

Fish, Forks and Finance: The Importance of Wild Fisheries to Food and Job Security

Speakers

Rob Bertram, *USAID Bureau for Food Security*

Brett Jenks, *Rare*

Justice Odoiquaye Odoi, *USAID/Ghana Mission*

Brian Crawford, *Ghana Sustainable Fisheries Management Project*

Barbara Best, *USAID Bureau for Economic Growth, Education and Environment*

Q&A Facilitator

Zachary Baquet, *USAID Bureau for Food Security*

April 20, 2016

Rob Bertram



Rob Bertram is the Chief Scientist at the USAID Bureau for Food Security where he serves as a key adviser on a range of technical and program issues to advance global food security and nutrition. In this role, he leads USAID's evidence-based efforts to advance research, technology and implementation in support of the U.S. Government's global hunger and food security initiative, Feed the Future. Bertram's academic background in plant breeding and genetics includes degrees from University of California, Davis, the University of Minnesota and the University of Maryland.

Brett Jenks



Brett Jenks is the President and CEO of Rare, a global conservation organization. He has created multiple large-scale partnerships with The Nature Conservancy, Conservation International, Oceana, Environmental Defense Fund, UNESCO, AVEDA, Encourage Capital, Bloomberg Philanthropies, and the ministries of environment and fisheries of many nations. Having grown Rare more than 2,800 percent since 2000, Brett is now helping Rare scale conservation innovations, especially around fisheries and freshwater. Brett is a Catto Fellow, Braddock Scholar, and a McNulty Prize Laureate with the Aspen Institute, a director of Closed Loop Partners, and a trustee of the Grantham Environmental Trust.

Justice Odoiquaye Odoi



Justice Odoiquaye Odoi is the USAID/Ghana Environmental Specialist. Melding formal training with hands-on experience, he has worked with a broad constituency of local community groups and local institutions that rely significantly on natural resources and sustainable conservation practices for their livelihoods and economic well-being. His resource management expertise is combined with a specialty in GIS and remote sensing applications. Justice has 10 years' experience in managing developmental projects. He has co-authored various research publications in the fields of natural resources, environmental management, agriculture, food security and climate change. Over the last five years, he has focused on fisheries and coastal management in Ghana.

Brian Crawford



Brian Crawford is the Chief of Party for the USAID/Ghana Sustainable Fisheries Management Project. Brian has over 30 years' experience in international development in Asia, Latin America and Africa in marine conservation, sustainable fisheries, and integrated coastal management. Over the last five years, he has overseen the implementation of several USAID initiatives in West Africa working on the development of ecosystem-based co-management approaches for fisheries, empowering women through improved fisheries value chains, and establishing collective use rights for women oyster harvesters and sole fishermen in The Gambia. Brian is a former Peace Corps volunteer who served in Malaysia and the Philippines. He has a B.S. in Oceanography and an M.A. and Ph.D. in Marine Affairs.

Barbara Best



Barbara Best is the Senior Coastal Resource Management and Policy Specialist for the U.S. Agency for International Development. Barbara has over 25 years' experience in marine research and international development programs. She provides technical support to USAID missions in strategic planning, activity design and program evaluation related to coastal resource governance, climate change adaptation, fisheries management, food security and marine biodiversity conservation. She managed the USAID Global FISH Alliance, a public-private partnership that reformed fisheries management. She has spoken and written extensively on marine biodiversity conservation, integration of marine science and policy, international trade and trade policy reforms. Previously, Barbara worked at Duke University, Columbia University, James Cook University, University of California, Berkeley and Colby College.

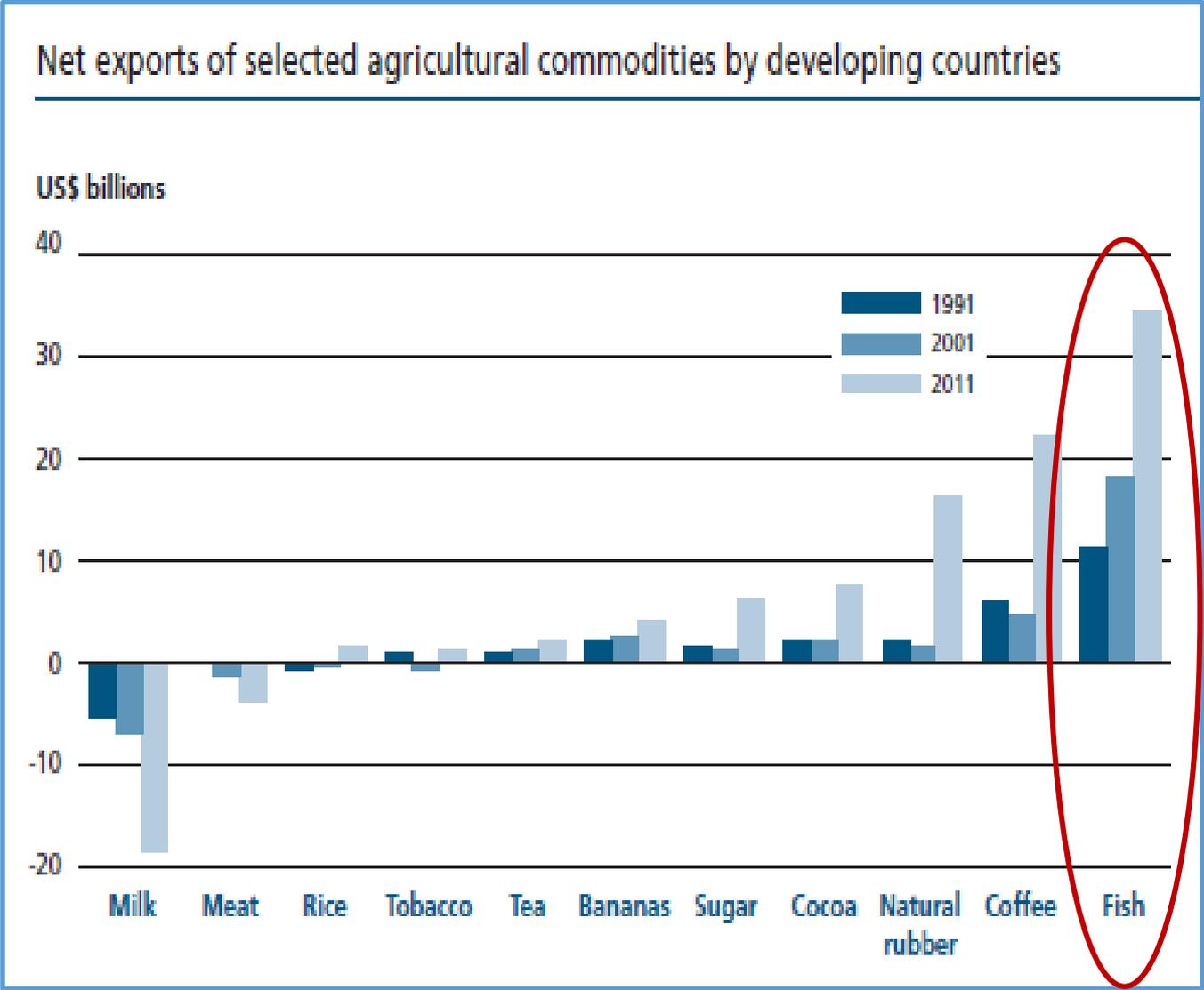


USAID
FROM THE AMERICAN PEOPLE



**FISH, FORKS AND FINANCE: THE IMPORTANCE
OF WILD FISHERIES TO FOOD AND JOB SECURITY
AG SECTOR COUNCIL SEMINAR
APRIL 20, 2016**

Fish: The Worlds Most Widely Traded Agricultural Commodity



SOURCE:
SOWFA/FAO,
2014

Maternal fish intake during pregnancy and the duration of breastfeeding are independently associated with better early child development.

FISH, BREASTFEEDING, AND DEVELOPMENTAL MILESTONES

795

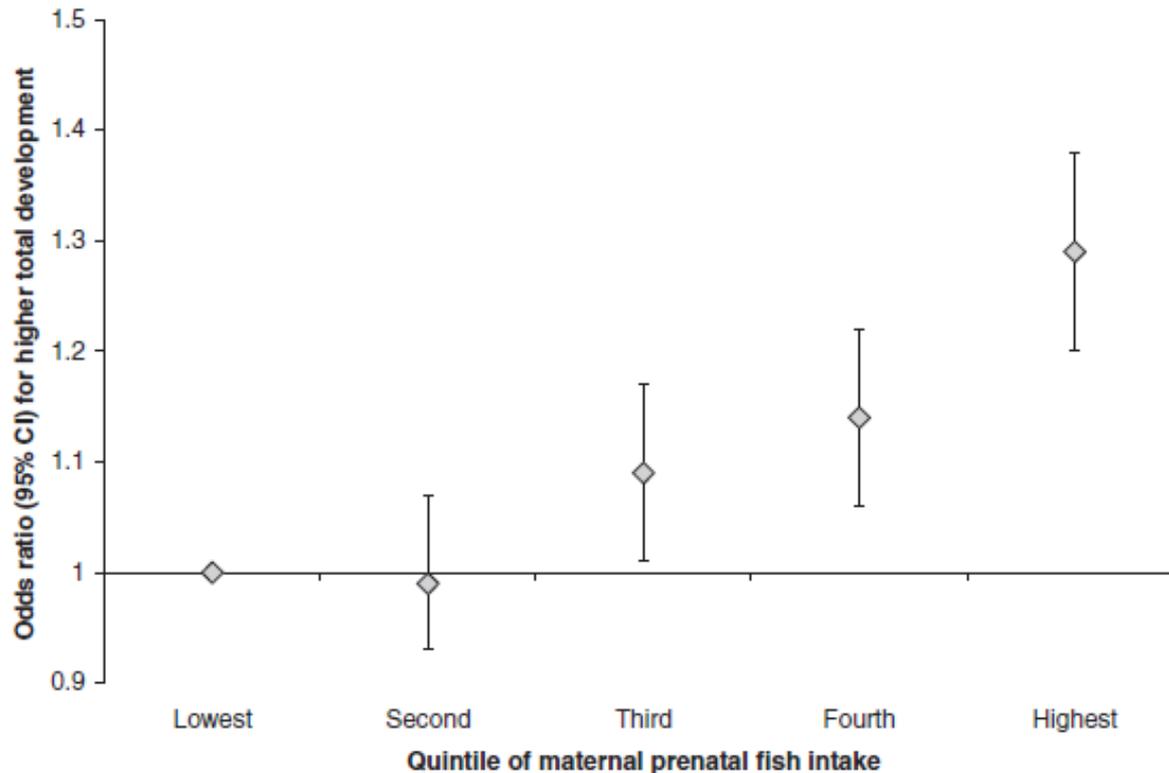
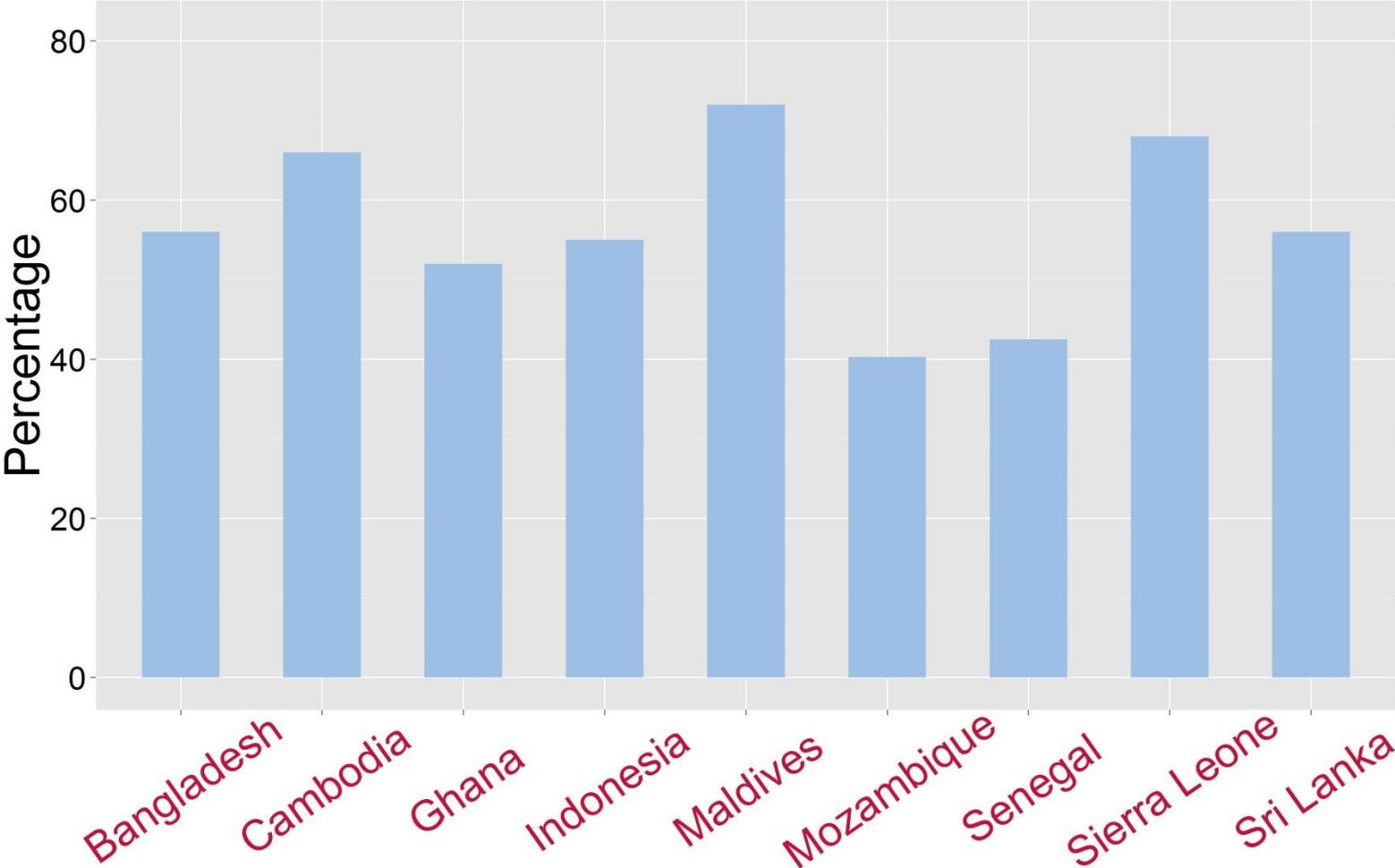


FIGURE 1. Associations of maternal prenatal fish intake, in quintiles, with total developmental milestones attained by children at 18 mo of age. $n = 25\,446$ children in the Danish National Birth Cohort. Odds ratios from cumulative ordinal logistic regression analysis represent the likelihood of attaining a higher developmental score and are adjusted for maternal, child, and parental sociodemographic characteristics as well as for breastfeeding duration.

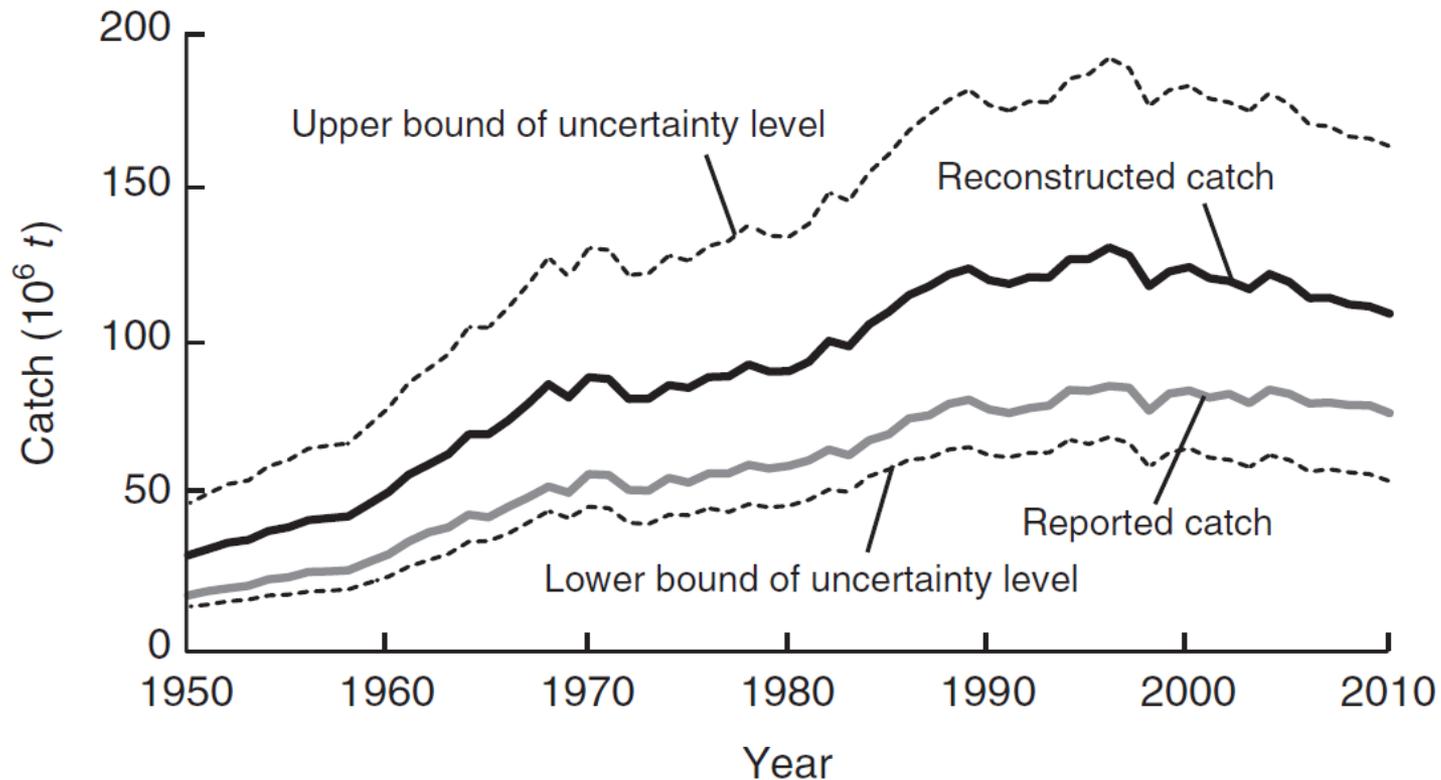
SOURCE: *Am J Clin Nutr* September 2008 vol. 88 no. 3 789-796

FISH CONTRIBUTION TO ANIMAL PROTEIN SUPPLY



GLOBAL MARINE FISH CATCHES SIGNIFICANTLY HIGHER

- 10-year study involving over 50 countries and 400 researchers
- Catches from small-scale fisheries usually not reported
- Declining due to poor management



COASTAL WATERS - SOME OF THE MOST PRODUCTIVE

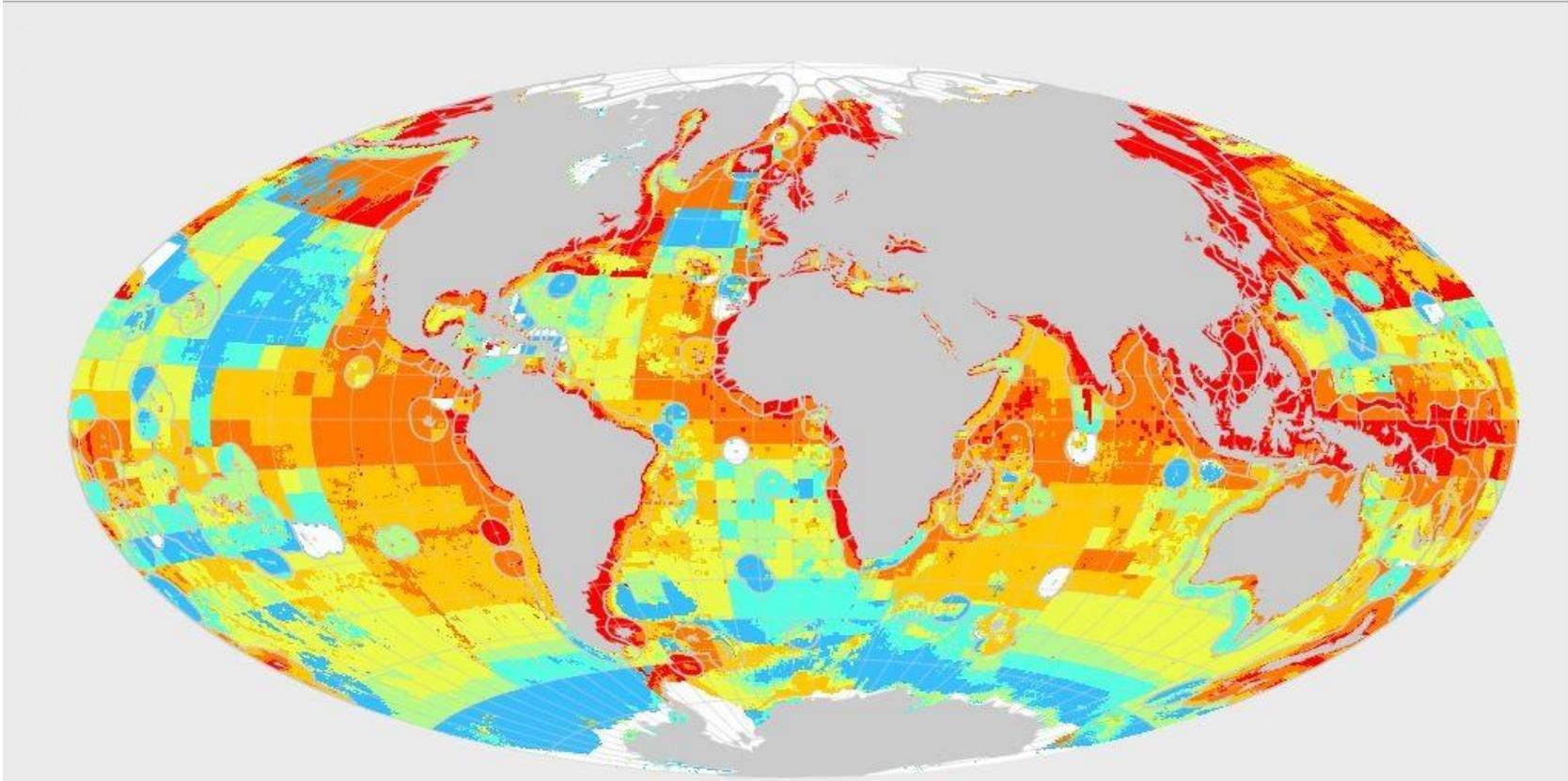
Global fishing in 2010 (Total: 108,433 x 10³ t)



1.3e-15 t/km²

5.6e+2 t/km²

No catch

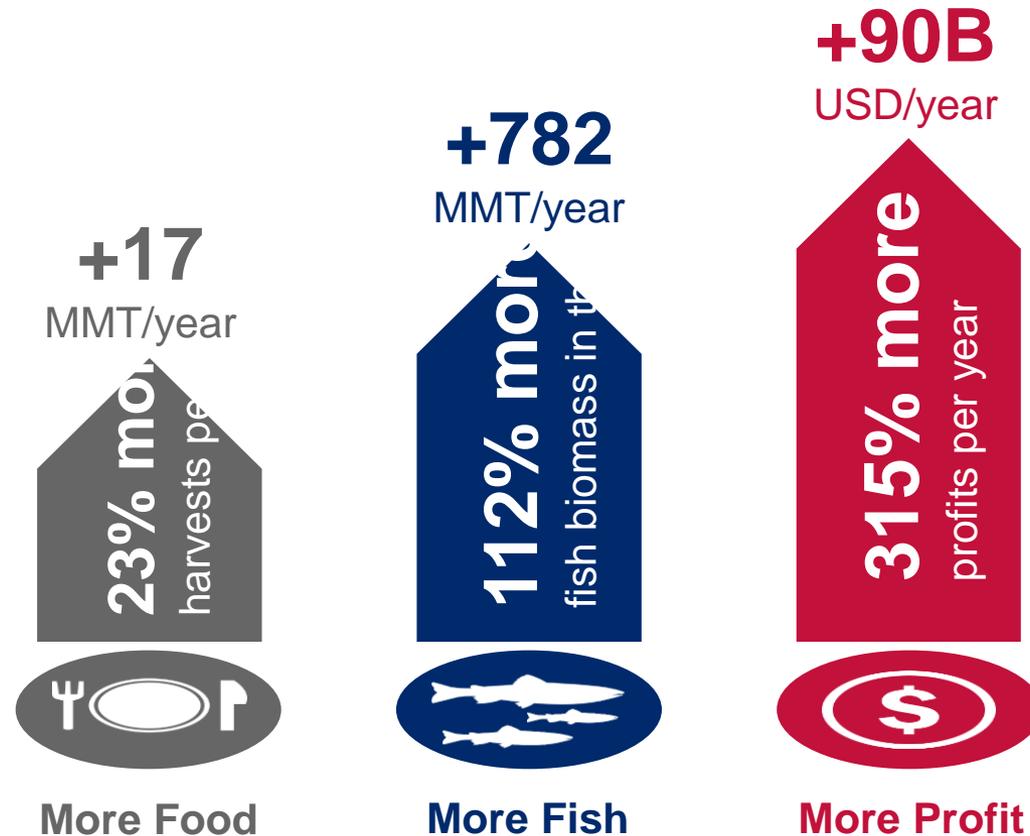


Source: The Sea Around Us

Potential for Global Fish Recovery and Productivity



Summary of potential biomass (in millions of metric tons per year) and financial gains that can be produced through sustainable fisheries management.



