



2014 Marine Aggregation

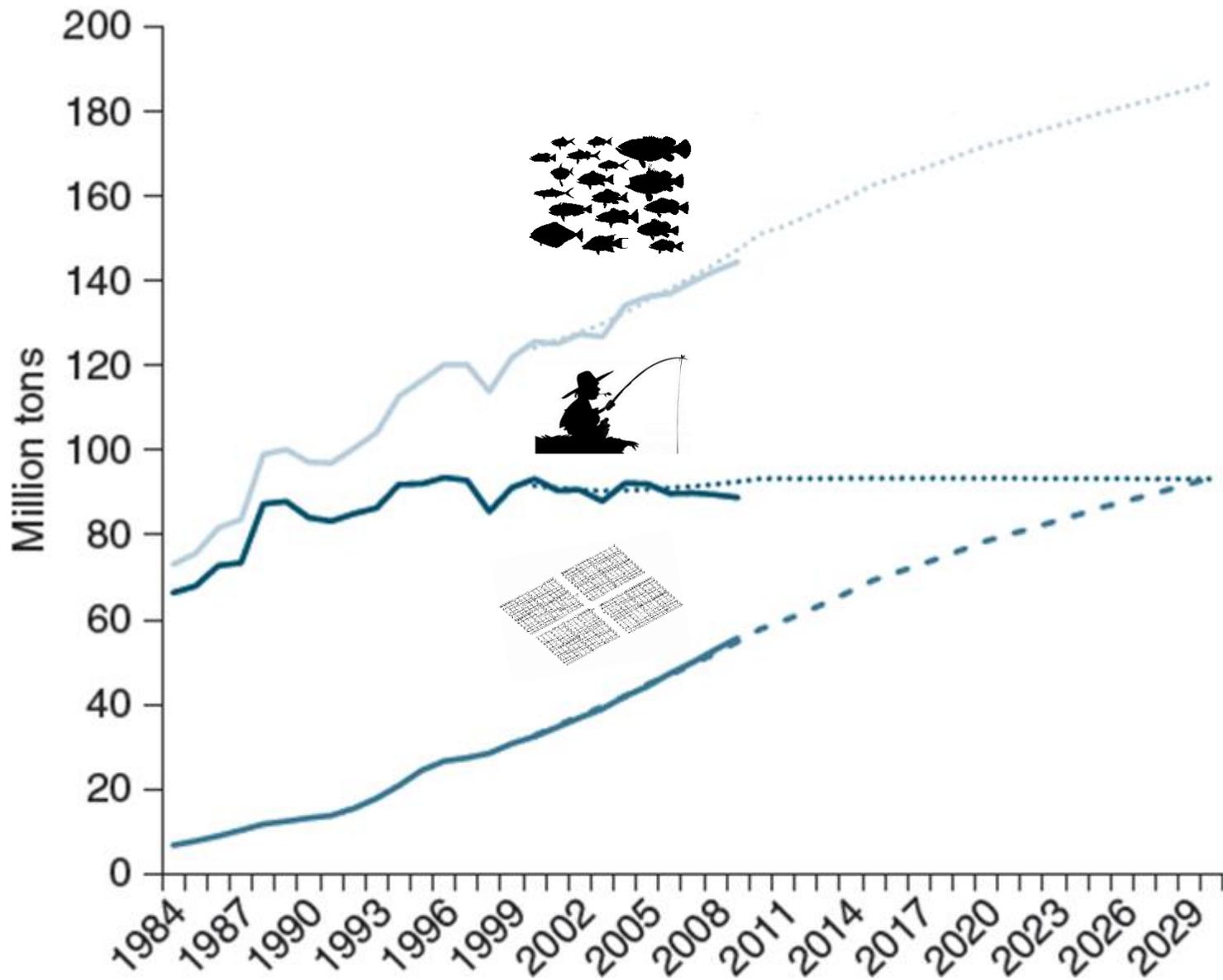
INNOVATE | COLLABORATE | CELEBRATE

February 10 – 13 | Monterey, CA

ExpPract 5:

Marine aquaculture – a problem or solution?

Wednesday, February 12, 10:30 – 12:00



CATEGORY	2011	PROJECTED
TOTAL	154 M tons	186 M tons
CAPTURE	90 M tons	93 M tons
AQUA	64 M tons	93 M tons

Sources: FishStat and IMPACT model projections.

