chat group, she may be able to post that resource for folks if they don't have it.

Zachary Baquet:

Oh, thank you, Brett, for that point to the resources, and, Rebecca, if you have a chance, if you could share that resource in the chat box that would be great. And Nina, if you're still online, if you want to provide a clarification, and, perhaps, Brett, you can answer that in the chat box, as well.

So we're coming to the end. We're going to ask one final question before we wrap up. We have another question about co-management from Peter Limbo: "What examples do presenters have about how fisheries work to sustain their management costs, especially when it comes to fisheries co-management?" Anyone want to jump in on that one?

Brett Jenks:

Yeah. Zachary, do you mind, really quickly, just repeating that? I apologize. I was reading through several of the chat questions.

Zachary Baquet:

I know. The chat box is much more fascinating, sometimes, than the presentation, but –

Brett Jenks:

I do apologize.

Zachary Baquet: So this one was about co-management, again, from Peter. And what examples do you presenters have about how fisheries work to sustain their management costs, especially when it comes to fisheries co-management?

Brett Jenks: Well, I think that's a really good question. I think we're going to know a lot more about that in a year or so. But with 50 of these TURF reserves being set up in 5 countries across the world right now, it's clear that we're seeing local fishers begin to, in really meaningful ways, collaborate on the design and execution of their own enforcement schemes.

And once tenure is secure and enforcement has begun, really the next logical step is serious focus on fisheries management. And that, of course, requires data and decision-making and education. But what's clear is there is a great deal of interest from the part of formally reluctant fishers to get very deeply involved, and we're starting to see that in a number of these cases. I'd have to ask our team if there's anything – I would be happy to get back to you – on a specific case or an example of how they're driving – establishing and then driving down management costs.

Zachary Baquet: Thank you, Brett. And so this brings us to the end of today's Ag Sector Council. I thank everyone for participating and for a very active discussion in the chat section. And thank you to the presenters for excellent presentations. We appreciate you taking the time to share your knowledge and experiences with us.

Right now, you have the polls up. This is kind of our end-of-the-session evaluation. Please take a moment before you leave to fill out the polls, enter your experience. This is how we improve on our Ag Sector Council going forward and also find new ideas to bring you content for upcoming Ag Sector Councils, so we appreciate your participation. Any lost comments from Barbara before we go?

Barbara Best: Yes. I also want to thank everyone, both the presenters and the audience. This has been very informative, and I want to thank our BFS colleagues for co-organizing this with us. And I want to remind everyone, and we hope to hear from you next week, we'll have a more in-depth discussion into impact investing in the fishery sector. Please go to the Agrilinks event page for more information. And as Zach just said, please take a moment to fill out these polls. So thanks to everyone.

[End of Audio]