Recent analyses highlight the tremendous potential to recover ocean productivity through improved fisheries management.

PARALLEL APPROACHES TO FARMING AND FISHING

- **Land Tenure**



**Marine Tenure /
Managed Access**

- **Agri-ecological
system management**



**Ecosystem-based
fisheries management**

- **Strong farmer
associations**



**Strong fisher
associations /
co-management**

Fishing for Food Security: The Importance of Wild Fisheries for Food Security and Nutrition

**On USAID's Development
Experience Clearinghouse**



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Fishing for Food Security

The Importance of Wild Fisheries
for Food Security and Nutrition

APRIL 2016



This publication was produced for review by the United States Agency for International Development. It was prepared by Measuring Impact.



rare inspires change so people and nature thrive

Recovering Small Scale Fisheries



- **Problem & Solution**
- **A Story**
- **Envisioning Scale**
- **Financing a Solution at Scale**

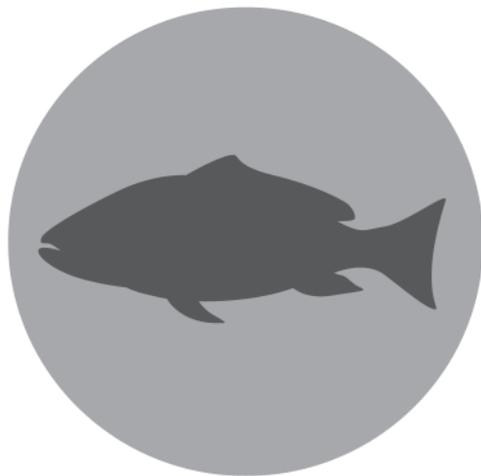
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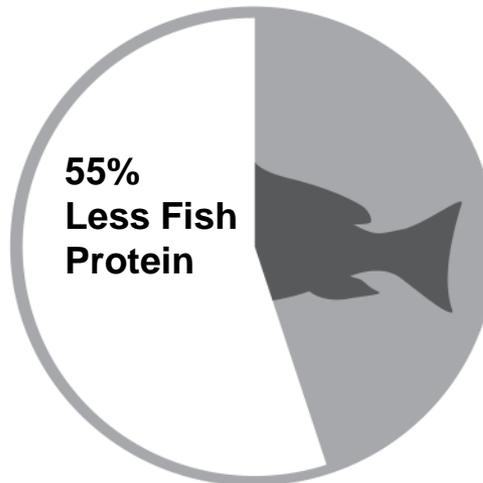
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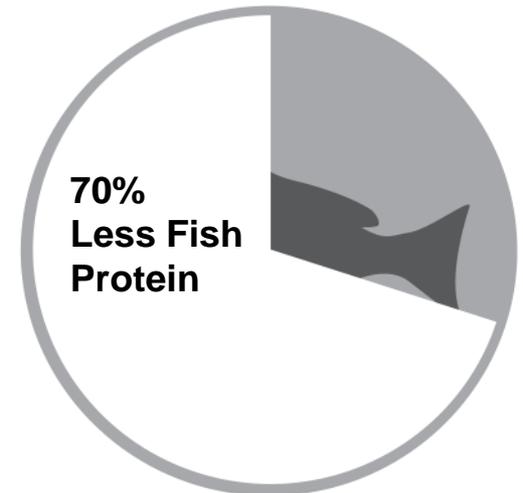
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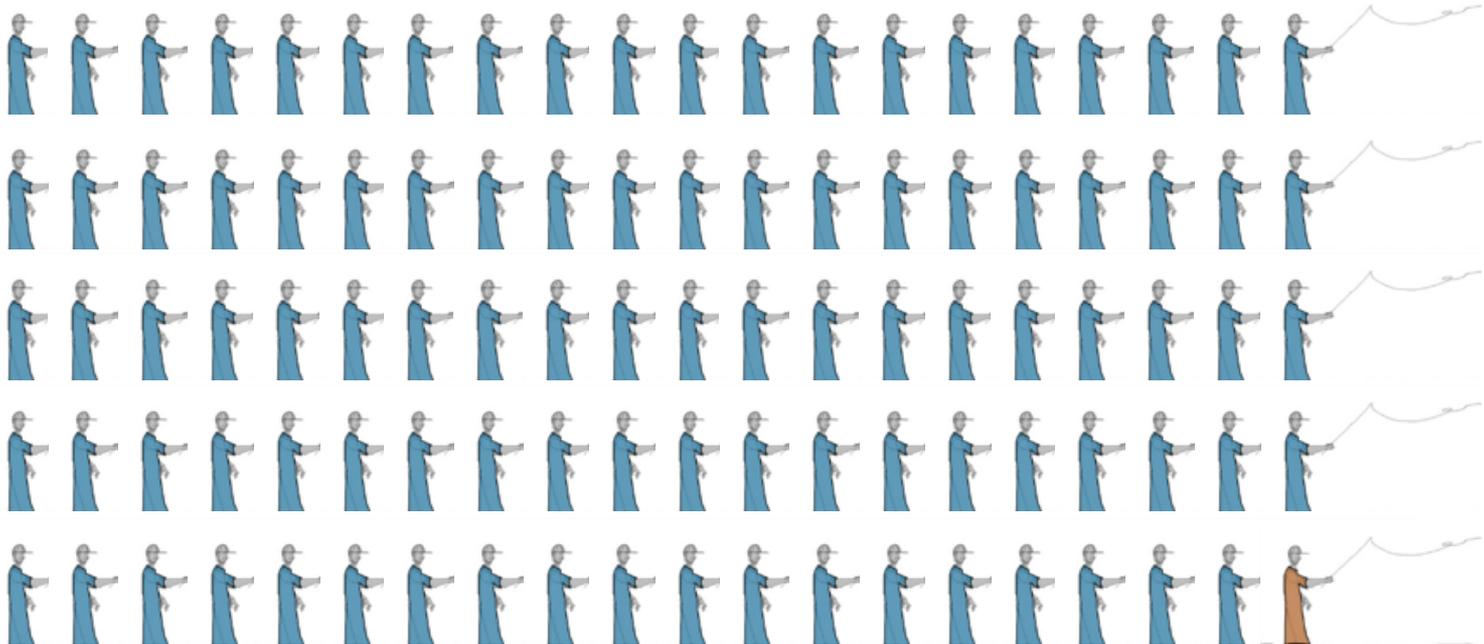


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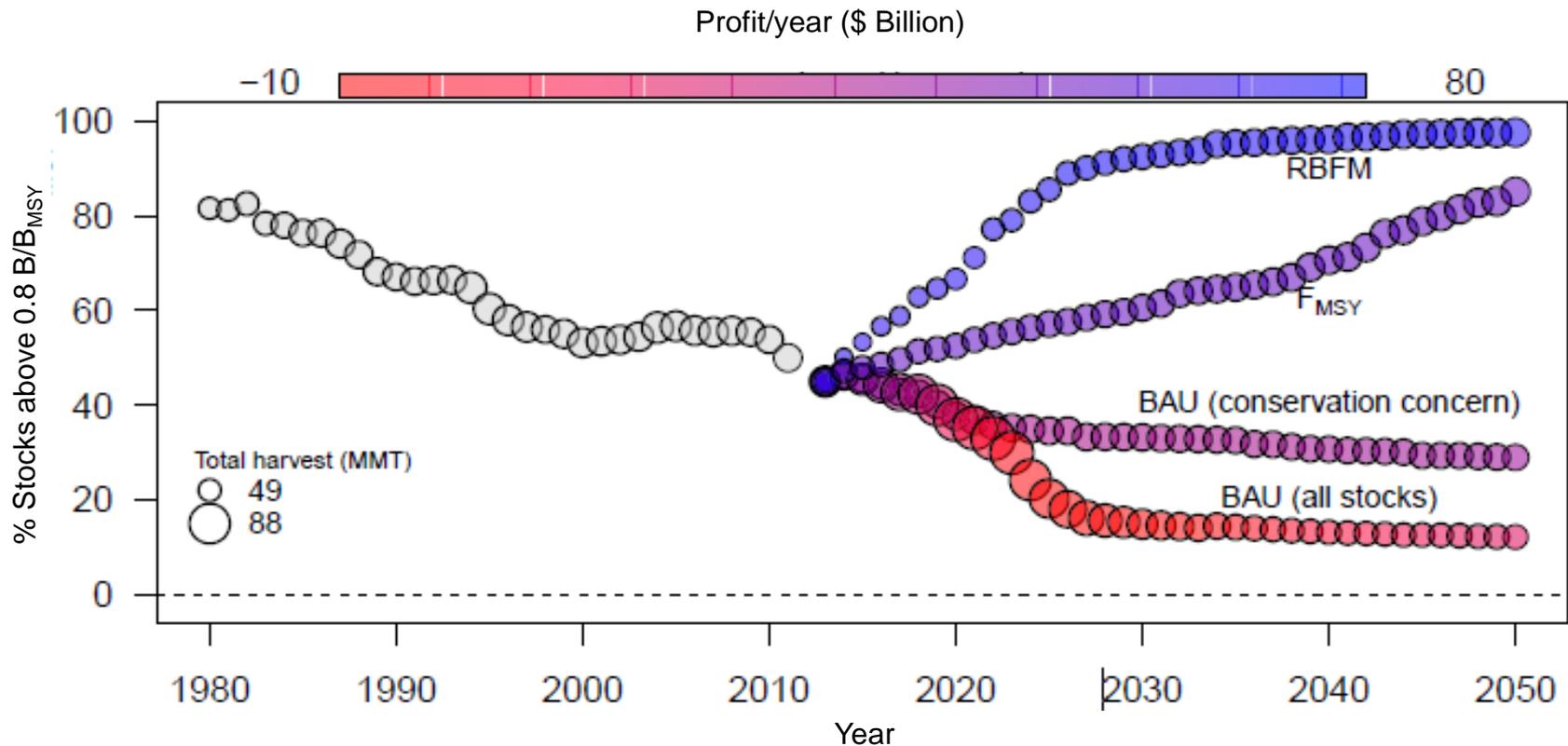
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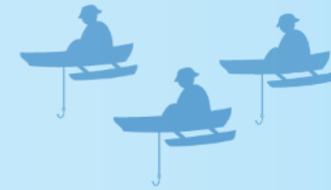


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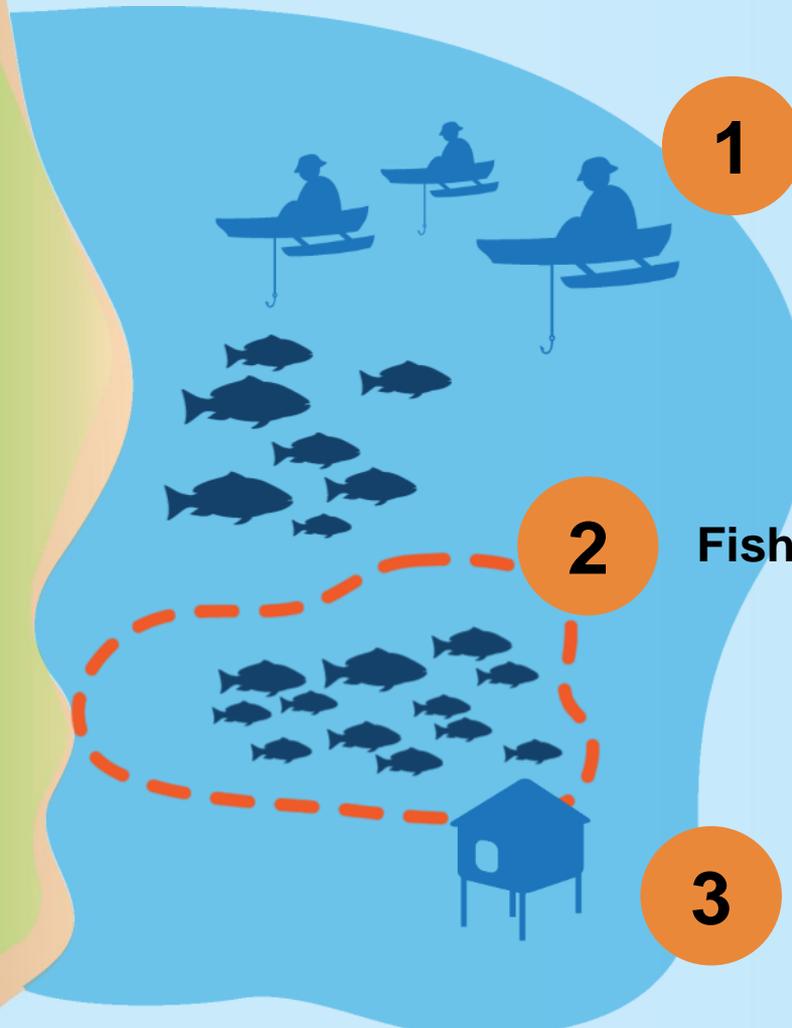
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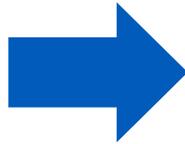


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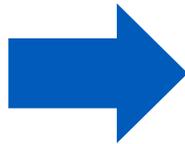
Open Access



Fisheries Management

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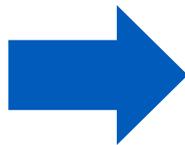
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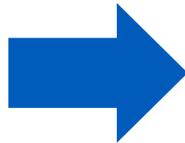
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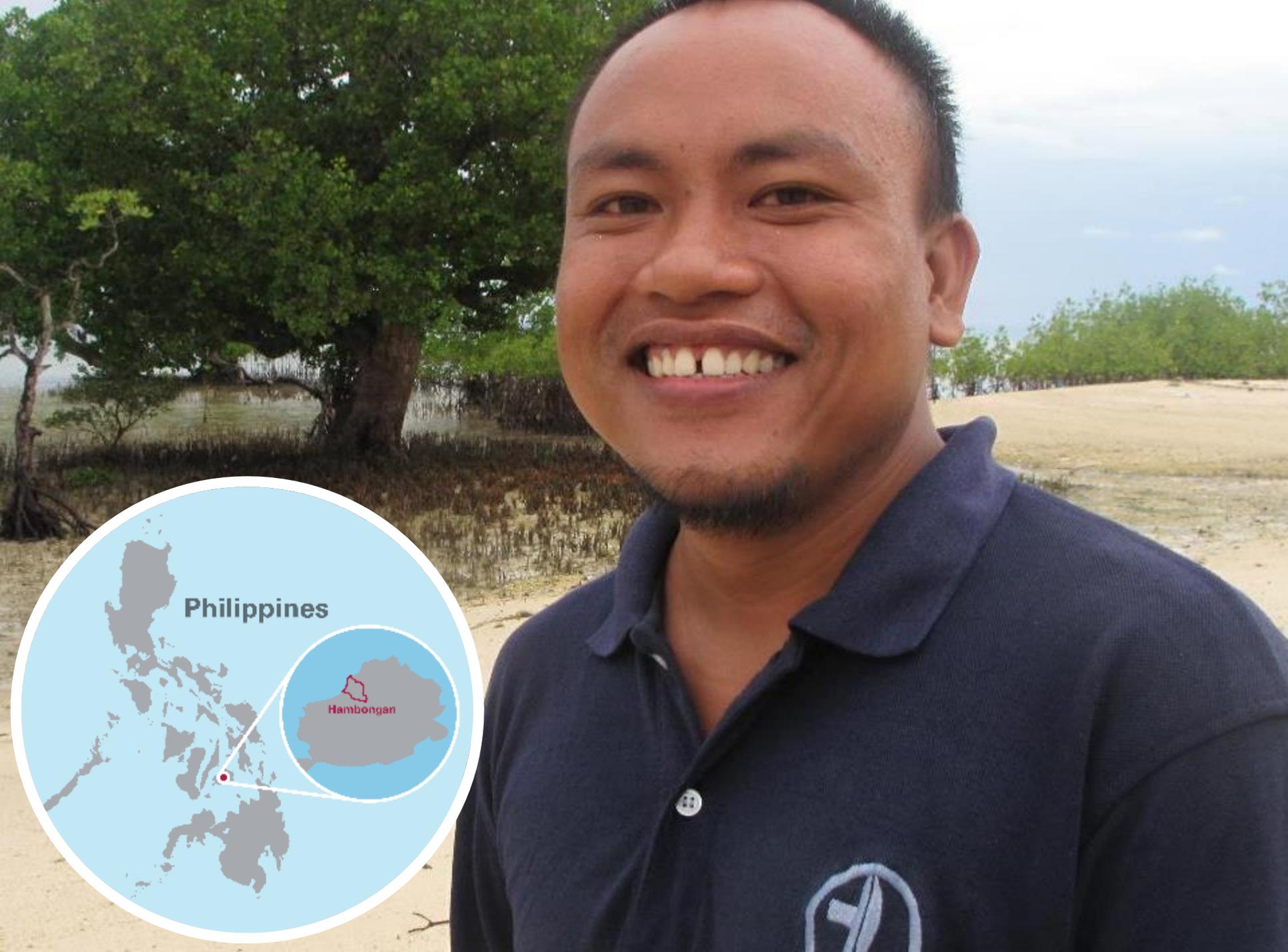
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- Problem & Solution
- **A Story**
- Envisioning Scale
- Financing a Solution at Scale



Philippines

Hambongan



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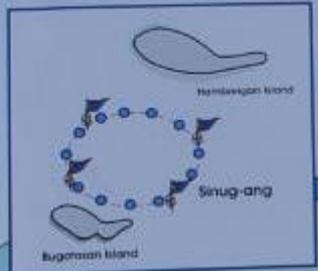








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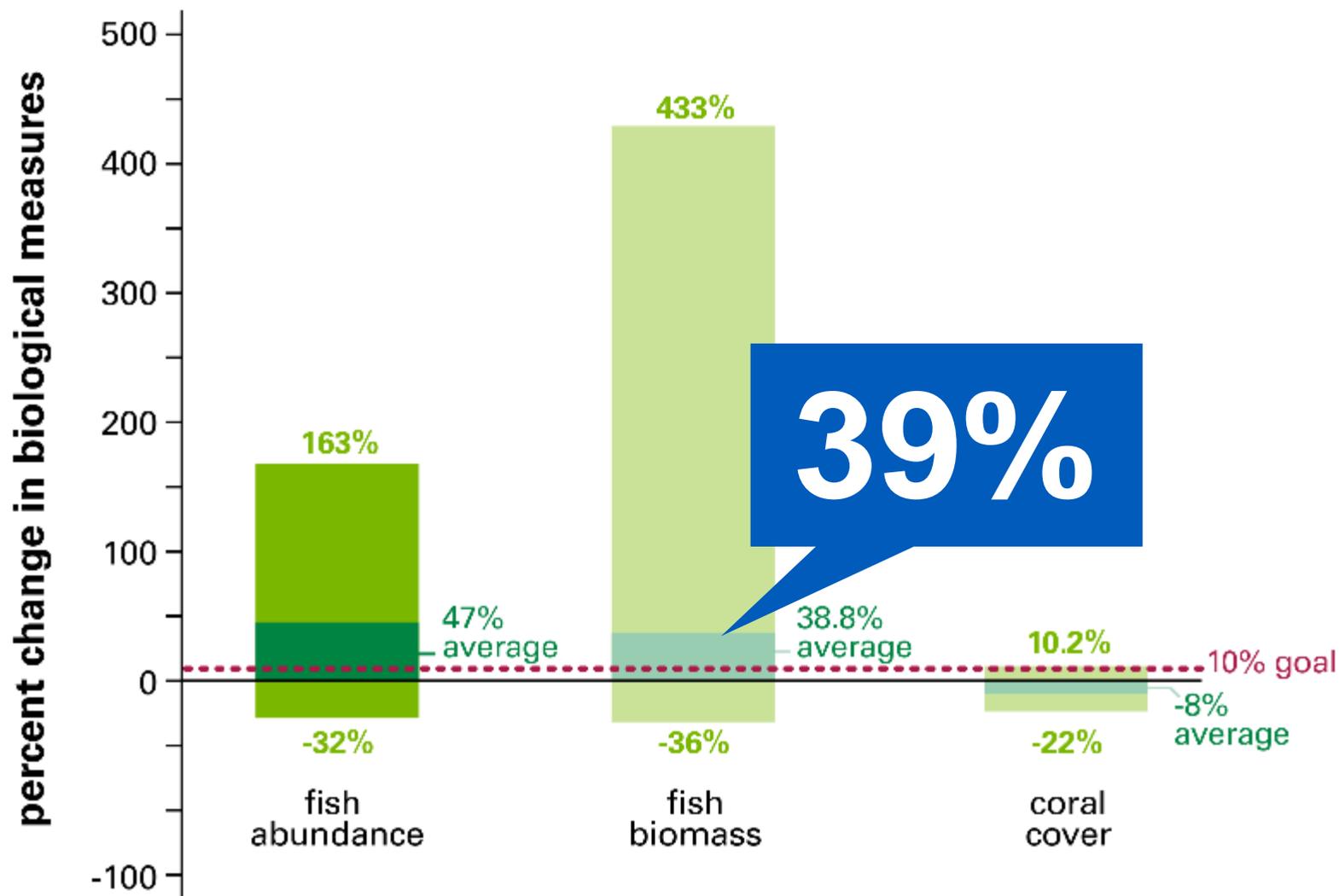
Ginadili ang pagpanagat Ginadili ang pagpangbaba ug kinhason Seaborne Hotline: 09176311963



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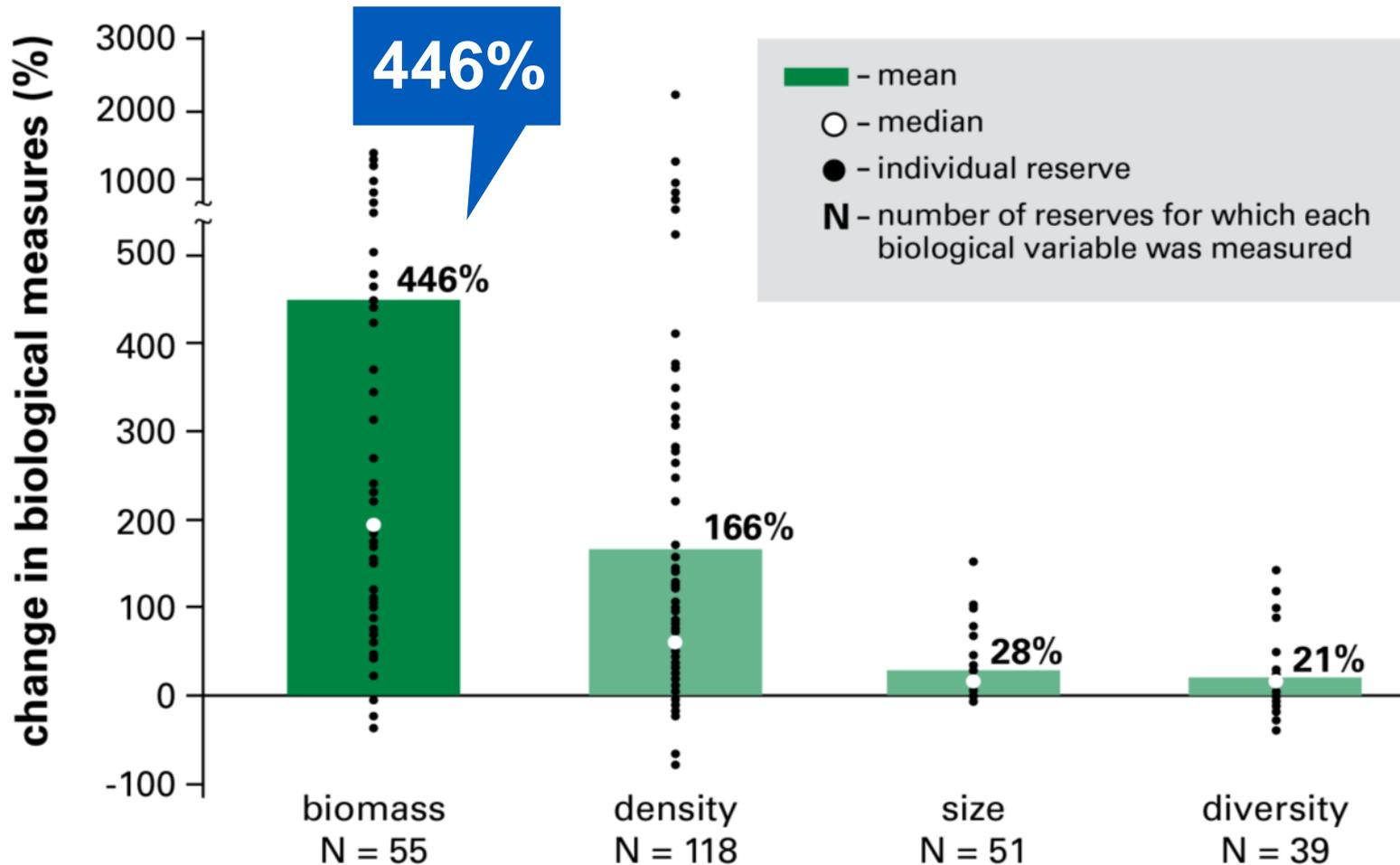