Global Fisheries Strategy DRAFT Business Plan

November 14, 2011

PLEASE NOTE THAT THIS IS **NOT** A COMPLETE BUSINESS PLAN – THE PROPOSED STRATEGIES, OUTCOMES, ETC. ARE MEANT TO PROVIDE INITIAL IDEAS FOR DISCUSSION AT THE DECEMBER FISHERIES MEETING, AND FOLLOW UP DISCUSSIONS AFTER THAT. WE HOPE TO AGREE ON SPECIFIC ISSUES AT THE DECEMBER MEETING TO MOVE THE PROCESS FORWARD. **YOUR INPUT IS ESSENTIAL!!!**

A. MAKING THE CASE

Increasing demand for fish and shellfish, inadequate fisheries management, and perverse incentives have promoted overfishing and destructive fishing practices, limiting the supply of sustainable seafood, damaging marine and freshwater habitats, and threatening the resilience of aquatic ecosystems.

The global wild fish and shellfish catch has stagnated since 1990 (80mmt from the oceans and 10mmt from inland waters) (Figure 1).

Today more than seventy-five percent of commercially important fish stocks are depleted overfished, or being fished at their biological limit, putting them at risk if fishing pressure increases or habitat degrades.

In parallel, demand for fish and shellfish products has doubled over the last 30 years and is projected to continue growing at 1.5 percent per year through 2020 as global population, income, and per capita fish consumption rise.

The number of fishers and fish farmers is also growing markedly, having doubled in the last 20 years. Most of this increase has occurred in developing countries as people have turned to fishing for an alternative or supplemental source of income.

As the number of fishermen and boats has risen, the catch per vessel has dropped (see Figure 2), often triggering additional investments in fishing capacity and effort (e.g., more boats, more powerful engines, etc.) to maintain landings. As a result of this cycle, we've seen the depletion of stocks, diminished protein supplies in many parts of the world, and economic losses to fishing communities and the seafood sector. The World

CAPTURE

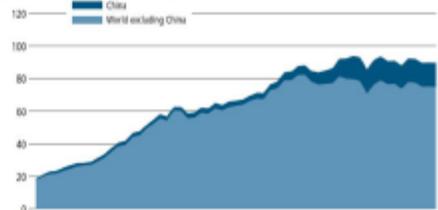
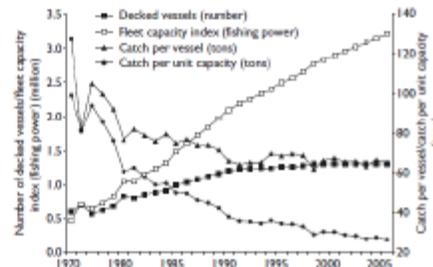
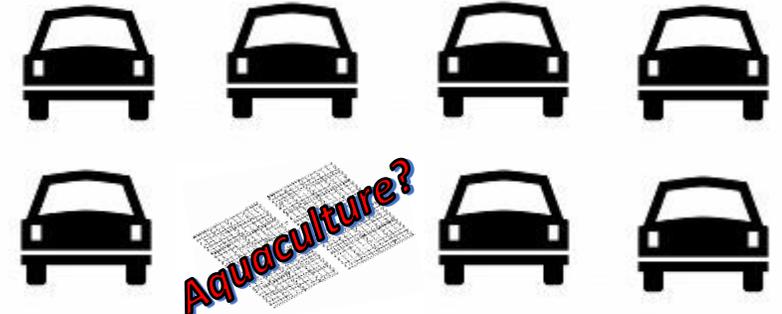


Figure 2: Evolution of Global Fleet Productivity (Decked/Vessels)



Source: Authors' calculations; Garcia and Newton (1997); FAO FishStat Plus; FAO FIEP.



Sustainable Fisheries Global Priority



The Nature
Conservancy
Protecting and preserving life.