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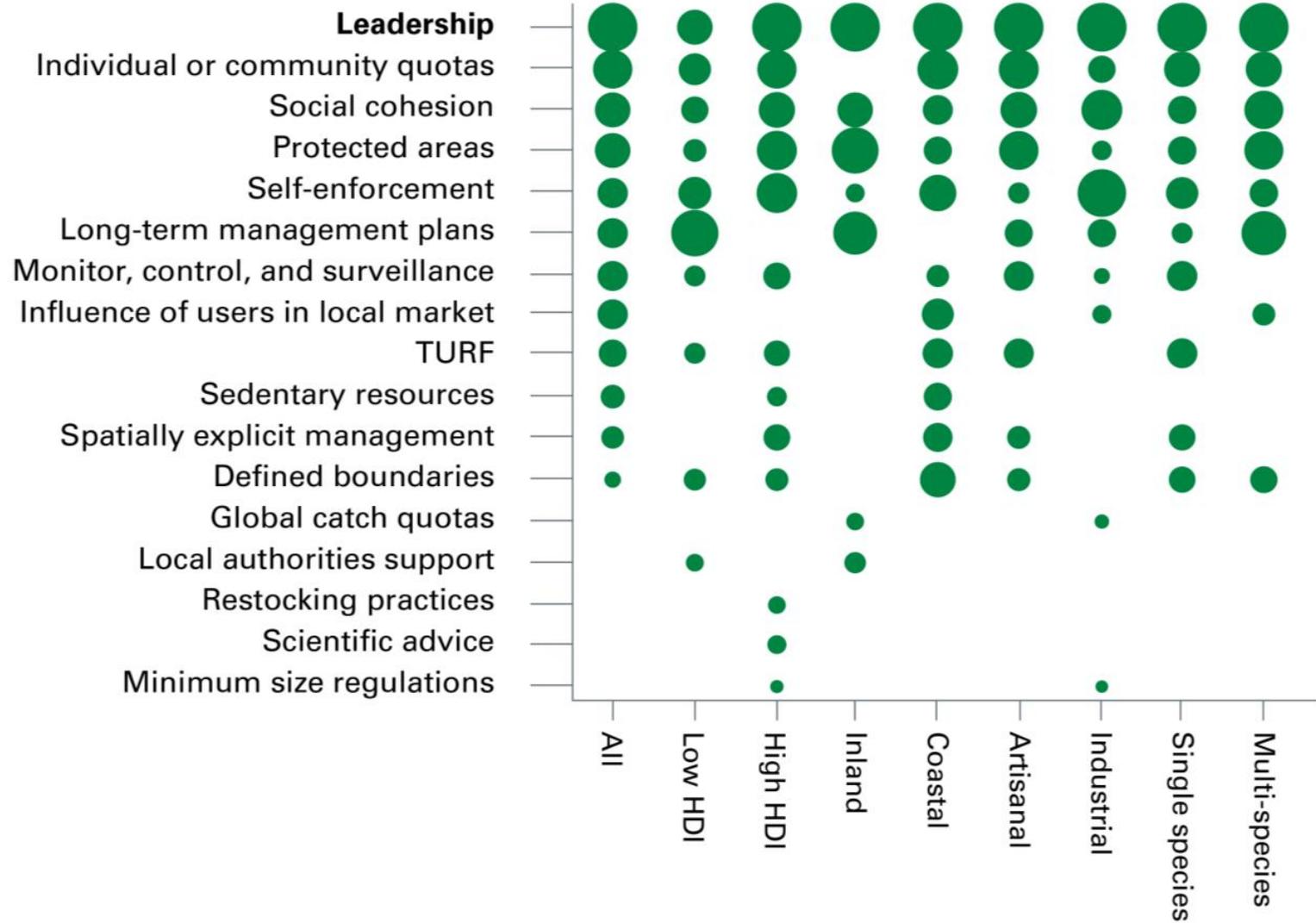


No Surprise: No-Take Zones Work

Biomass increase | More animals | Larger animals | More species



Key: Leadership, Social Cohesion, Tenure

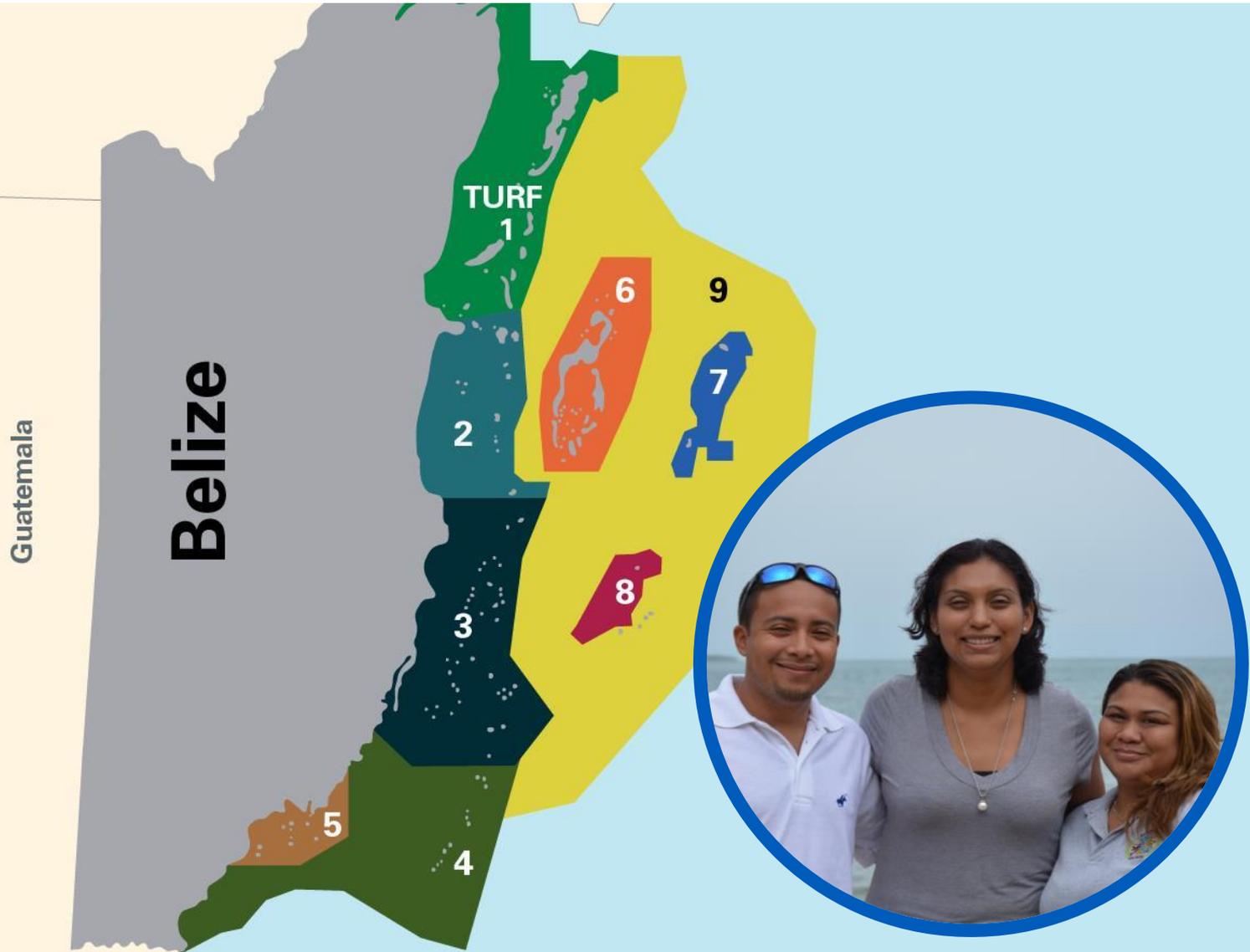


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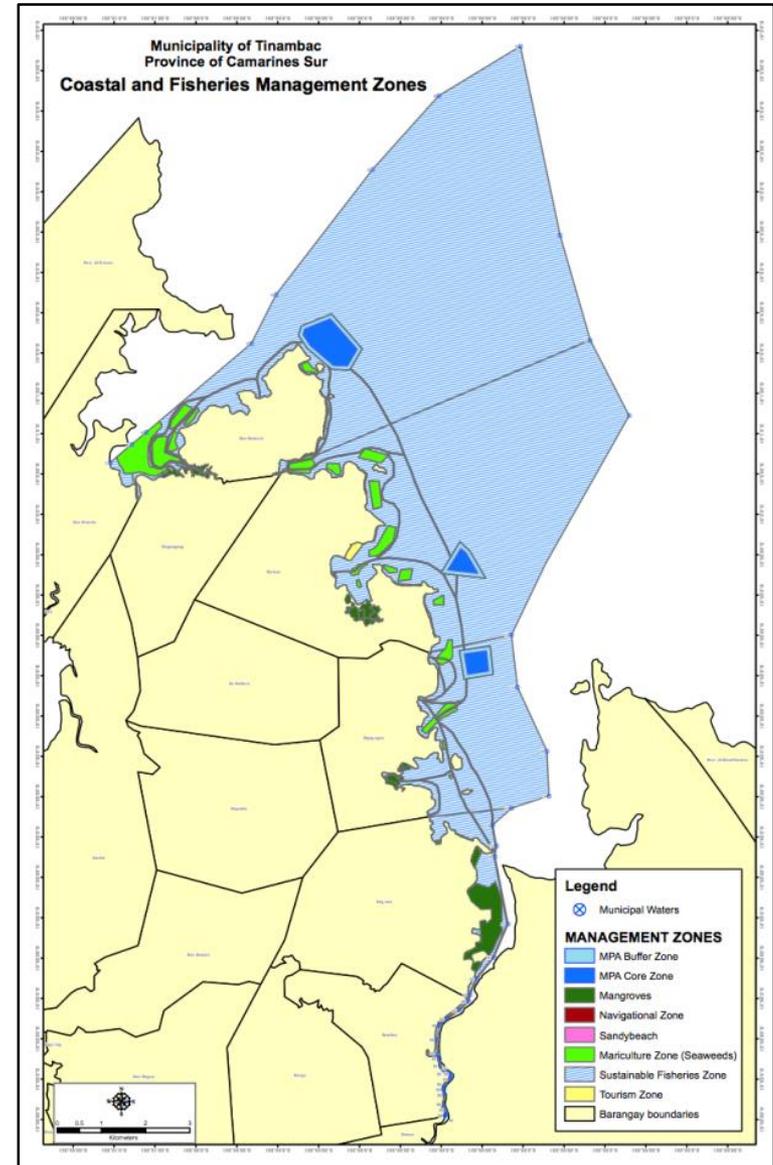
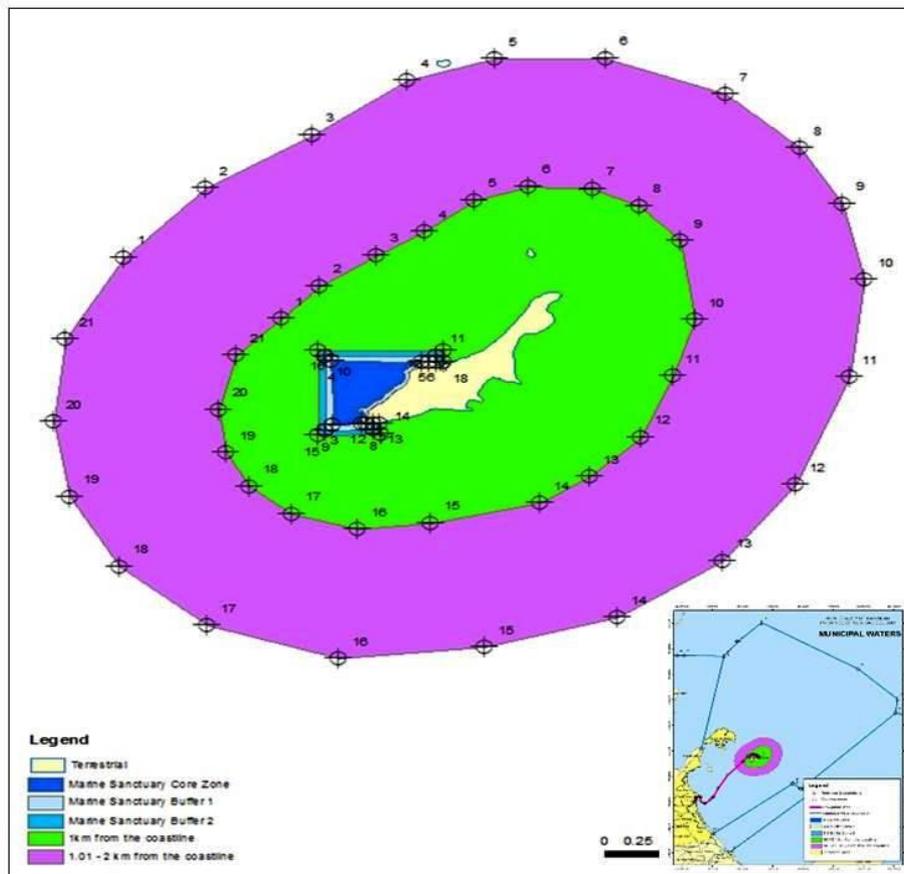


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2015: Belize adopted TURF-Reserves nationwide



2016: ~20 new TURF-Reserves in Philippines & Indonesia



After 37 “mass prototypes,” we envision scale

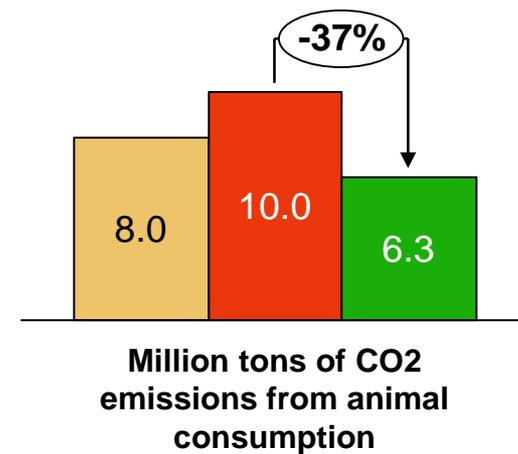
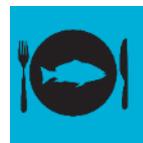
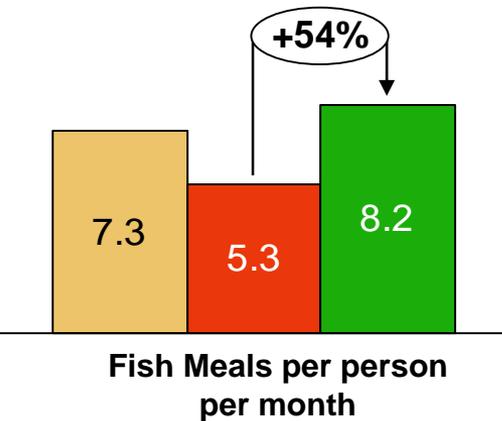
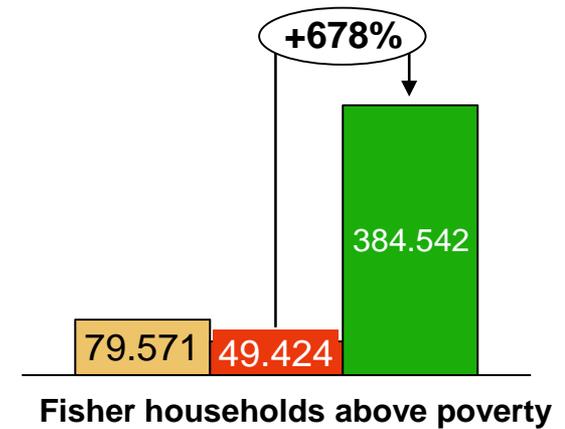
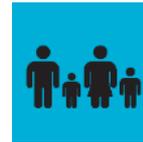
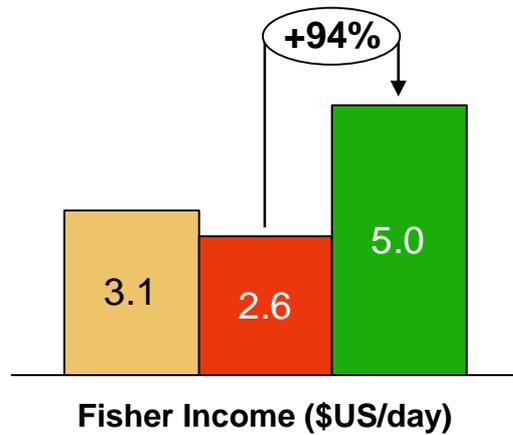


Scaling the program offers significant economic and social benefits



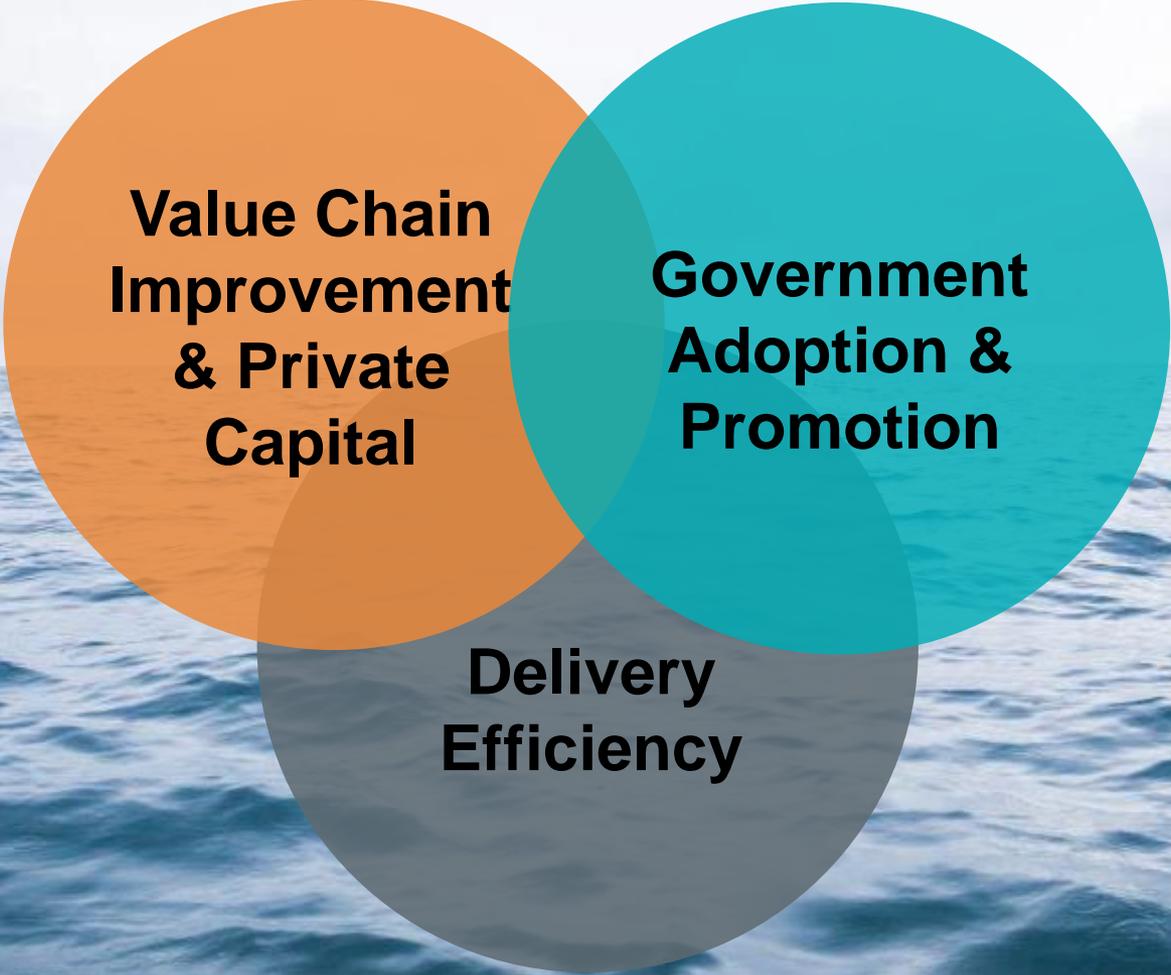
- existing
- envisioned

Projected benefits if scaled in the Philippines



Today
 No action
 Reform

Our strategy for scale



**Value Chain
Improvement
& Private
Capital**

**Government
Adoption &
Promotion**

**Delivery
Efficiency**

Fostering government adoption

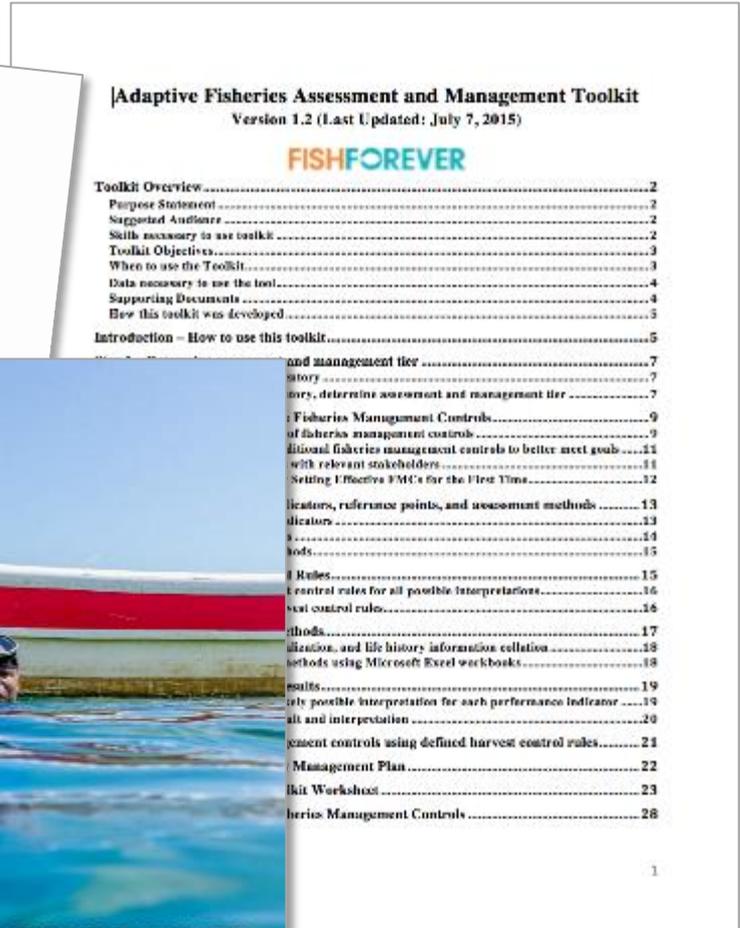
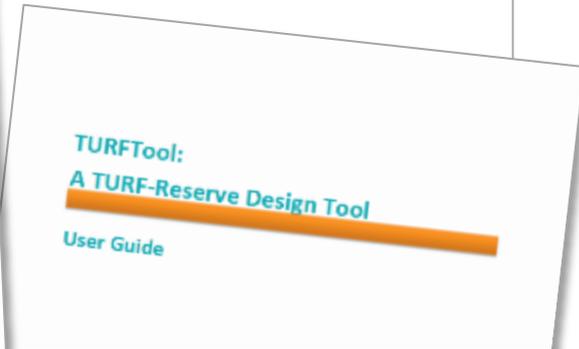
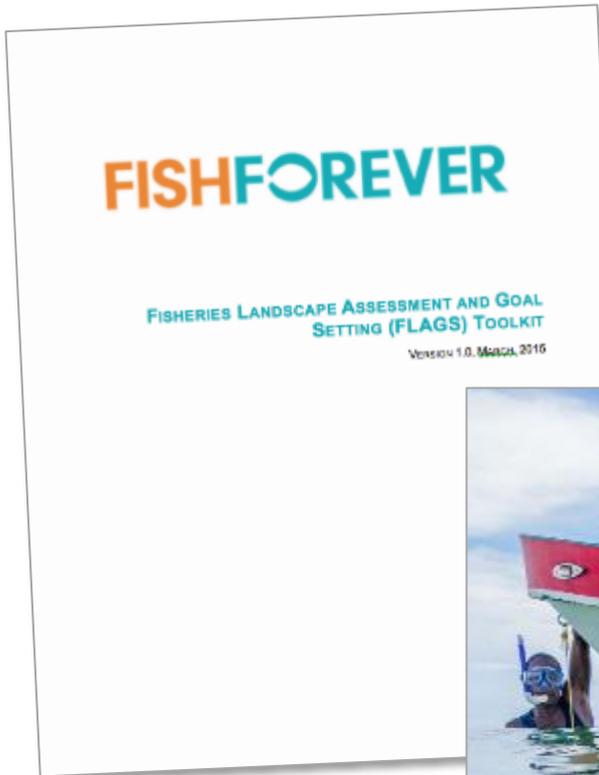