February 2013

Conservation Business Plan Ocean Solutions: Integrated Ocean Management

(Revised March 14, 2013)

Executive Summary

The world's oceans are at a tipping point, with marine ecosystems increasingly disrupted by a variety of human uses and impacts. With 1.8 billion people living at the ocean's edge, marine resources and critical coastal ecosystems are increasingly under pressure. Although cultures and social perspectives differ across the globe, there is a suite of pressures and impacts evident around the world's oceans that are rather similar. Addressing them in a cohesive and integrated way is the only way that coastal communities and the world's ocean nations will continue to realize the long-term benefits that healthy oceans can provide.

The Ocean Solutions plan is about transforming ocean management at scales that matter, and in places that matter, addressing competing uses in ways that enable both economic development and lasting conservation for coastal communities and ocean nations. Integrated and balanced management of ocean uses is not a new idea; the missing ingredients have been a lack of political will to change the status quo and few mechanisms for fostering change at multinational and regional scales. Fortunately, there is a new wave of political will to manage oceans in a more sustainable way globally and regionally, and a broad-based Global Ocean Partnership that will serve as a mechanism for catalyzing change. The Nature Conservancy is uniquely positioned to capitalize on these opportunities to create a range of solutions to the ocean's challenges.

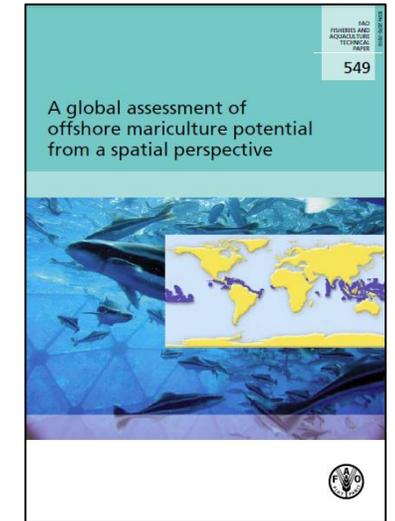
We propose to use a two-pronged approach to transform ocean management:

- 1) "Go deep" and achieve large-scale conservation and restoration in five large Oceanscapes where there is both the political will to transform ocean management and where TNC has the capacity to make a real difference at both local and national scales. By 2020, this will yield 200 million hectares of ocean that are effectively managed for economic development and ecological health.
- 2) "Shape the path" for a transformation in ocean management at national scales by engaging and positioning the Global Partnership for Oceans (GPO) to reshape both the laws and policies that are needed to sustain the world's oceans globally. The GPO is a coalition of more than 100 governments, organizations and industry that the World Bank has convened to addressing ocean decline. We believe we can shape the GPO into an effective network to drive global change.



What have we done?

1. Assessed 2 offshore sites
2. Reviewed literature
3. Engaged experts
4. Engaged in certification process
5. Developed a conceptual strategy
6. Engaged potential funders



Global Aquaculture Initiative

The Future Conservancy proposes a new initiative that will build a pathway for sustainable aquaculture in partnership with the industry (transparency and is funded with a general \$750,000 investment grant from a key donor).

Topic: Aquaculture is a fast-growing sector. It needs to show that it can provide quality fish products to a growing global population, sustainable livelihoods for local communities, and vibrant ecosystems around the world. Overall it needs to show that it can provide a growing source of protein for the world's population. By 2050, roughly 12 billion tons of additional aquatic foods will be needed, likely to come from aquaculture as wild fish stocks continue to decline. To achieve long-term success, however, the industry must address issues emerging from excessive habitat destruction (1) and excessive resource use.

We believe that with TIC's help, the industry can take a good path. TIC brings a unique set of marine-related perspectives and tools to problems of sustainability that can benefit the industry economically and help TIC achieve its conservation goals. To industry, focusing on the first growing offshore aquaculture sector, we will convene an expert working group to design world class aquaculture programs in strategic countries. The program will include technical assistance to the target environmental, business, and policy issues that continue to trouble the industry. The initiative will include three phases:

Phase 1: Design working conditions	Phase 2: Establish offshore	Phase 3: Evaluate and expand to other
2020-2021 (2020-2021)	2021-2022 (2021-2022)	2022-2023 (2022-2023)
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Phase 1: Working Group Catalysts Convened and Action based on Case Studies and Science

Working with industry, academic, and government leaders over 20-24 months, Phase 1 is a multi-tracked approach centered on an expert working group supported by case study evaluation of offshore aquaculture programs, site and site-level efforts. Phase 1 will include assessment of the critical policy, economic and environmental enabling conditions, a synthesis of the most recent science, and engagement with the major certification efforts. Phase 1 will create the momentum and credibility for a coalition to influence policy, practice, and ultimately the global aquaculture community to support the expansion of the industry and greater conservation benefits.