National Institute for the Development of Small-Scale Fisheries and Aquaculture (IDEPA), Mozambique



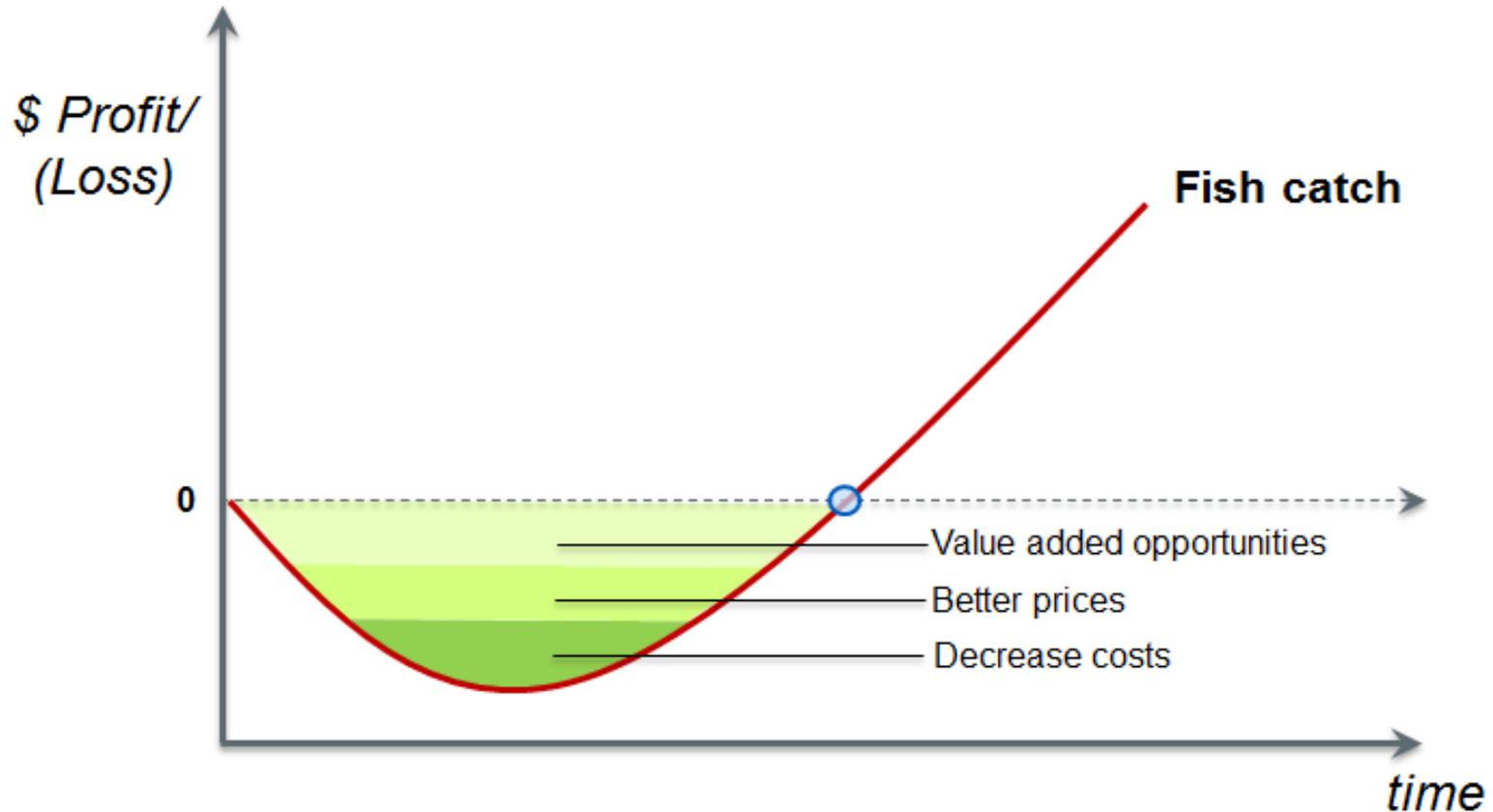
Ministry of Marine Affairs & Fisheries (MMAF), Indonesia

Developing tools for delivery efficiency



Cutting the J-curve through value chain improvements

Accelerating Behavior Change





THE PHILIPPINES
SUSTAINABLE
SEAFOOD WEEK

LOCAL SOLUTIONS FOR CHANGE



HYATT
CITY OF
DREAMS
MANILA


MARCO POLO
ORTIGAS
MANILA

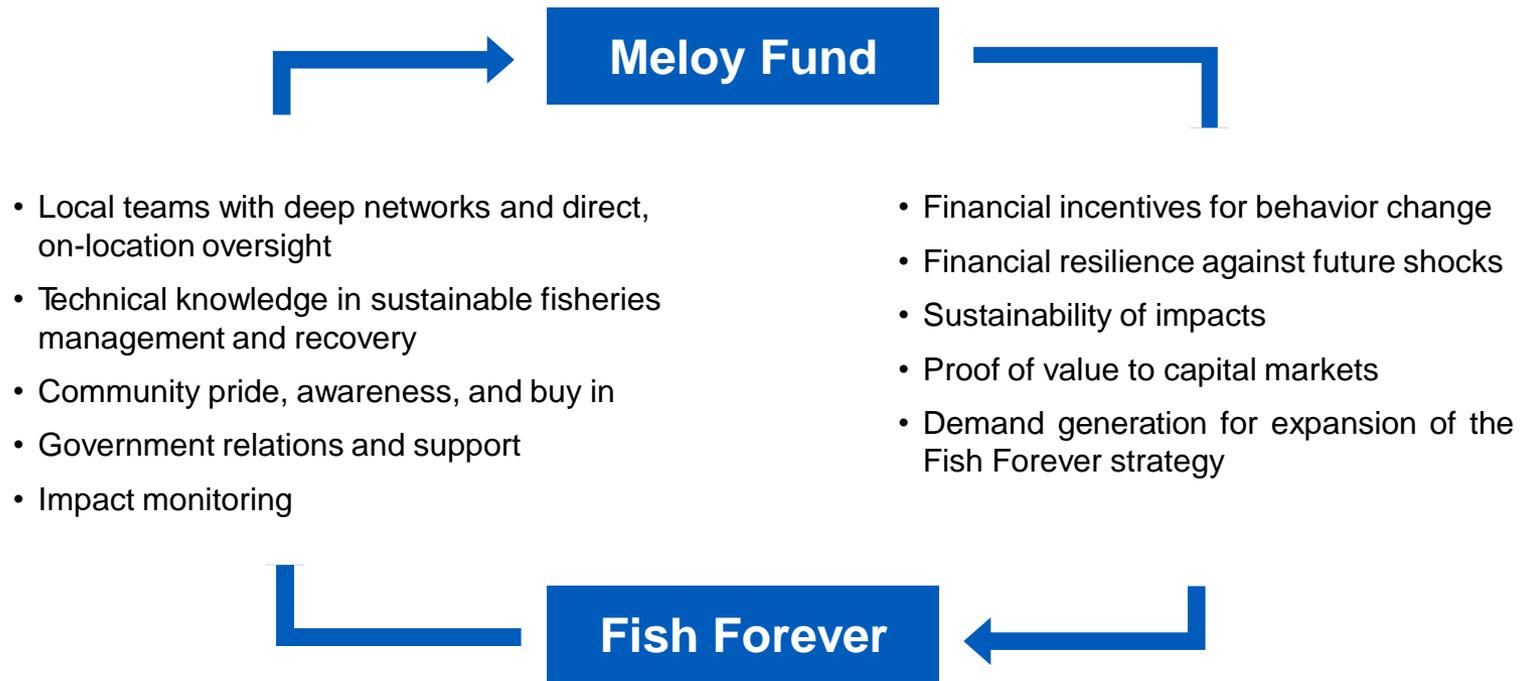

Makati Shangri-La
MANILA


MARRIOTT
MANILA

Meloy Fund: A \$20M fund for coastal fisheries enterprises

The Meloy Fund is the first impact fund focused entirely on community small-scale fisheries in the developing tropics. By leveraging Fish Forever it uniquely ensures that:

- All investments are tied directly to and provide incentives for sustainable fisheries management;
- Community attitudes and behaviors are motivated by both an increase in conservation ethic and financial opportunity; and
- A portion of business returns are allocated to local fishers.

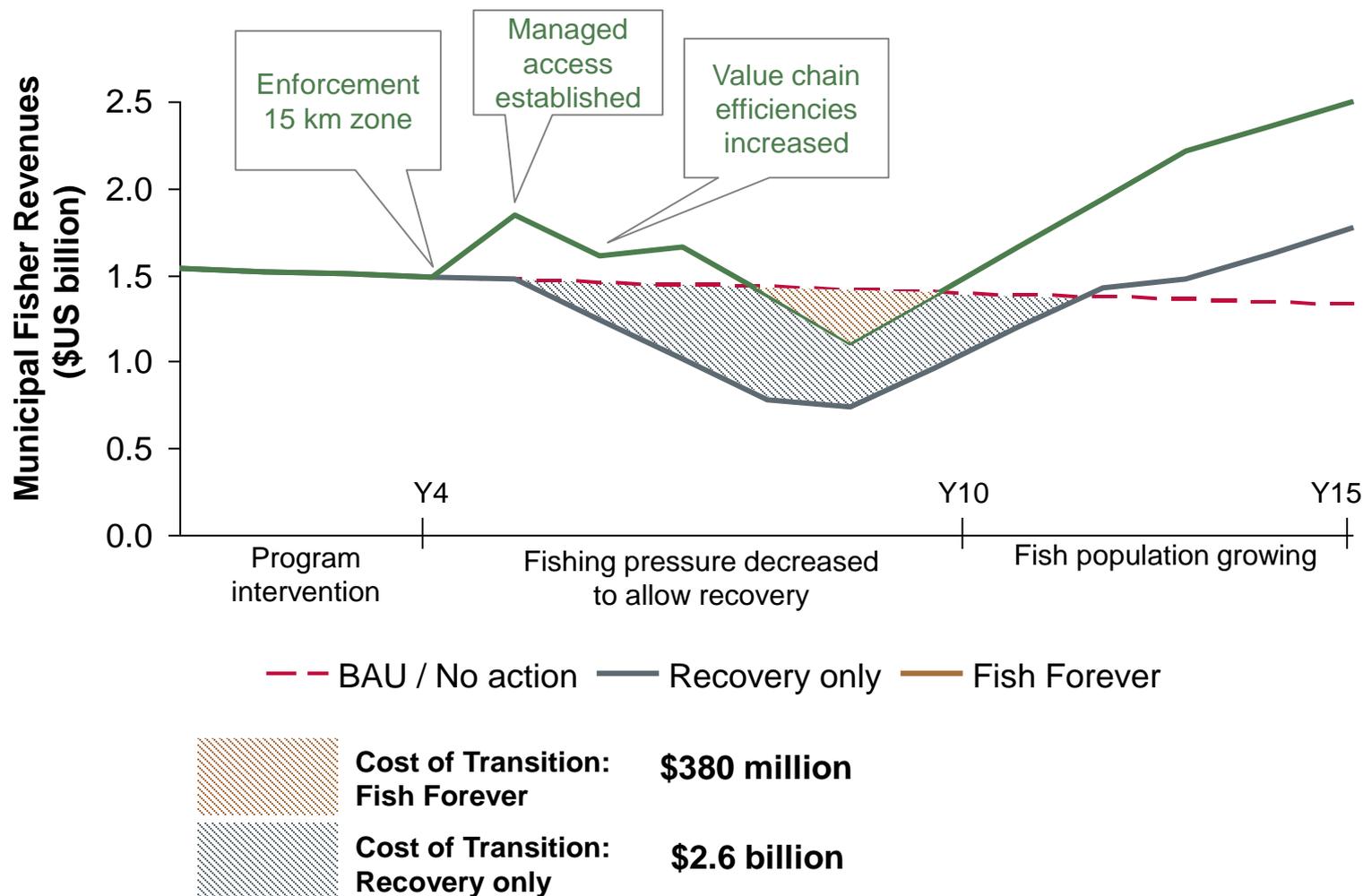


Recovering Small Scale Fisheries



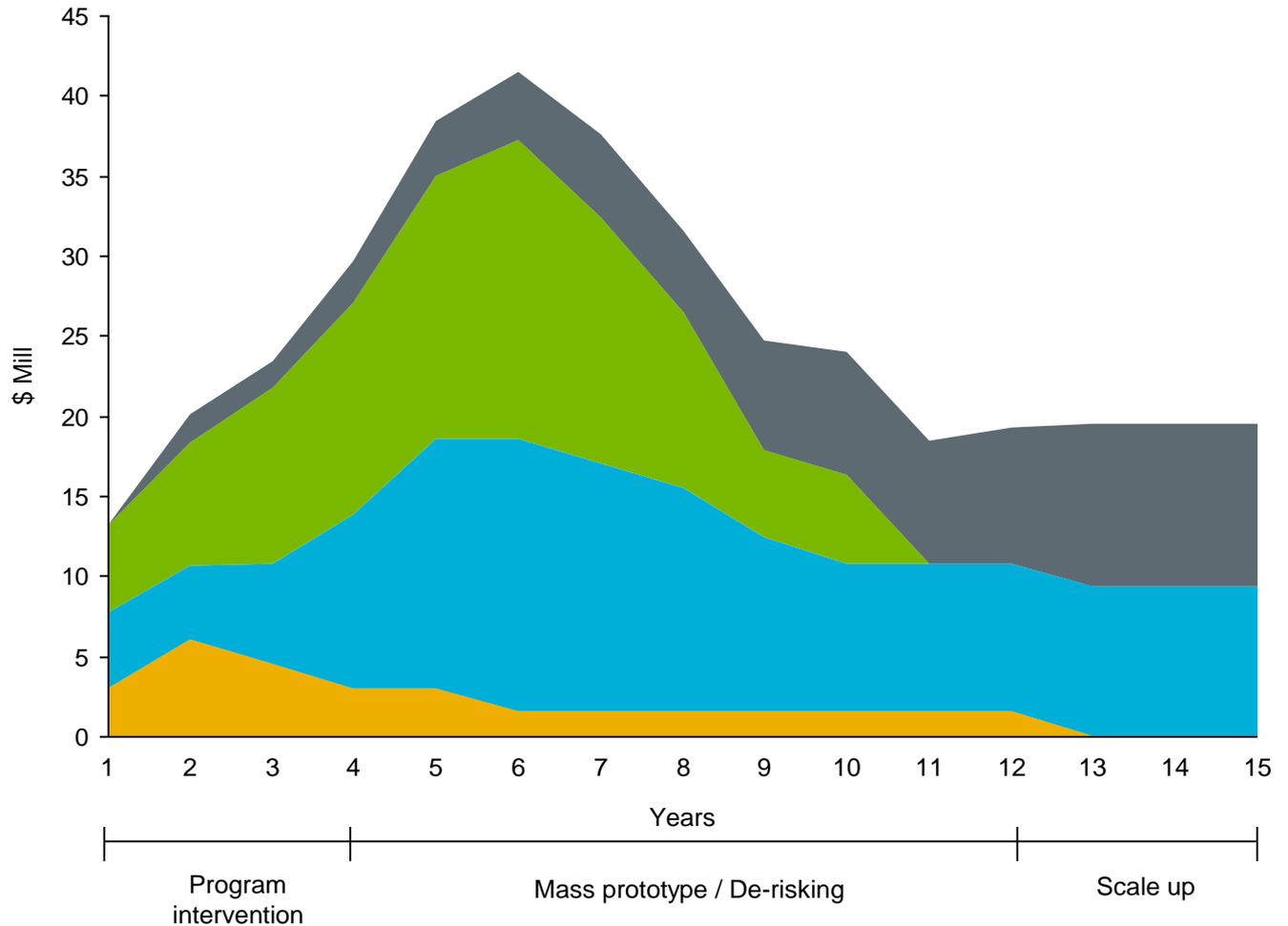
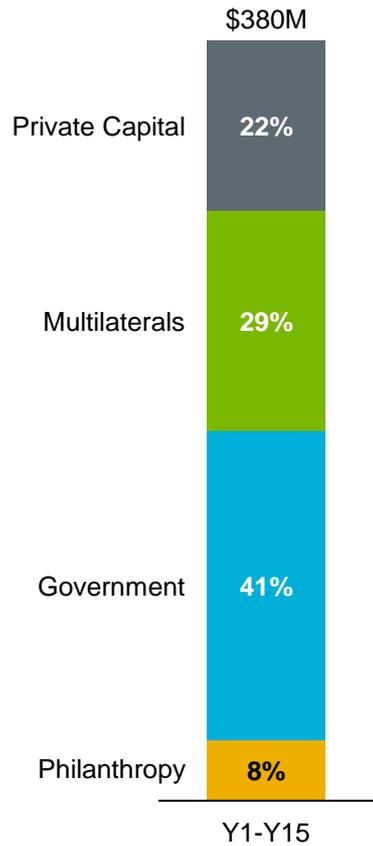
- Problem & Solution
- A Story
- Envisioning Scale
- **Financing a Solution at Scale**

Fish Forever maximizes long-term revenues and minimizes the cost of transition



Source: Preliminary Rare analysis based on simplified assumptions on Recovery

How “Blended Finance” funds scale





**Rare inspires change so
people and nature thrive**



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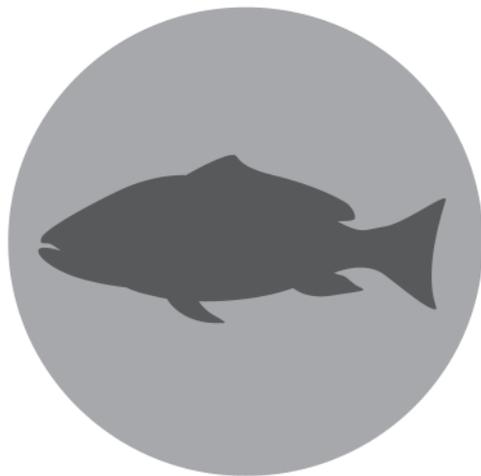
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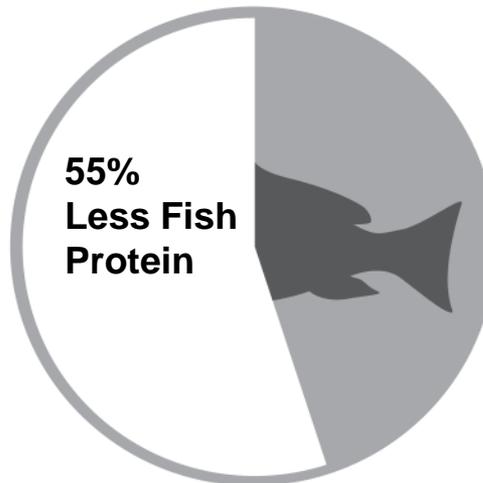
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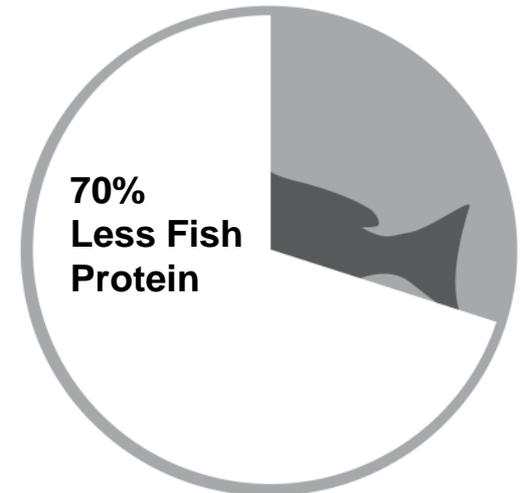
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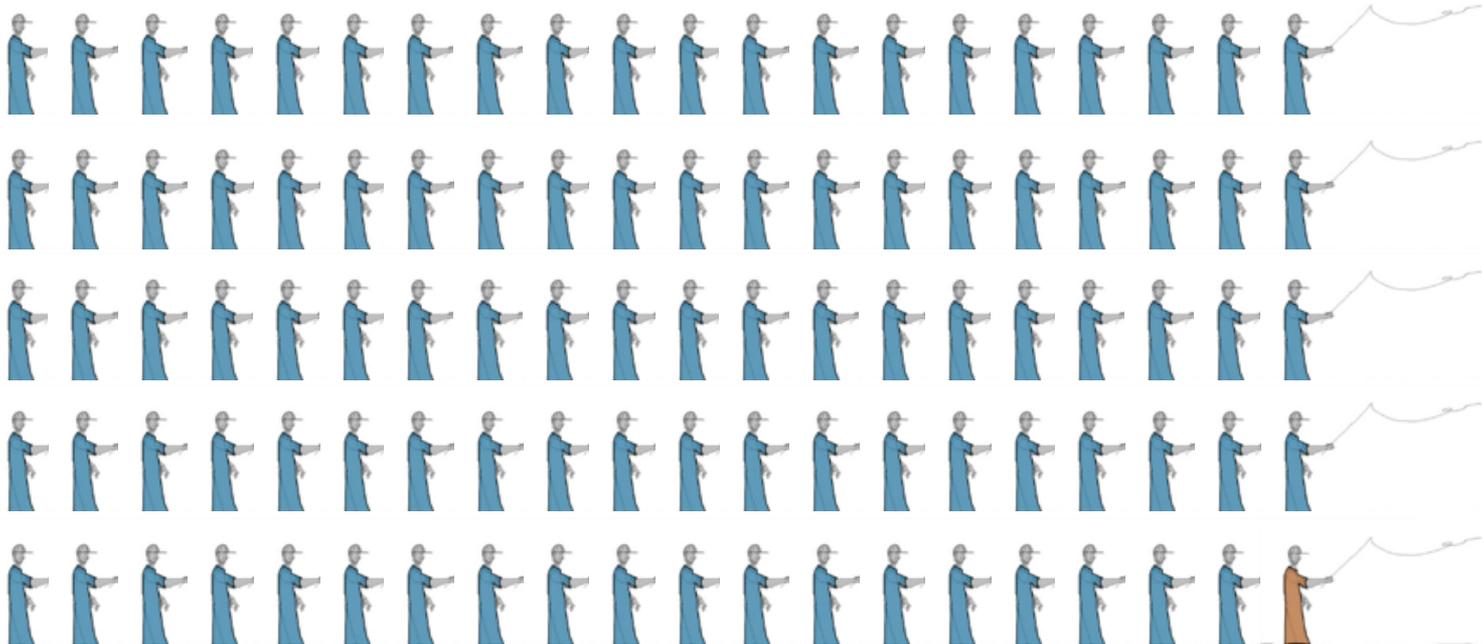


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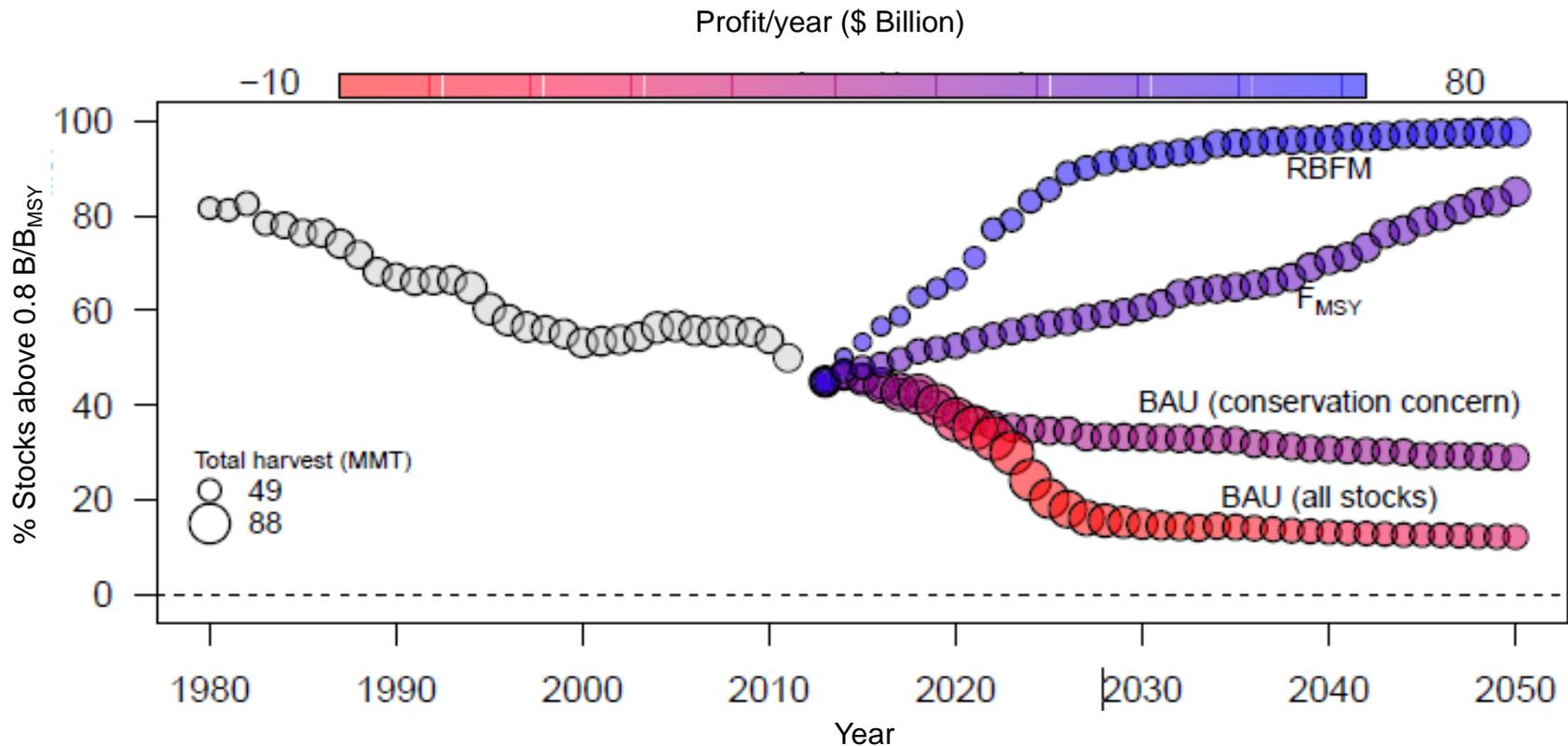
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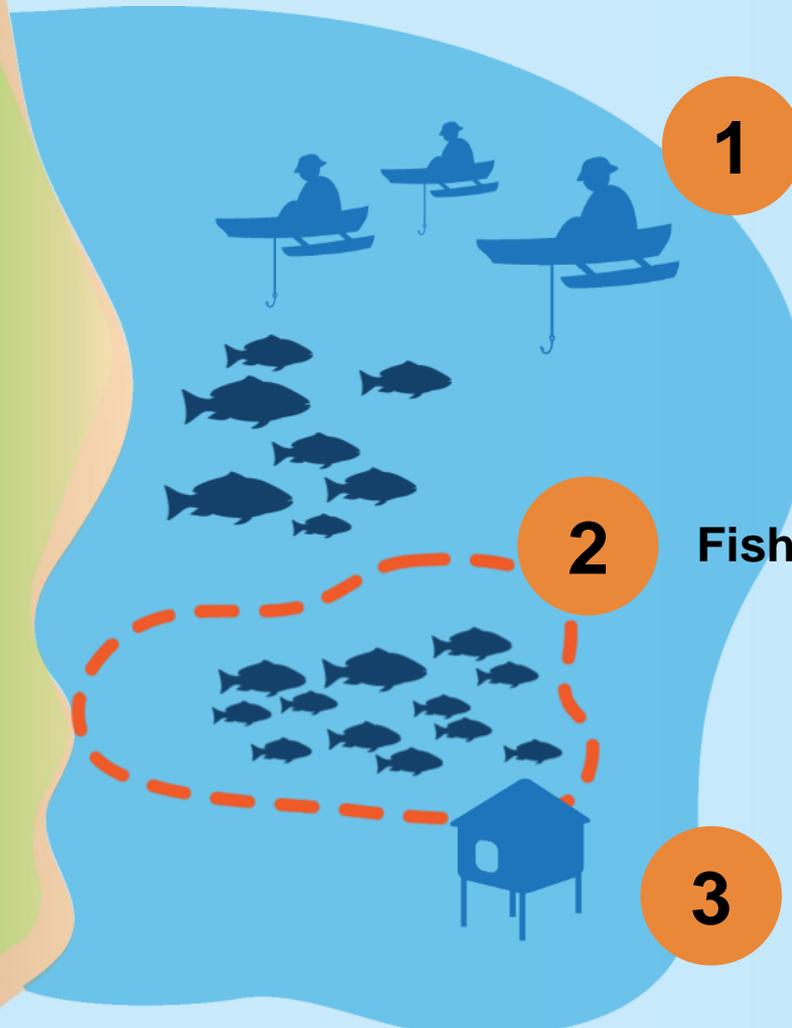
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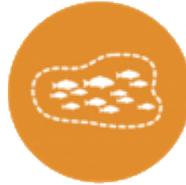
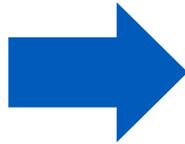


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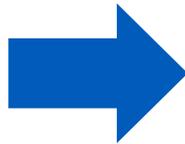
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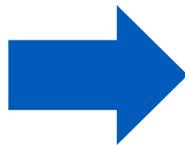
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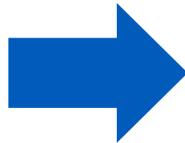
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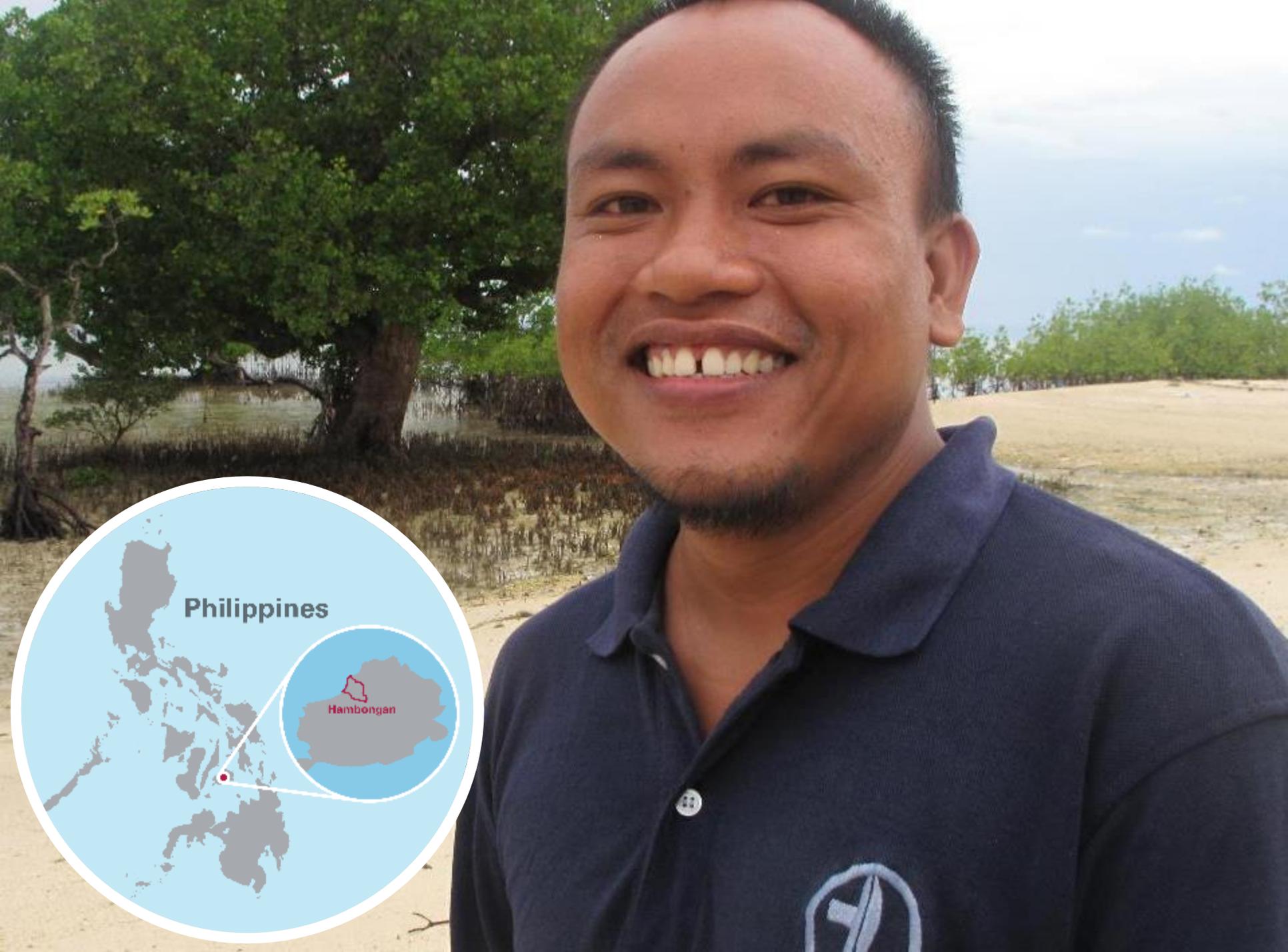
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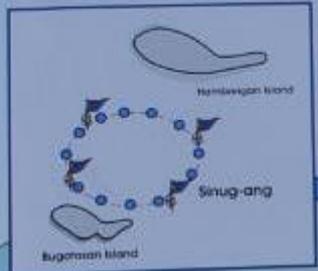








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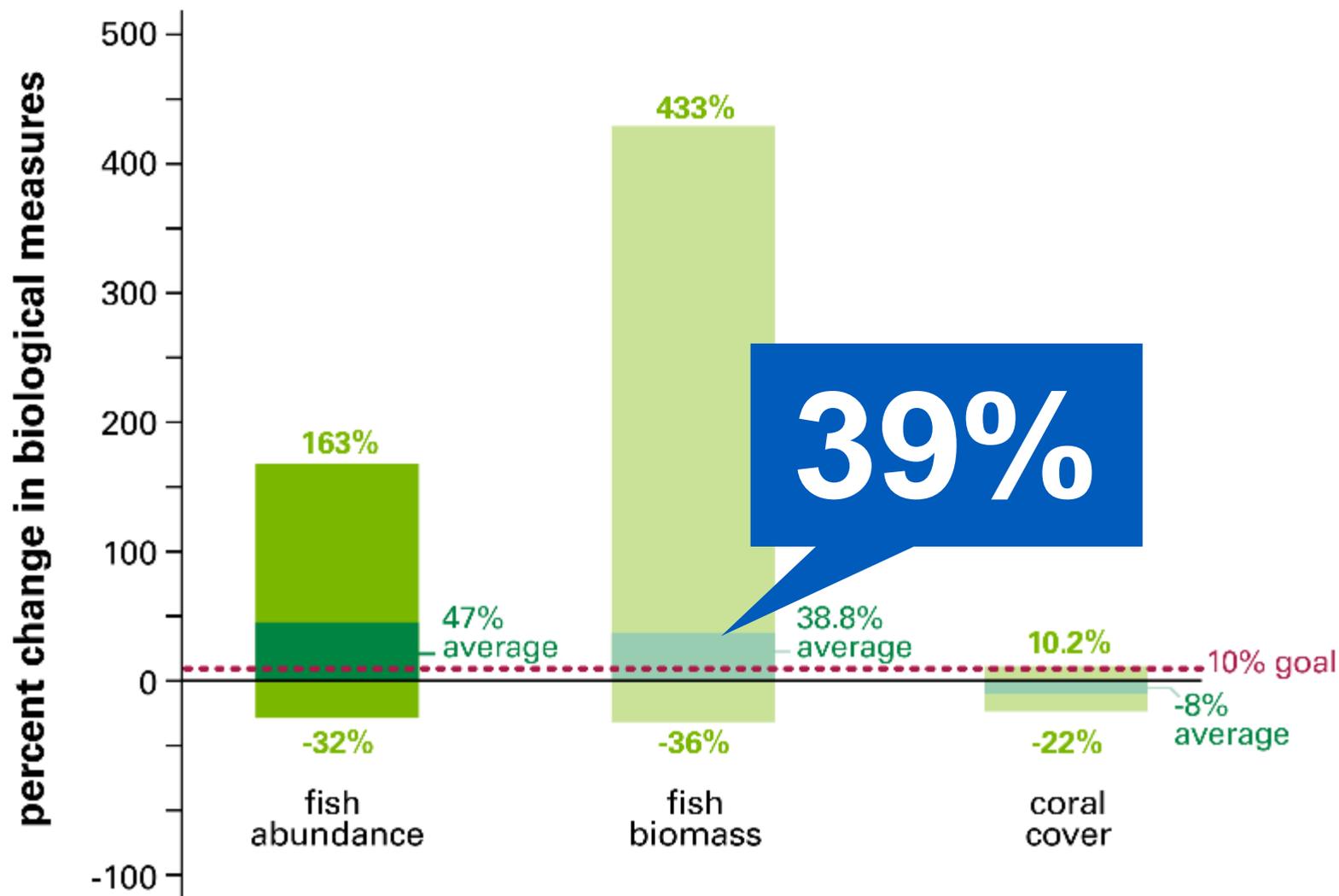
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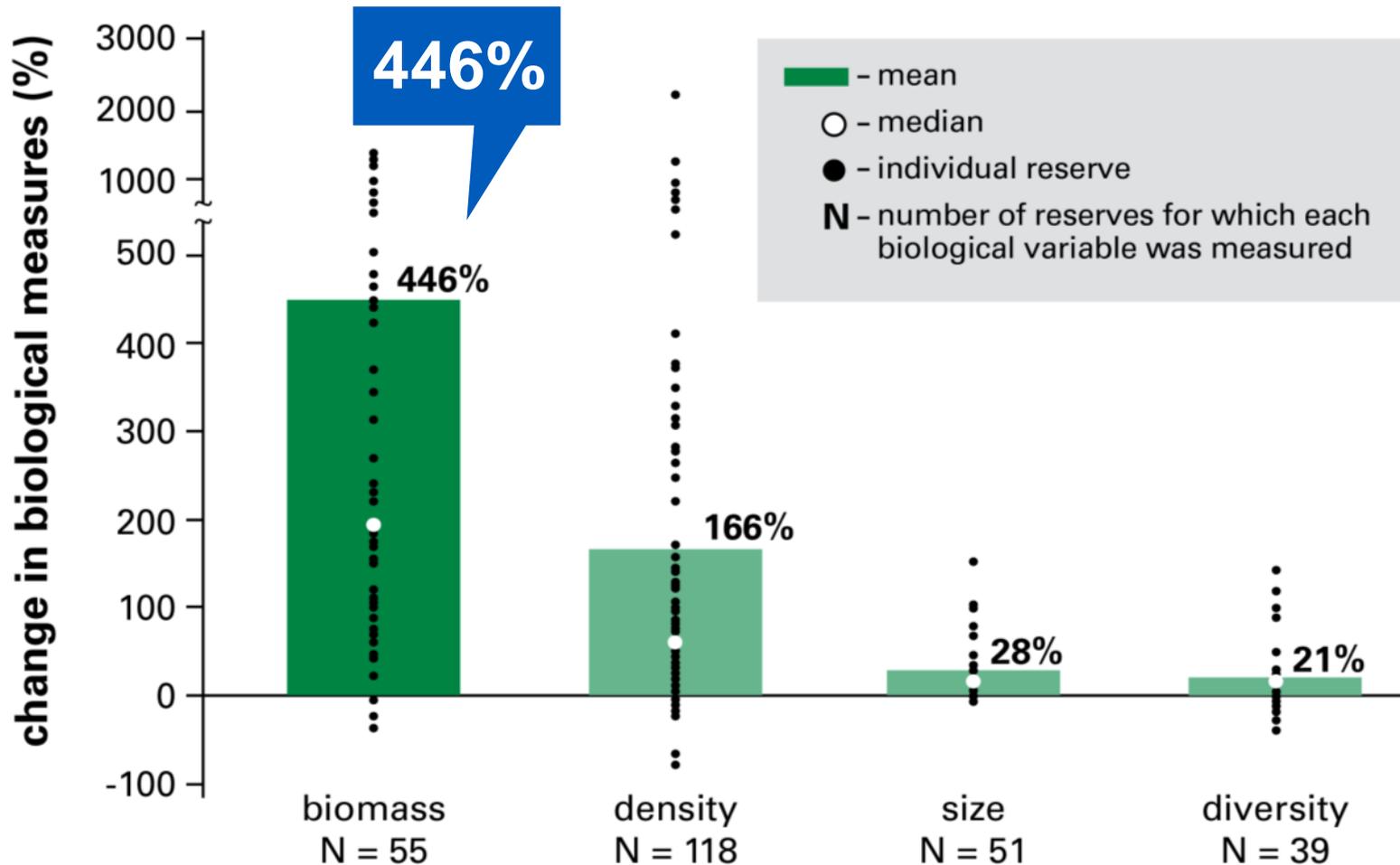


Biological Results in 13 Philippines sites

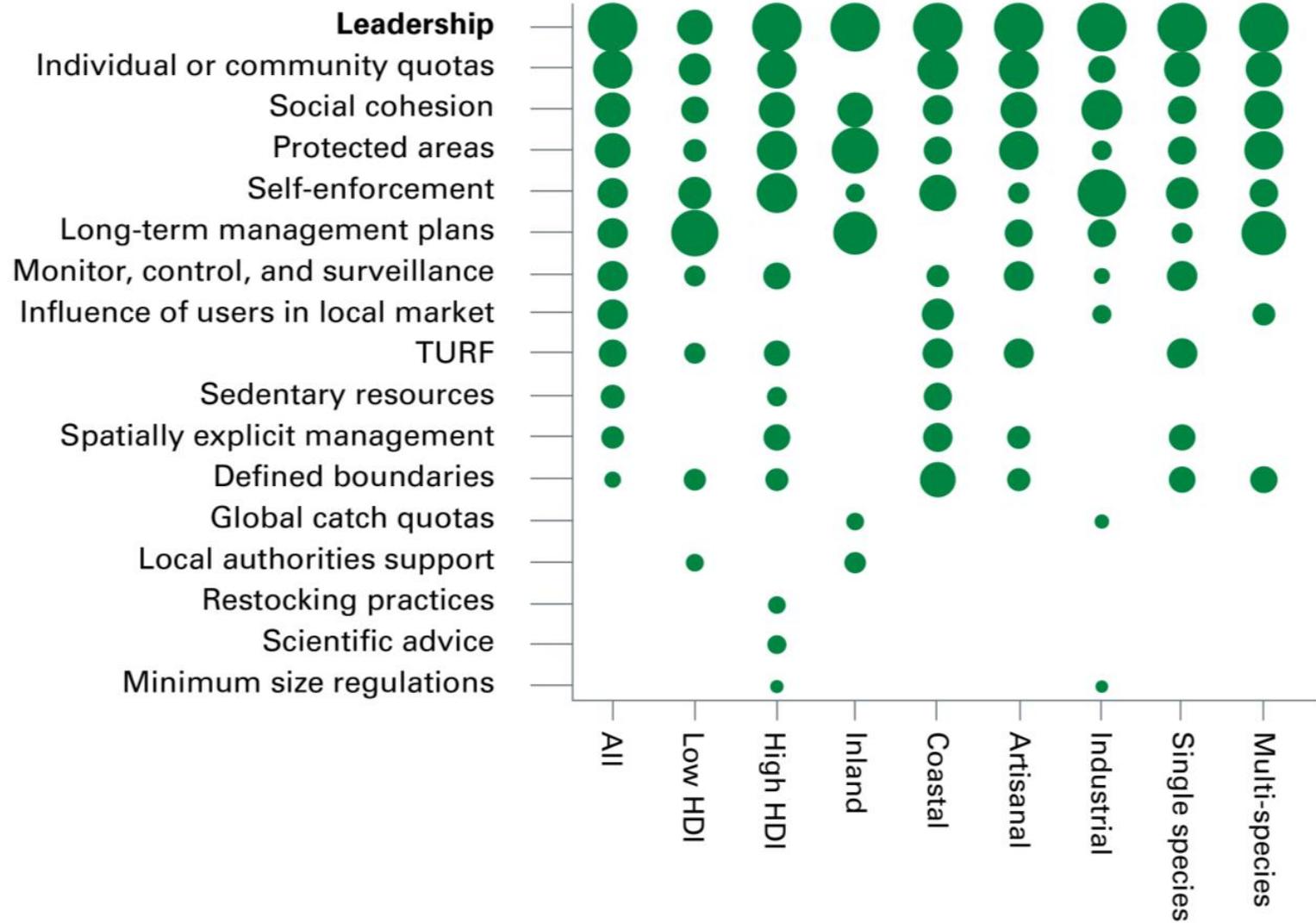


No Surprise: No-Take Zones Work

Biomass increase | More animals | Larger animals | More species



Key: Leadership, Social Cohesion, Tenure

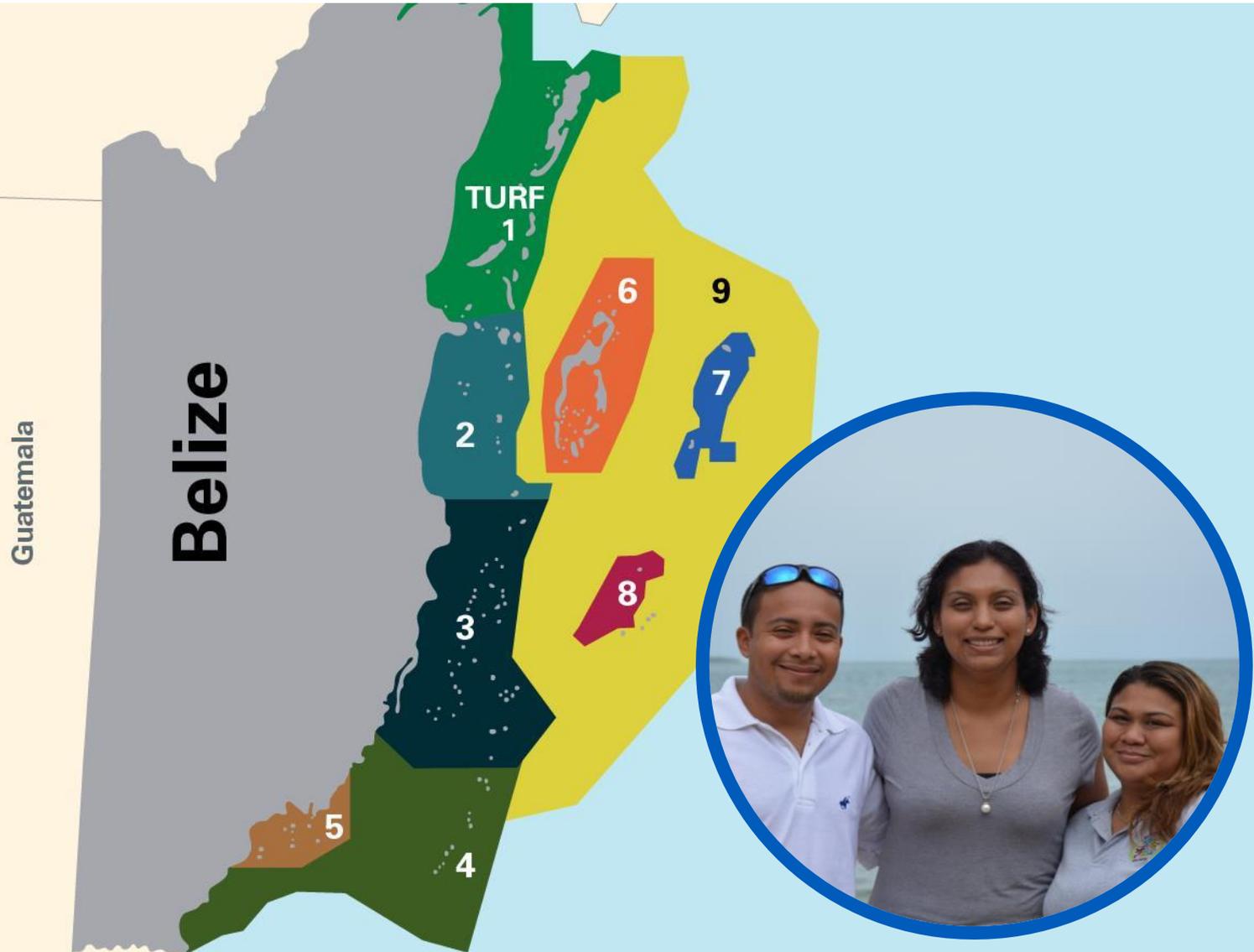


Recovering Small Scale Fisheries

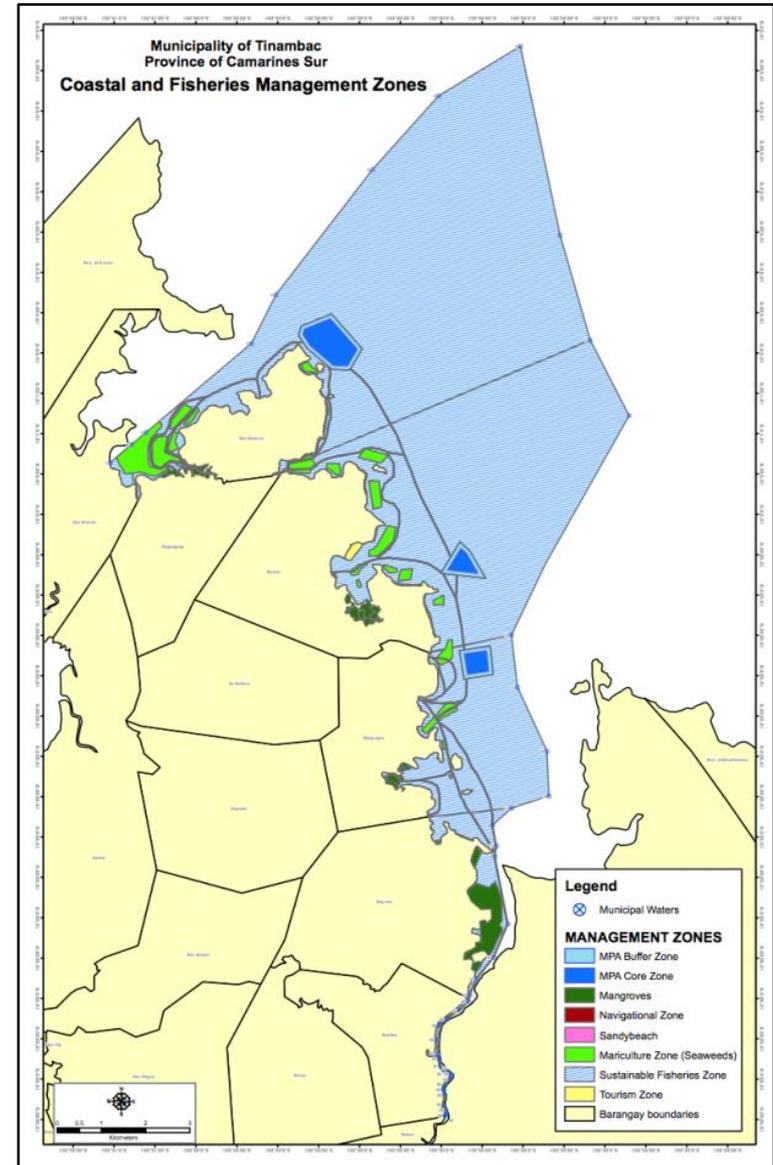
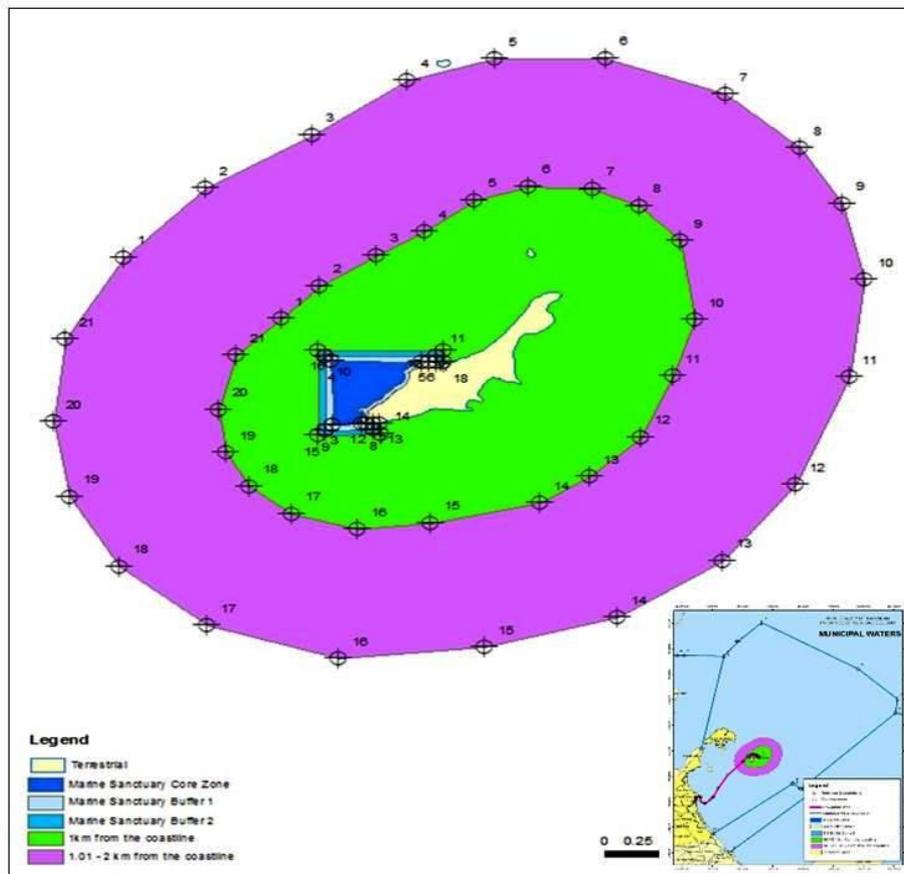


- Problem & Solution
- A Story
- **Envisioning Scale**
- Financing a Solution at Scale

2015: Belize adopted TURF-Reserves nationwide



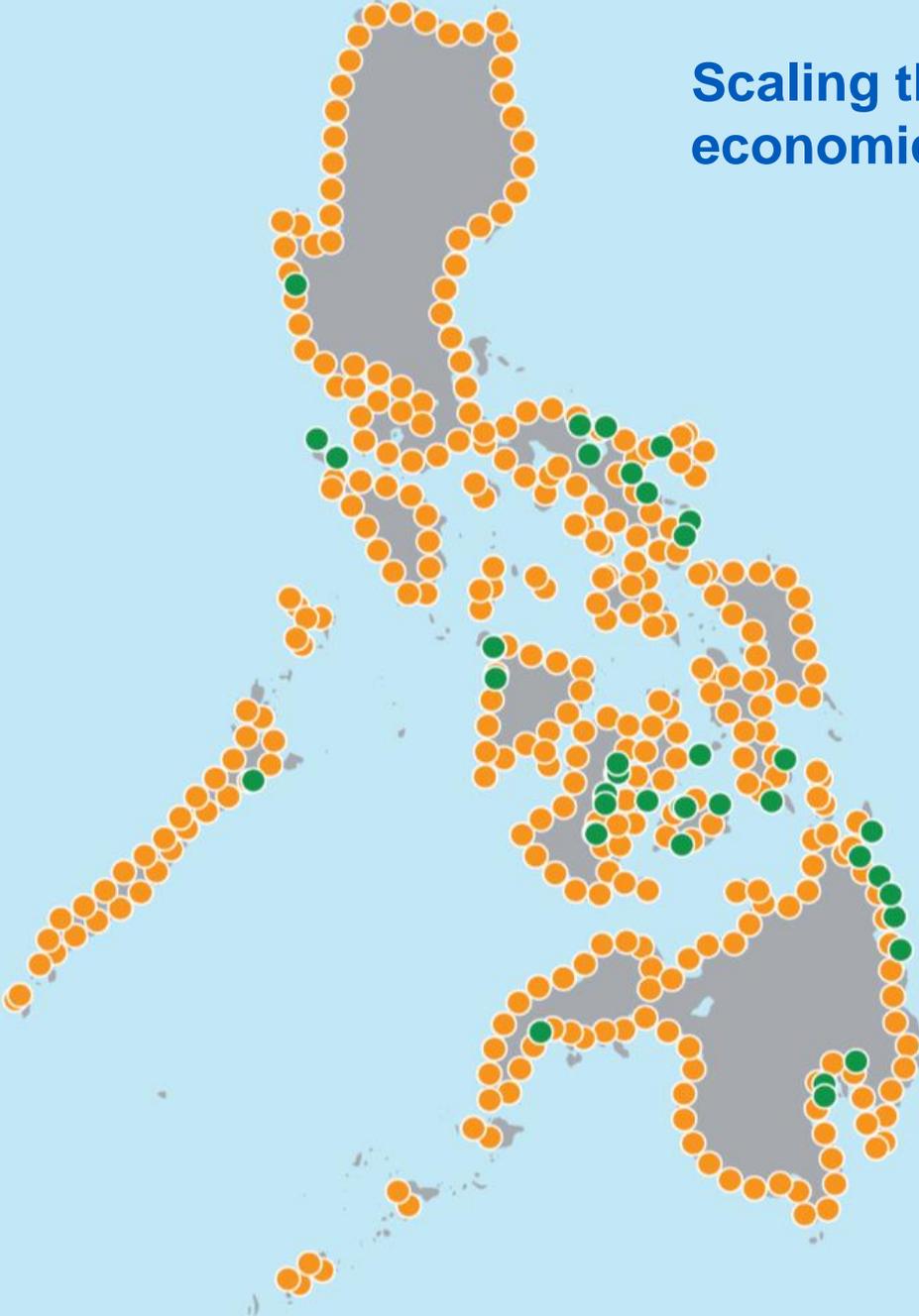
2016: ~20 new TURF-Reserves in Philippines & Indonesia



After 37 “mass prototypes,” we envision scale



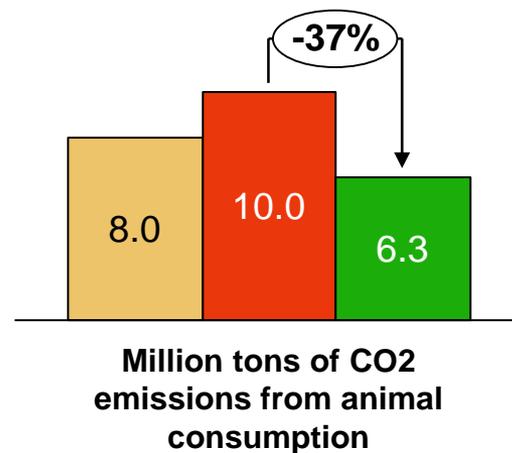
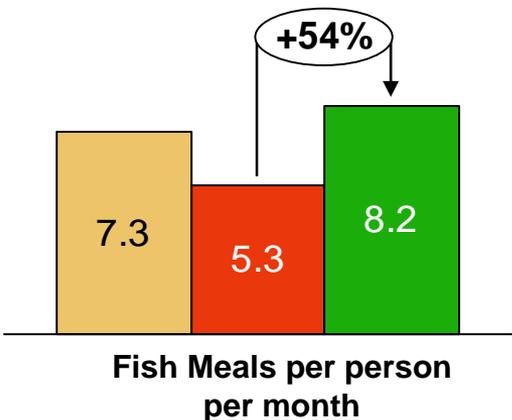
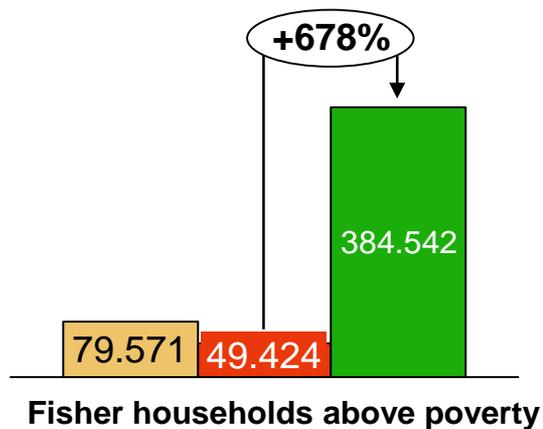
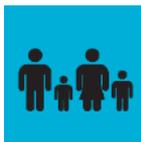
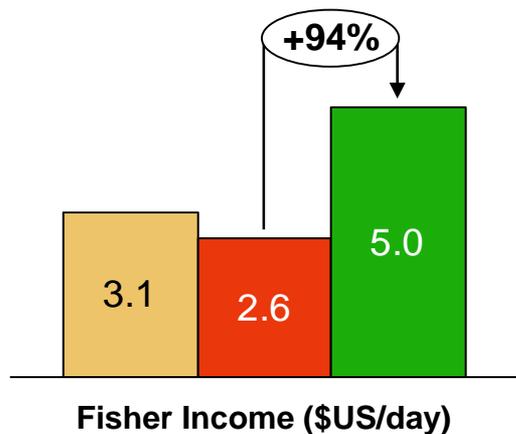
Scaling the program offers significant economic and social benefits



- existing
- envisioned

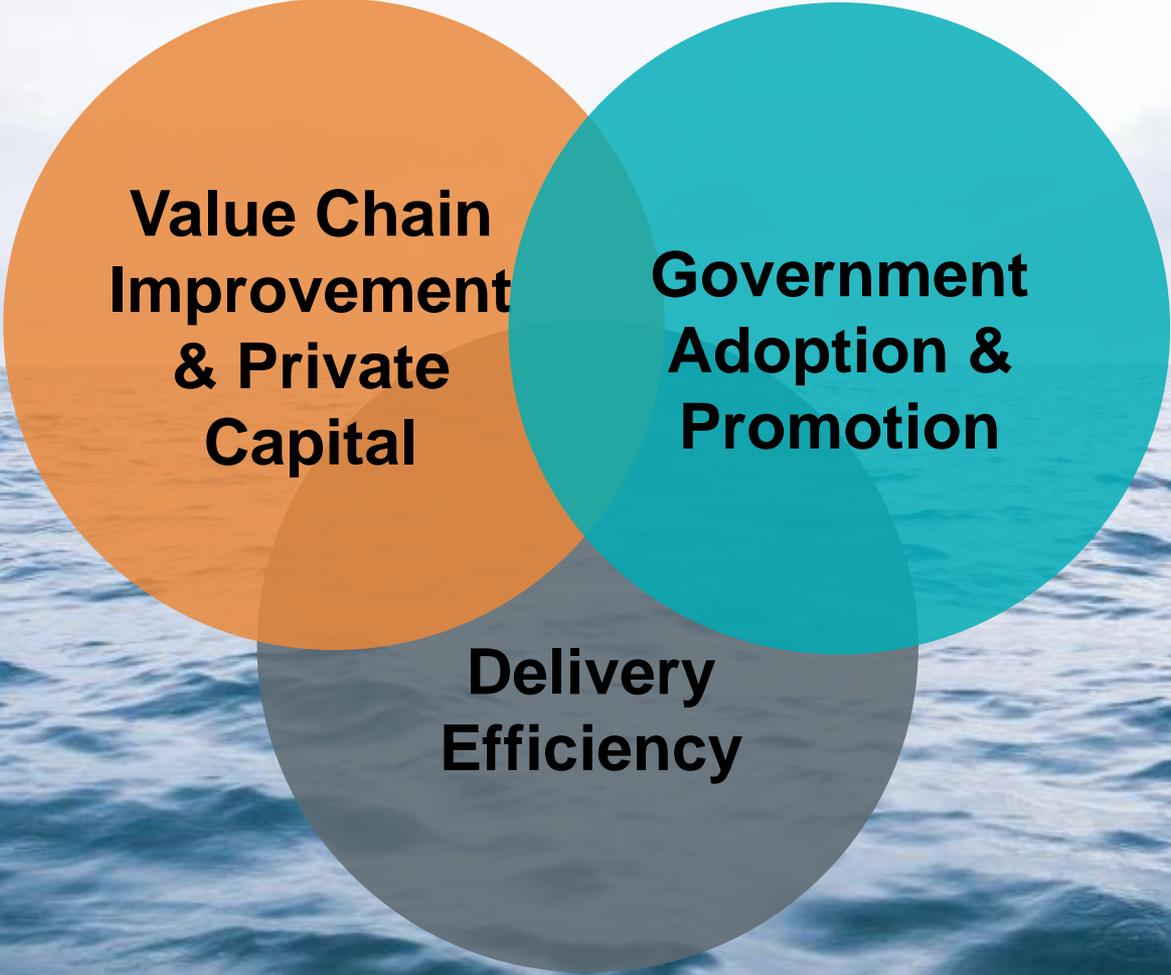


Projected benefits if scaled in the Philippines



Today
 No action
 Reform

Our strategy for scale



**Value Chain
Improvement
& Private
Capital**

**Government
Adoption &
Promotion**

**Delivery
Efficiency**

Fostering government adoption

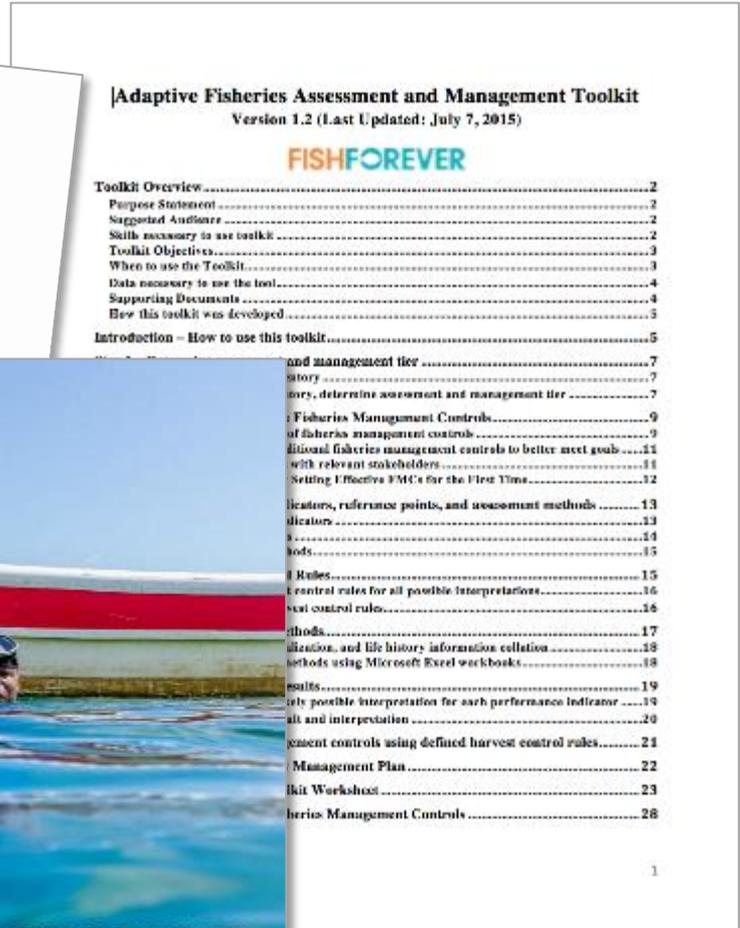
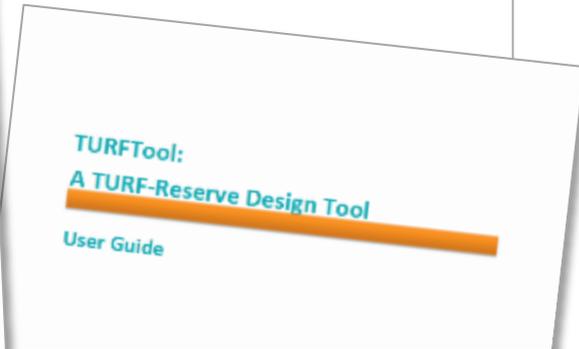
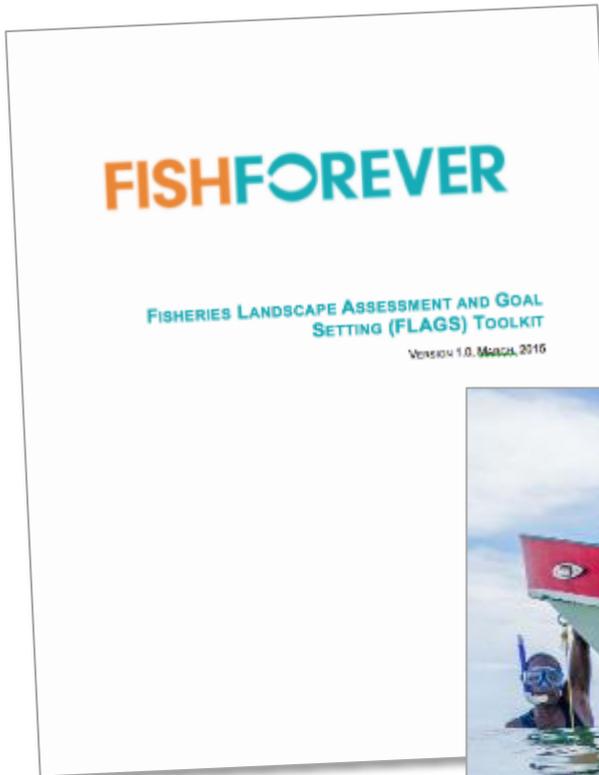


National Institute for the Development of Small-Scale Fisheries and Aquaculture (IDEPA), Mozambique



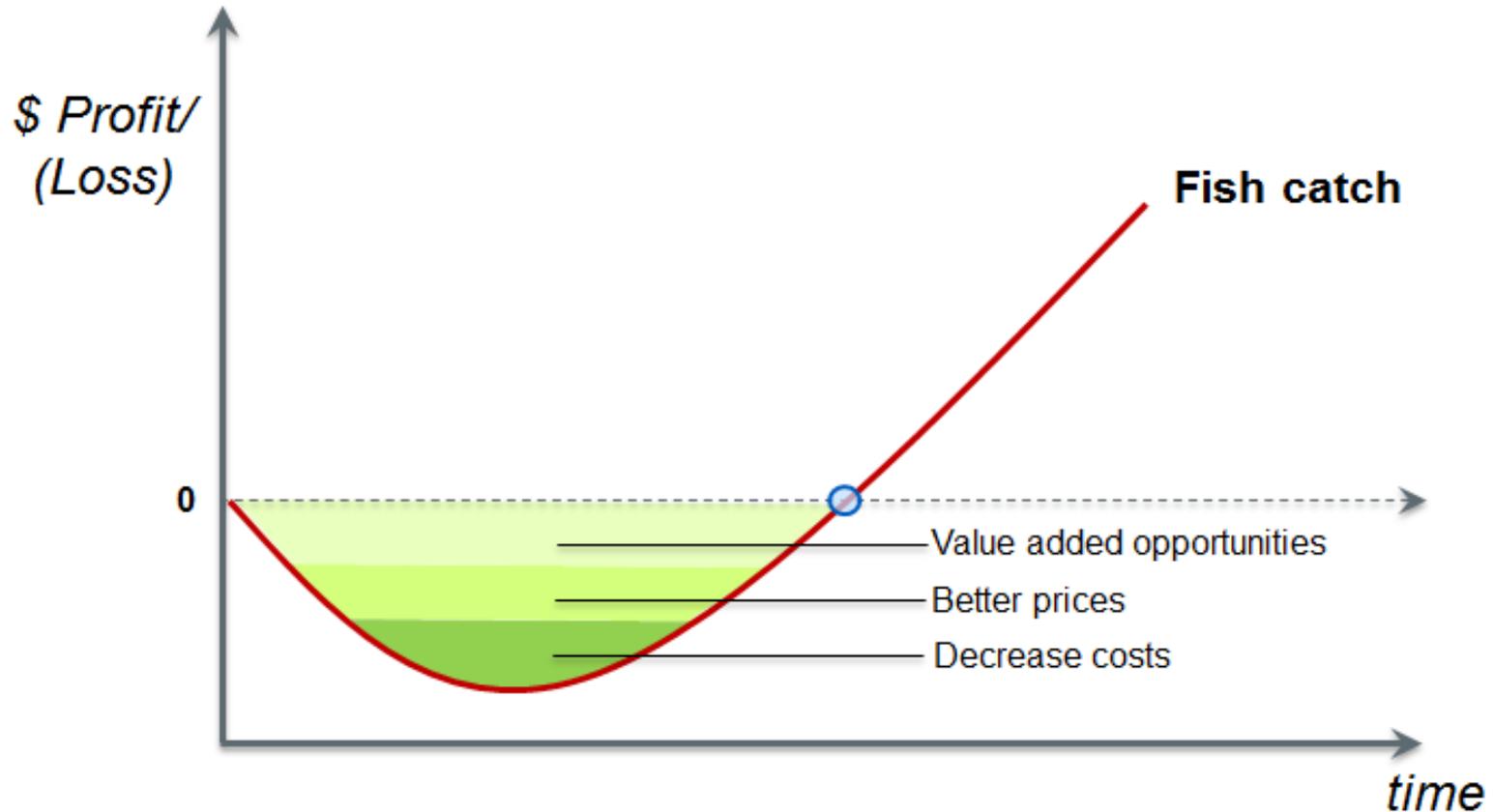
Ministry of Marine Affairs & Fisheries (MMAF), Indonesia

Developing tools for delivery efficiency



Cutting the J-curve through value chain improvements

Accelerating Behavior Change





THE PHILIPPINES
SUSTAINABLE
SEAFOOD WEEK

LOCAL SOLUTIONS FOR CHANGE



HYATT
CITY OF
DREAMS
MANILA


MARCO POLO
ORTIGAS
MANILA

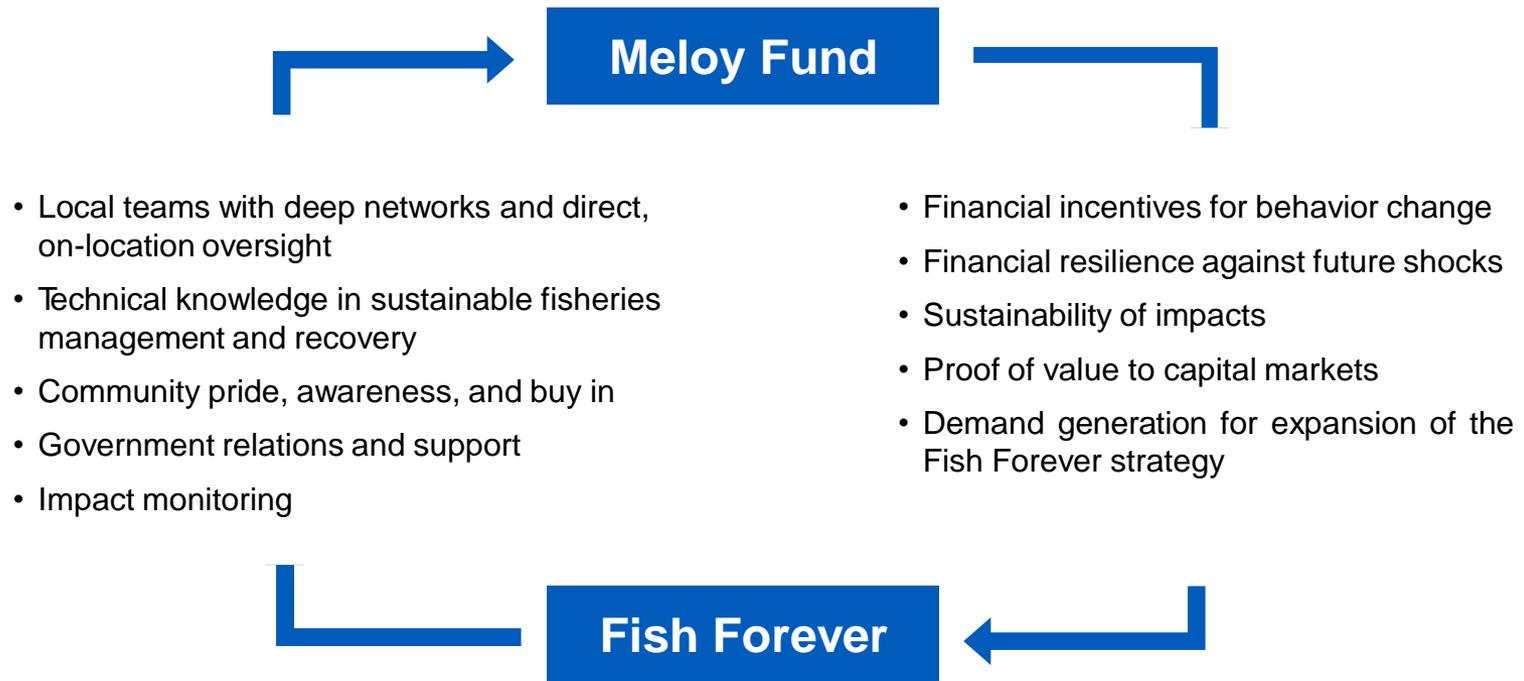

Makati Shangri-La
MANILA


MARRIOTT
MANILA

Meloy Fund: A \$20M fund for coastal fisheries enterprises

The Meloy Fund is the first impact fund focused entirely on community small-scale fisheries in the developing tropics. By leveraging Fish Forever it uniquely ensures that:

- All investments are tied directly to and provide incentives for sustainable fisheries management;
- Community attitudes and behaviors are motivated by both an increase in conservation ethic and financial opportunity; and
- A portion of business returns are allocated to local fishers.

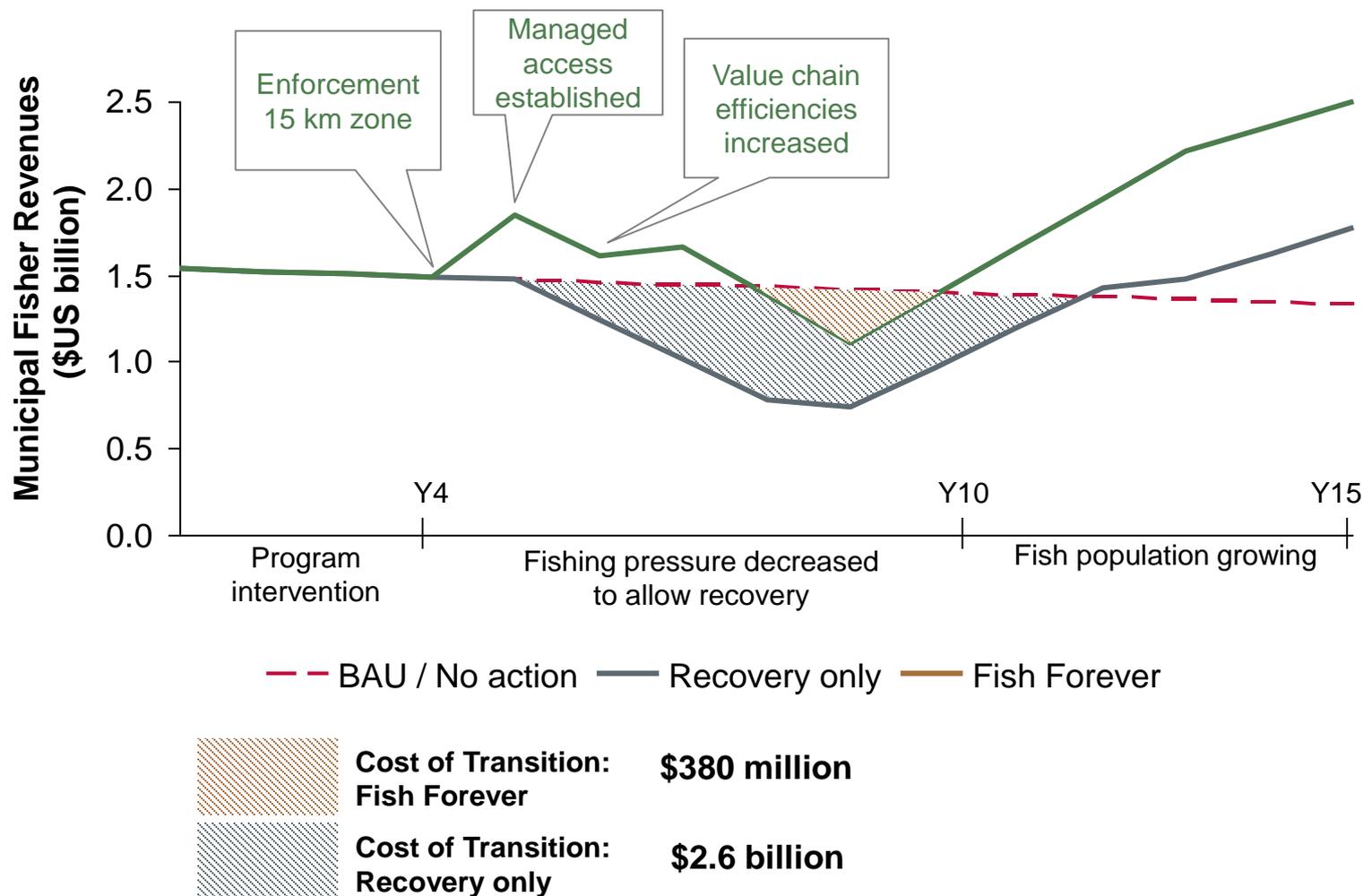


Recovering Small Scale Fisheries



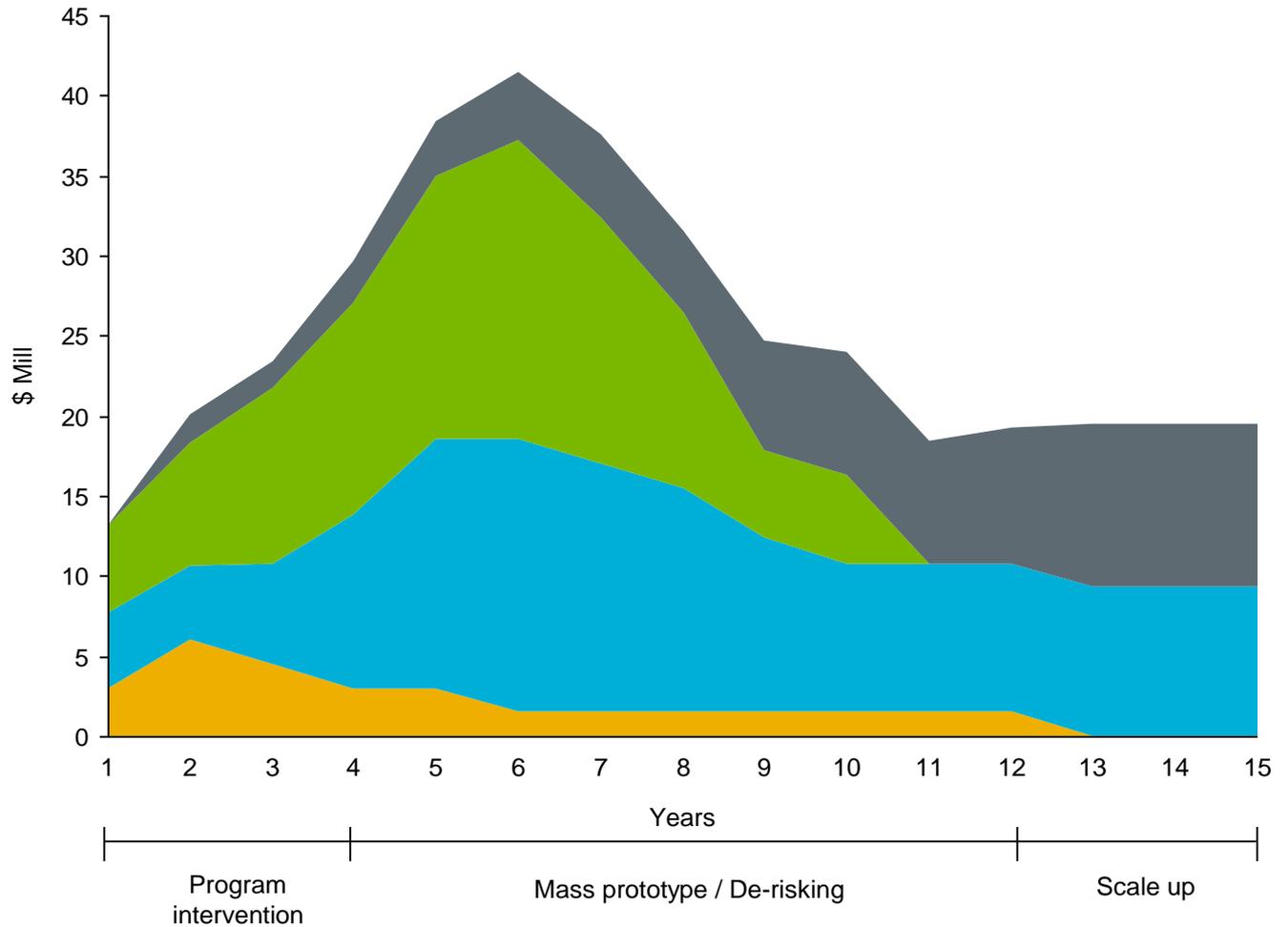
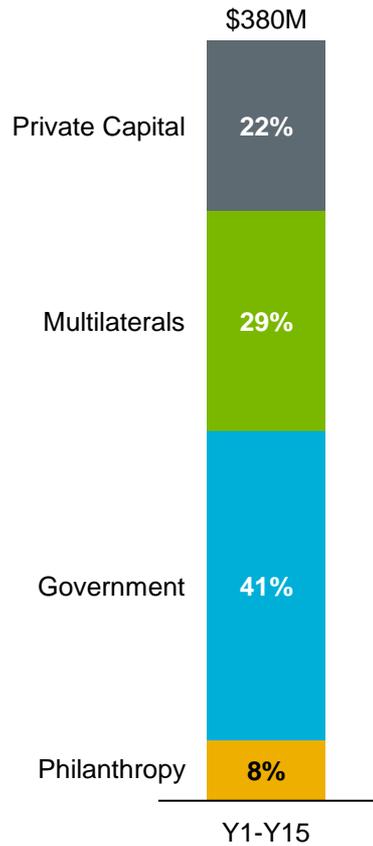
- Problem & Solution
- A Story
- Envisioning Scale
- **Financing a Solution at Scale**

Fish Forever maximizes long-term revenues and minimizes the cost of transition



Source: Preliminary Rare analysis based on simplified assumptions on Recovery

How “Blended Finance” funds scale





**Rare inspires change so
people and nature thrive**

Food Security and Fisheries in West Africa

**Justice Odoi,
Environmental Specialist
Economic Growth Office
USAID/Ghana
jodoi@usaid.gov**

**Brian Crawford, Ph.D.
Chief of Party, USAID/Ghana Sustainable Fisheries Management
Project
Coastal Resources Center, Graduate School of Oceanography
University of Rhode Island, USA
brian@crc.uri.edu**

Africa has some of the highest per capita consumption of fish in the World

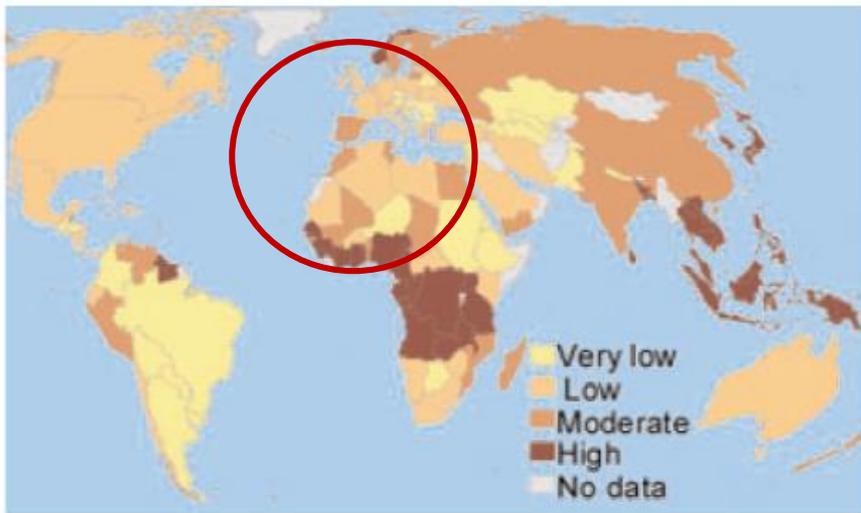
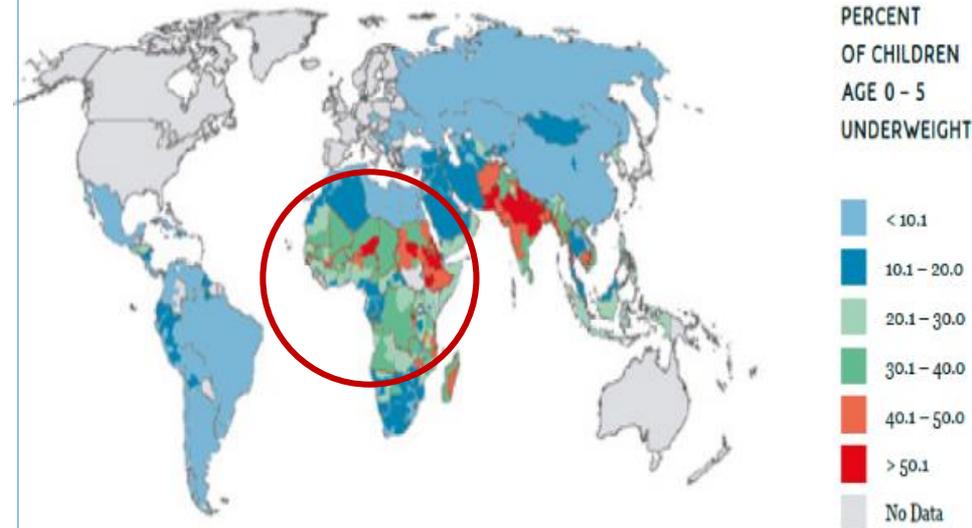


Figure 1. The global pattern of fish protein consumption as a proportion of total animal protein in national diets. Colors represent quartiles: Dark Brown = Upper Quartile (23–84% of total protein), Mid Brown = Upper Middle Quartile (12–23%); Light Brown = Lower Middle Quartile (5–12%); Yellow = Lower Quartile (0.5–5%). Grey indicates countries where no data were available. Source Allison et al (2009)

SOURCE: The WorldFish Center, 2009

Fish Can Play an Important Role in Meeting Africa's Food Security Needs



SOURCE: <http://www.fishingfuture.org/> Briefing paper 6

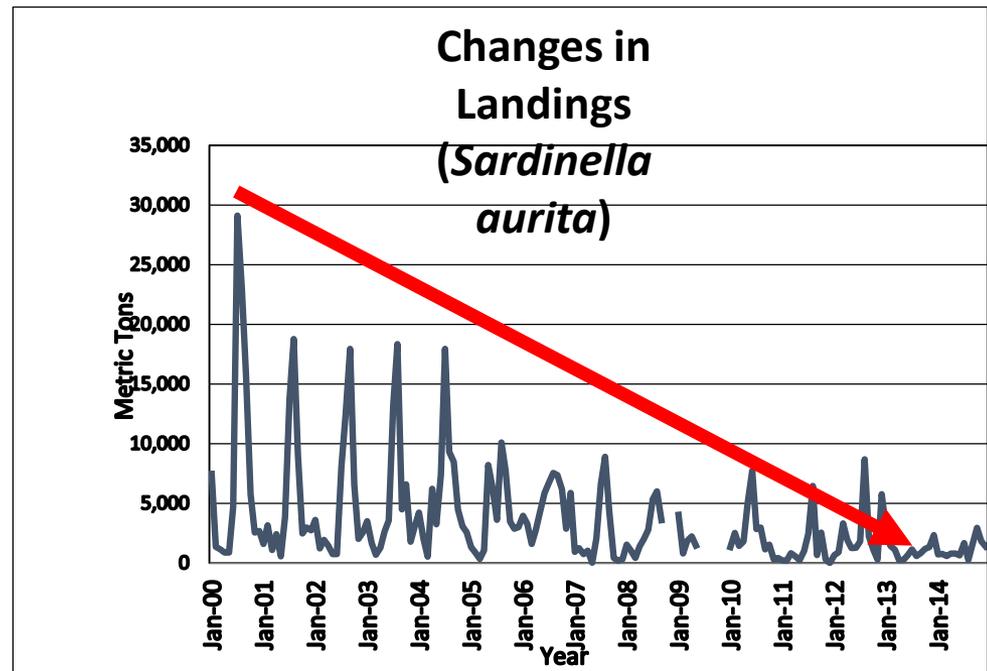
Challenges in Sustaining Wild-Caught Fish Food Supply

- Open access
- Overfishing and overcapacity
- Poor governance
- Subsidies
- IUU fishing

What is at Risk?

In the last decade, a loss of over 100,000 MT of food protein supply due to poor management.

“...with better management an additional US\$ 50 million annual net economic gain could be generated... (World Bank)



Ghana's marine fisheries are in a state of near collapse!

What is at Risk?



Contribution to the economy

- GDP from Fisheries: 4.5% in 2000, 1.3 % in 2015
- Annual marine yield of 344,000 metric tons
- 74% from the “small-scale” canoe sector

Livelihoods

- 210,000 direct jobs
- 2.2 million indirect (20% of workforce)

Food security and nutrition

- Low cost, high value food protein supply (small pelagics)
- Fish consumption: 23kg/Person/Year
- 60% animal protein in Ghana diet from fish
- High essential micronutrients

USAID/Ghana

Fisheries and Coastal Management Project

The project consists of the following activities:

- Sustainable Fisheries Management Project (SFMP) - University of Rhode Island (URI),
- Coastal Sustainable Landscapes Project (CSLP) - U.S. Forest Service,
- Fisheries and Coastal Management Capacity Building Support Project (FCMCBS) - University of Cape Coast.

GOAL : USAID/Ghana Sustainable Fisheries Management Project

- Rebuild marine fisheries stocks and increase production through effective fisheries management strategies and adoption of responsible fishing practices
- Contributes to the Government of Ghana's national fisheries policies and development objectives, and USAID's Feed the Future Initiative

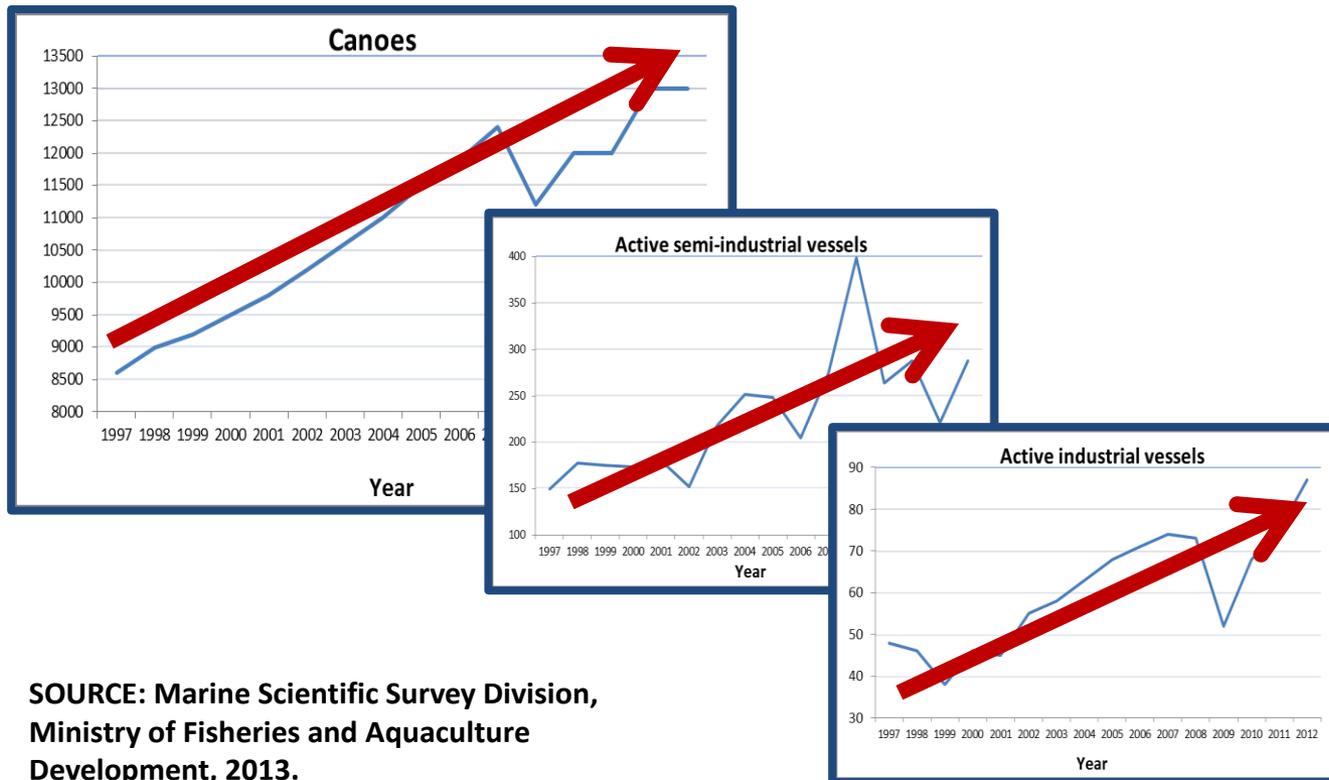


Increasing demand for fish will put increasing pressure on fish stocks. Improved management is needed to protect an important food protein supply.



SOURCE: <http://www.fishingfuture.org/> Briefing paper 6

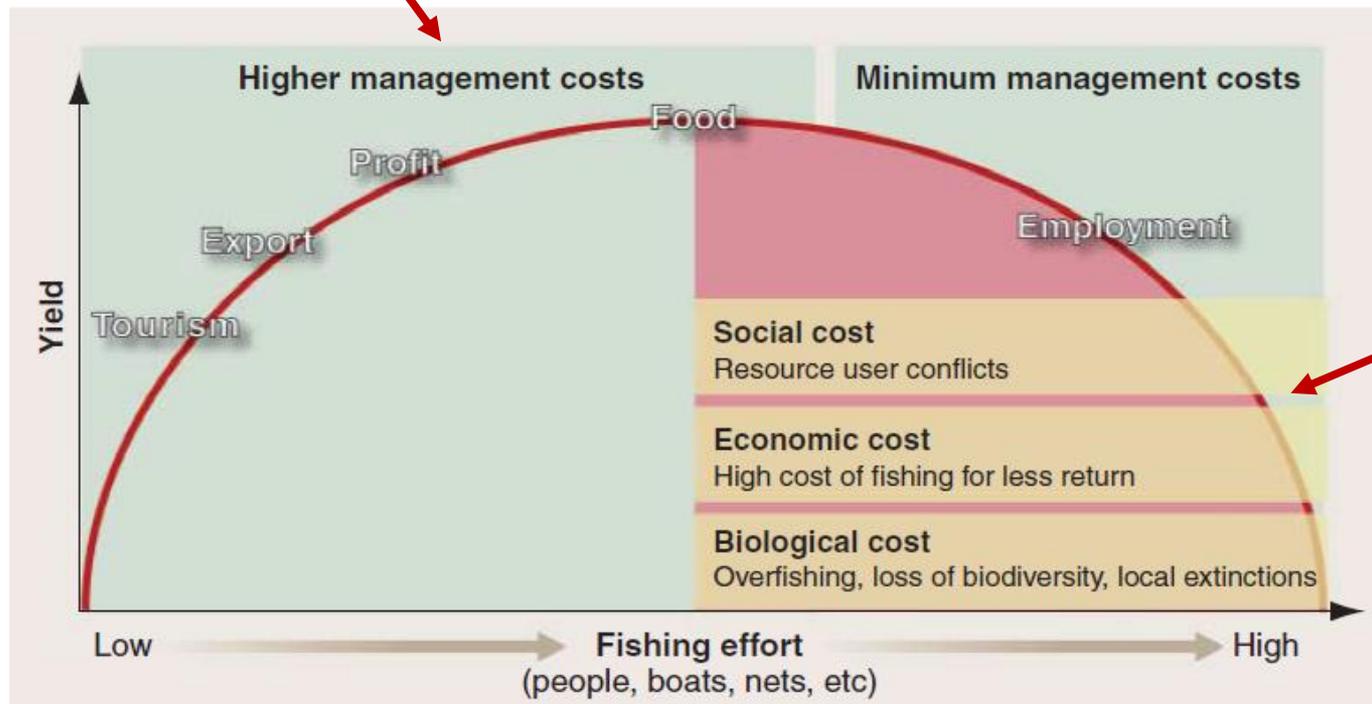
Effort Increasing in All Fleets



**SOURCE: Marine Scientific Survey Division,
Ministry of Fisheries and Aquaculture
Development, 2013.**

Challenges for Fisheries Management

Where most countries want to go



Where most countries are at

SOURCE:
Beddington et al.
2007

Why Focus on Small Pelagics & the Canoe Fleet?

Canoe Fleet

- 92% of direct fisheries employment**
- 74% of total annual marine landings:**
- ~ 80% of canoe catch is small pelagics**

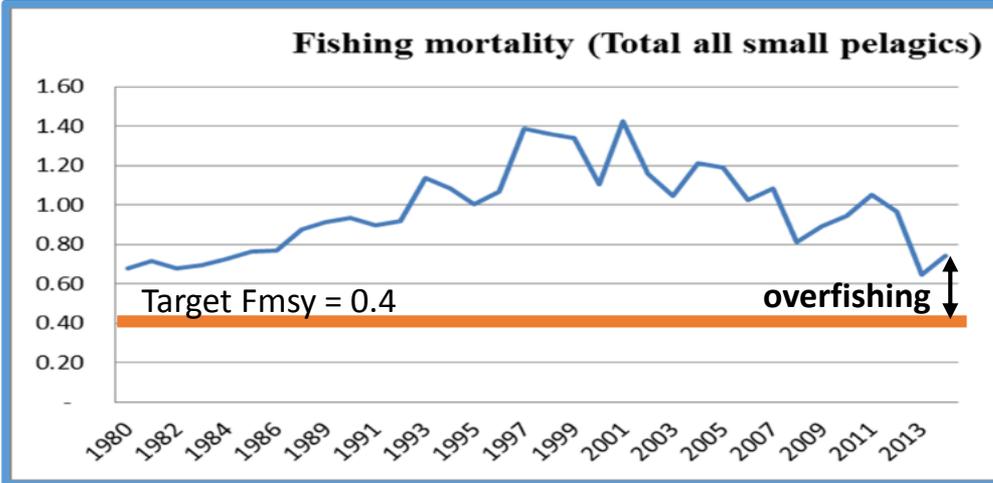
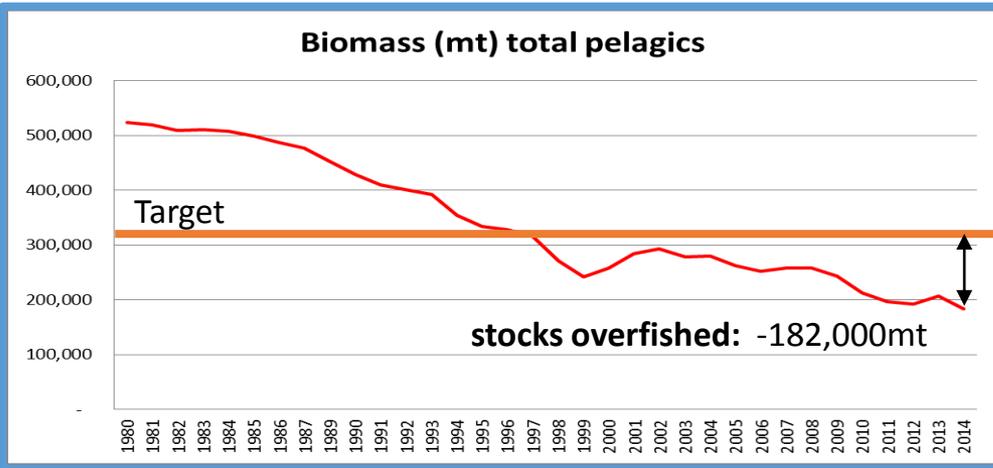


Small Pelagics

- High nutritional value, low cost**
- Mainstay of fish food supply for local poor**
- Fast growth and fecundity, so can rebound quickly**



Small Pelagics: and



APPROACHES

- From open to managed access
- Managing at ecosystem scales
- Stakeholder and process oriented
- Integrated with post harvest value chain improvements

OUTCOMES

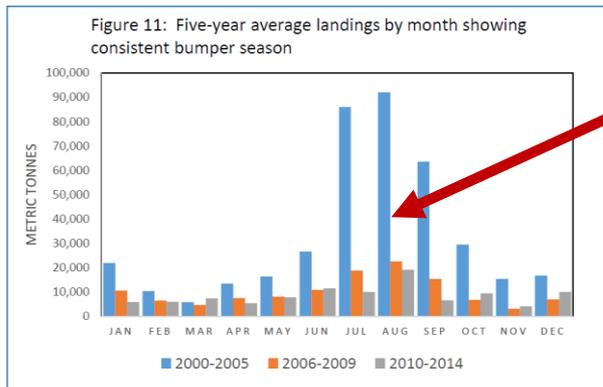
- Recoup tens of thousands of MTs of food protein supply annually
- Improved profitability throughout the value chain, benefiting thousands
- Significant declines in IUU fishing from strengthened law enforcement
- Improved voluntary compliance with rules through participatory decision making
- A new Fisheries Act that allows co-management & use rights



Reducing fishing effort

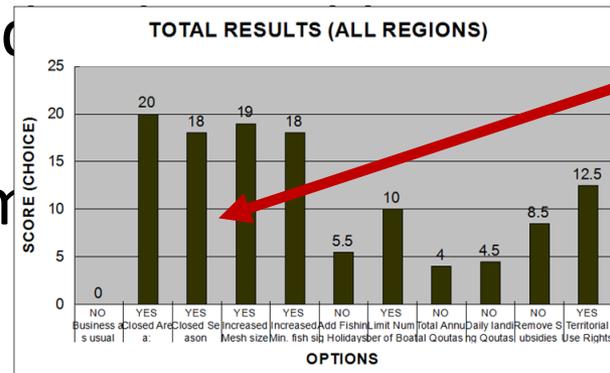
Implementation of the National Fisheries Management Plan

- Trawler effort reduction by 50% and fleet reduction



Commercial and recreational fisheries exemption

Recommended closure by the science and technical working group



Preferred management actions by stakeholders

Donor Coordination

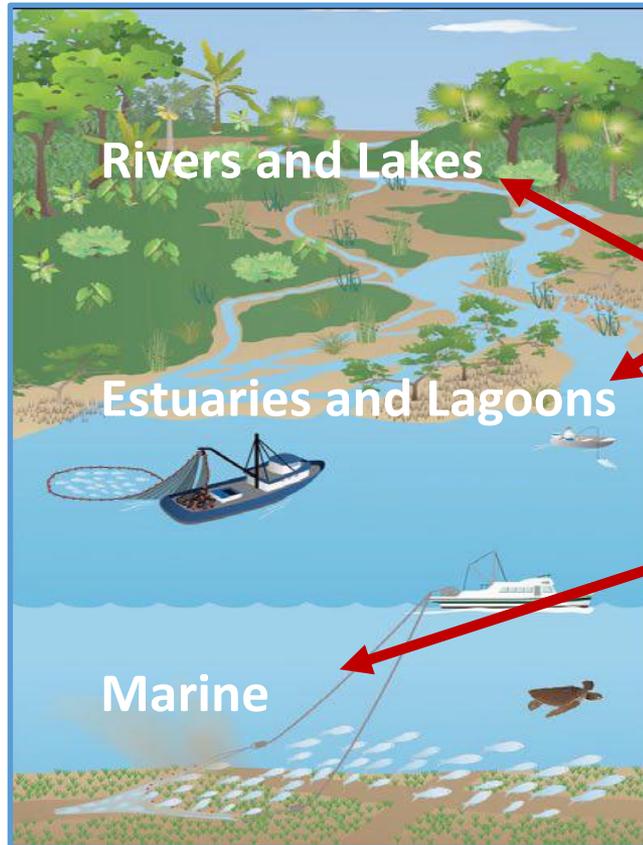
Supporting Implementation of the Fisheries Commission's NFMP

Selected Actions	USAID Ghana SFMP	World Bank Supported WARFP
Trawler effort & fleet reduction	X	✓
Canoe registration and capping fleet size	<ul style="list-style-type: none"> • Communications on management measures including capping fleet size, closed seasons, etc. 	<ul style="list-style-type: none"> • Canoe registration
Strengthened law enforcement	<ul style="list-style-type: none"> • Marine Police competency-based training • Vehicles • A citizen watch pilot • Stakeholder engagement and awareness raising 	<ul style="list-style-type: none"> • Vessel Monitoring Systems • At sea patrols
Improved stock assessment and science based information	<ul style="list-style-type: none"> • Degree and short term training • Pilot paperless landings data collection • Science and technical working group • Cooperative research with universities 	<ul style="list-style-type: none"> • IT upgrades • Capacity development
Legal reform	<ul style="list-style-type: none"> • Policy and legal provisions for co-management, use rights 	<ul style="list-style-type: none"> • Comprehensive review & revision
Insurance and pension schemes for fisherfolks	<ul style="list-style-type: none"> • Micro-insurance product development w/ private sector: term + life with payout during closed season 	X

Co-management as a key ingredient

“The existing legal framework in Ghana is not capable of supporting a co-management framework without amendment or supplementation.”

(Tsamenyi, 2013 USAID/Ghana ICFGP)



DRAFT Policy Framework

Community-based management for small scale systems

Co-management for large scale systems

(USAID SFMP & WARFP sponsorship)

Resources for USAID staff and partners

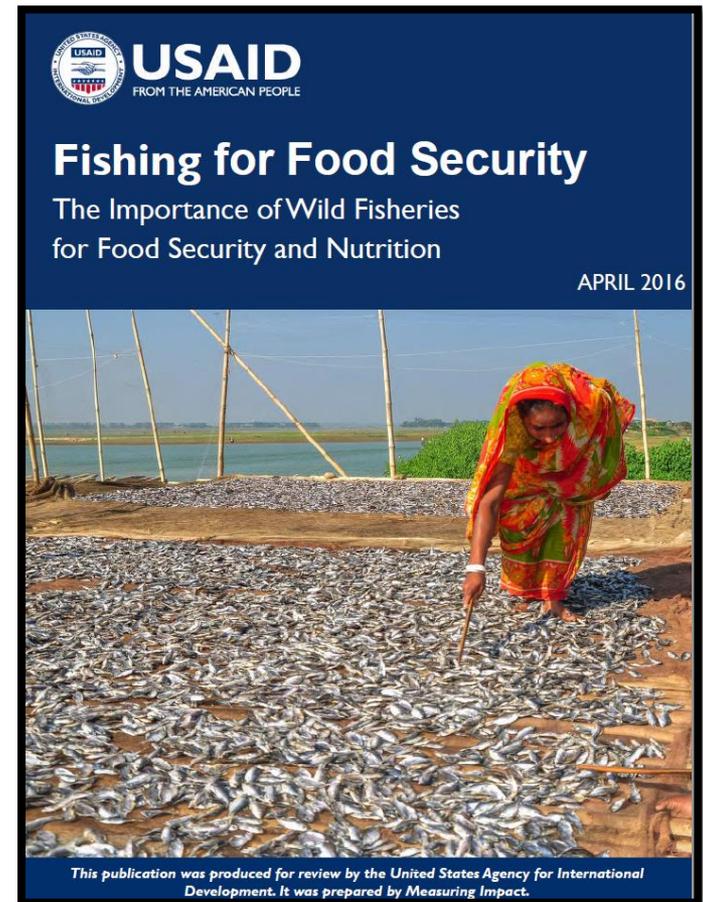
BRIEFING BOOK

Fishing for Food Security: The Importance of Wild Fisheries for Food Security and Nutrition

- Role of fisheries in global development
- Case studies of USAID fisheries programs
- Key statistics for nine Feed the Future countries

**USAID's Development Experience
Clearinghouse**

<https://dec.usaid.gov>



BRIEFING BOOK

Fishing for Food Security: The Importance of Wild Fisheries for Food Security and Nutrition

**Key Statistics for select FTF countries –
Bangladesh, Cambodia, Ghana, Kenya,
Liberia, Malawi, Mozambique, Senegal,
Tanzania**

**USAID's Development Experience
Clearinghouse, <https://DEC.USAID.gov>**

The Importance of Wild Fisheries For Local Food Security: **MOZAMBIQUE**



- Fish provide an estimated 40% of dietary animal protein supply.
- About 330,000 people rely on small-scale fisheries for their livelihoods.
- Fisheries contribute almost 7% to the country's agricultural GDP.
- Mozambique's Fisheries Master Plan 2010-2019 focuses on increasing the contribution of fisheries to food security and economic development.

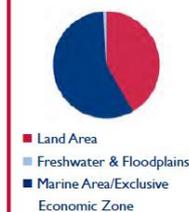
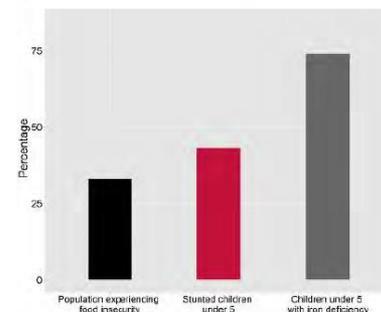


Figure 15. Nutrition and Food Security Statistics for Mozambique.



Sources: World Health Organization 2010, FAO 2011, FAO Fisheries and Aquaculture Department 2011, Benkenstein 2013, Benson et al. 2014, Oceanic Development 2014, World Food Programme 2015.

SEPARATE IN-DEPTH COUNTRY PROFILES

The Importance of Wild Fisheries to Local Food Security: same nine countries

- Food Security
- Nutrition
- National Development Plans
- Poverty Reduction Plans
- Livelihoods
- National Economy
- Fisheries Management
- References

USAID's Development Experience Clearinghouse at <https://DEC.USAID.gov>



The Importance of Wild Fisheries For Local Food Security: MOZAMBIQUE

Mozambique's government recognizes the importance of wild fisheries to the country's food security, economic growth, poverty reduction, and gender equality. An estimated 334,000 people rely on small-scale fisheries for their livelihoods and fish provide almost 40% of dietary animal protein. Fisheries in Mozambique continue to face a number of challenges including declining stocks from poor management.

Food Security: Although Mozambique has experienced significant economic growth in recent years, one-third of the population is estimated to be chronically food insecure [1]. Among children under age five, 44% suffer from stunting, 69% have vitamin A deficiency, and 74% have iron deficiency [1, 2]. Dietary diversity in Mozambique is the lowest in the region, with 80% of calories in the typical diet coming from cereals and starchy foods [3]. Fish is an important source of protein, providing about 40% of average animal protein intake [4]. Annual per capita fish and shellfish consumption is estimated to be 5.7 kg (12.6 lbs), among the lowest in the region, but a significant contributor to animal protein intake due to the relatively low content of animal protein in Mozambique's food supply [3, 5]. The World Health Organization's 2011-2014 Multisectoral Plan for Chronic Malnutrition Reduction in Mozambique emphasizes the need to improve dietary diversity through increased production of nutritious foods such as fish [2].

National Development Priority: In its National Agricultural Investment Plan 2014-2018, the Government of Mozambique recognizes the fisheries sector "as being of great importance in the country due to its ability to generate income and foreign exchange, create employment and livelihood [for] fishing communities" [6]. The government has developed a Fisheries Master Plan 2010-2019, with the goal of increasing the contribution of fish to food security, improving living conditions for fishing communities, and strengthening the contribution of fisheries to economic development [7]. Currently, the contribution of fisheries to the country's agricultural Gross Domestic Product is about 7% [8].

Poverty Reduction Strategy Paper: Mozambique's 2011-2014 Poverty Reduction Strategy Paper emphasizes the importance of increasing the productivity of the fisheries sector to reduce poverty. Specific strategies included strengthening fisheries administration and extension services, encouraging fishing activities in high fishery potential areas, and supporting the construction of fishing infrastructure to aid small-scale fishers [9].

Job Security: About 334,000 people in Mozambique rely on small-scale fisheries for their livelihoods including activities such as fishing, processing, distribution, and sales [10]. Around 85% of the annual catch is produced by small-scale fishers and consumed locally [6]. Women are primarily engaged in post-harvest activities, while men are

COUNTRY PROFILE: MOZAMBIQUE



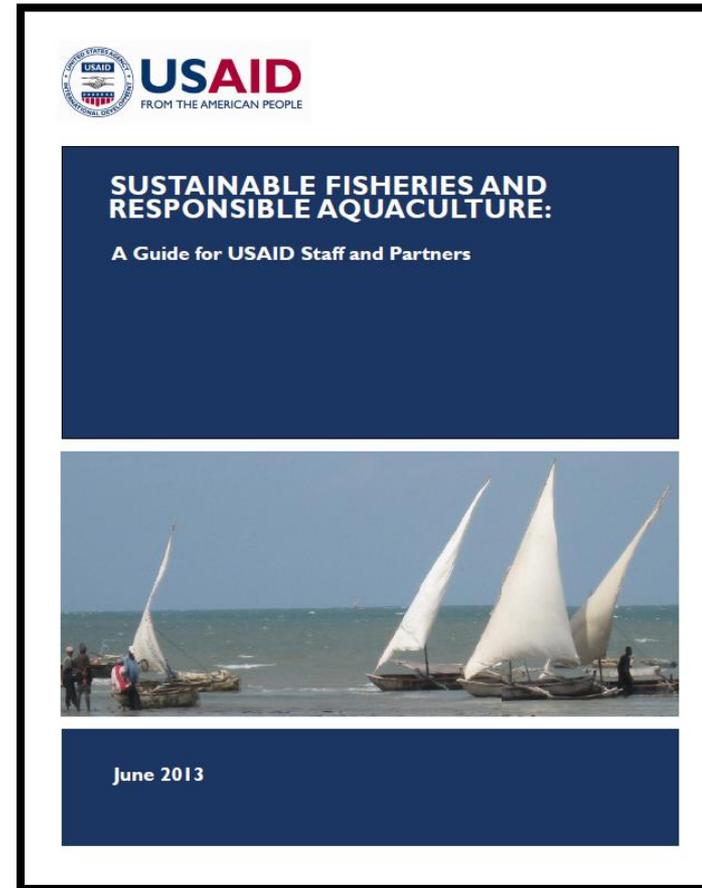
- Average per capita annual fish/shellfish consumption: 5.7 kg (12.6 lbs)
- Provision of animal protein by fish: 40%
- Stunting: 44%
- Population experiencing food insecurity: 33%

TECHNICAL GUIDE

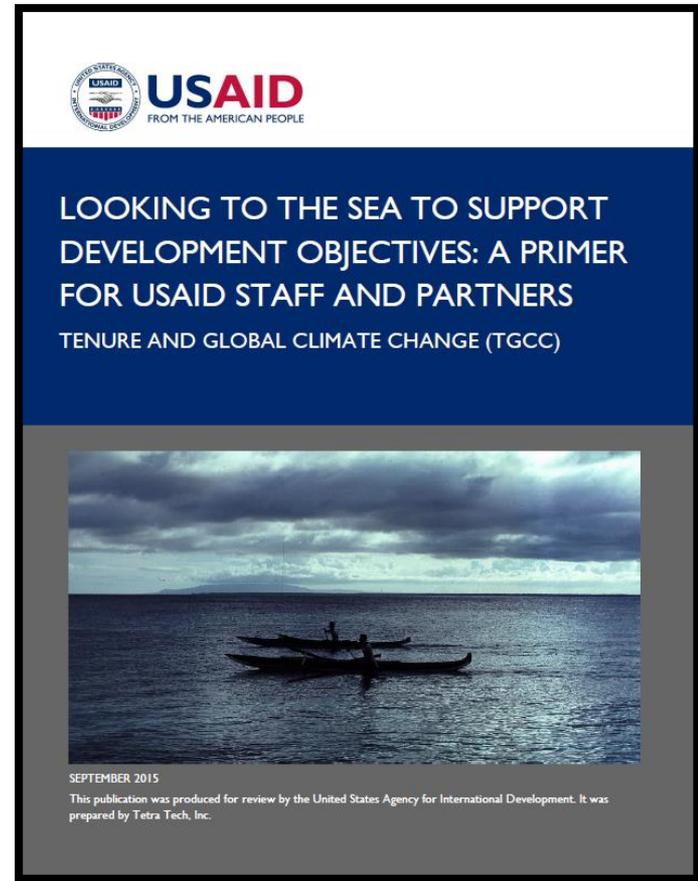
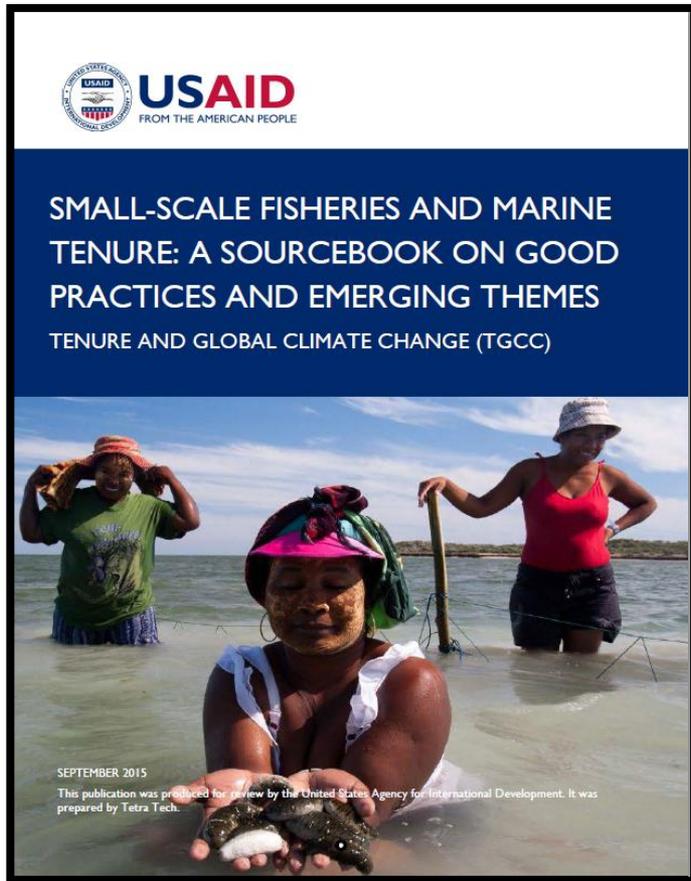
Sustainable Fisheries and Responsible Aquaculture: A Guide for USAID Staff and Partners

- Concepts, issues, management approaches
- Ways to reduce threats to ecosystem productivity and resilience through improved governance and integrated planning
- Wild fisheries and aquaculture program planning

USAID's Development Experience Clearinghouse at <https://DEC.USAID.gov>



FORTHCOMING!



TAKE-AWAYS

- **Wild fisheries are important for food security, nutrition and livelihoods**
- **Improved management can restore the productivity of wild fisheries**
- **Effective fisheries programs include co-management and secure tenure**
- **Fish reserves, closed seasons and appropriate gear can restore natural productivity**
- **Private sector investments can help reform fisheries**

Next week, on April 27, join an online AskAg Chat, where we will dive deeper into impact investing in wild fisheries!

Questions and Answers

→
**Continue the
conversation**
→

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