Some findings... production and consumption

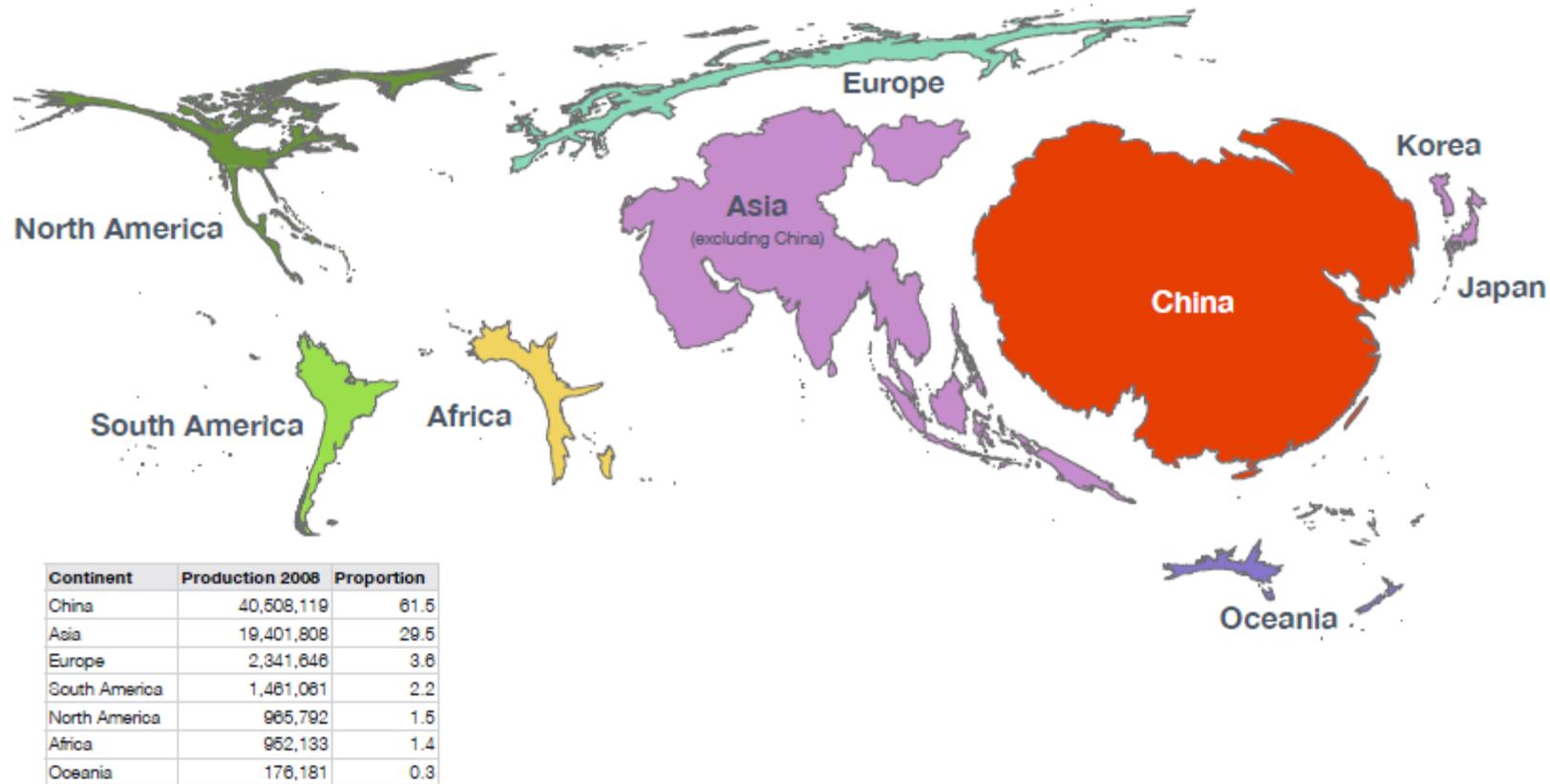
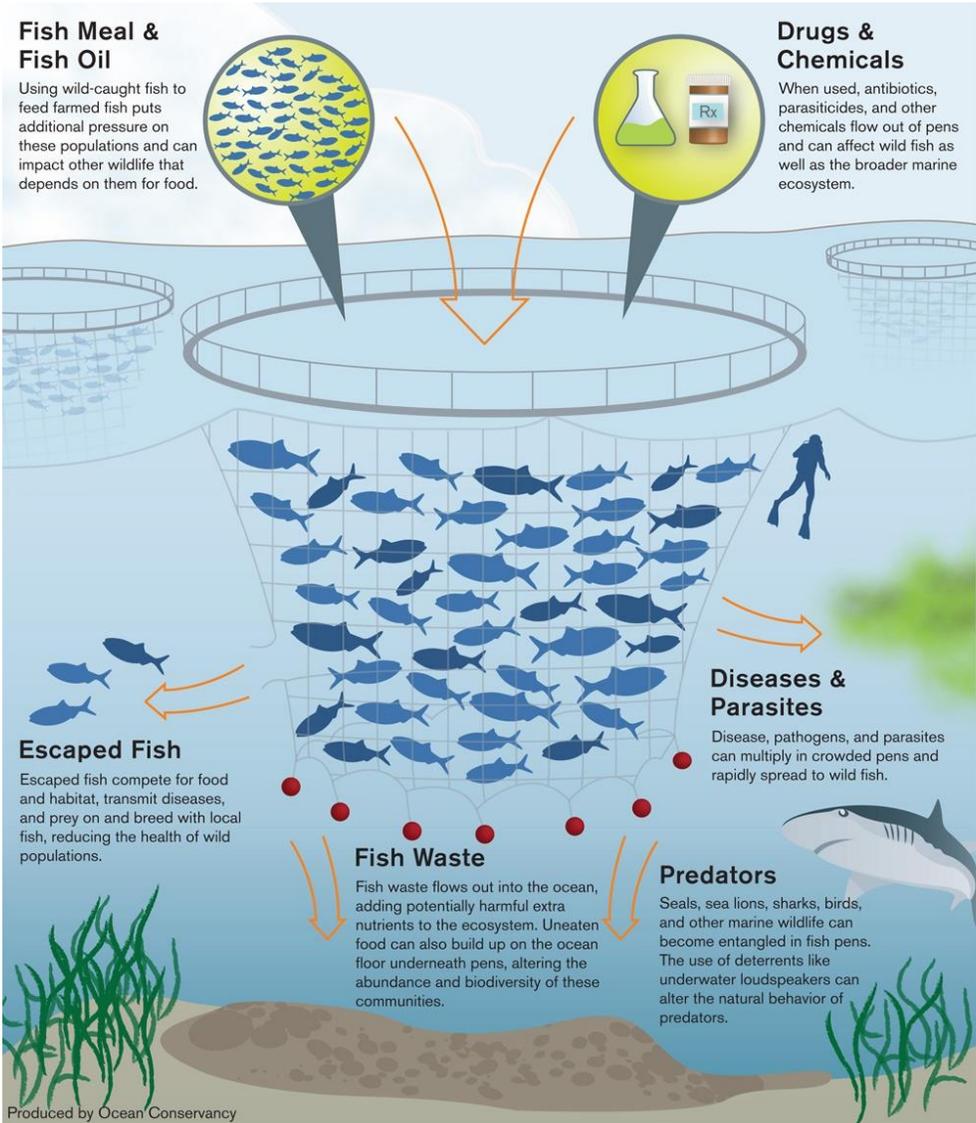


Figure 1.1: World aquaculture production by continent in 2008 (China treated separately). Land areas are adjusted proportionally to reflect production volumes.

Some findings... risks



Some findings... benefits



Fish / Food / Food Security



Jobs / Economy / Livelihoods



Recreation



Management / Enhancement

What is the proposed approach?

Phase 1: 12-18 months

Scientific agreement, case studies, and implementation plans for offshore aquaculture

Phase 2: 5 years

Implementation in 2-3 countries

Phase 3: 5-10 years

Expand geographically and to other sub-sectors

Why offshore aquaculture? V x 7 Rationale

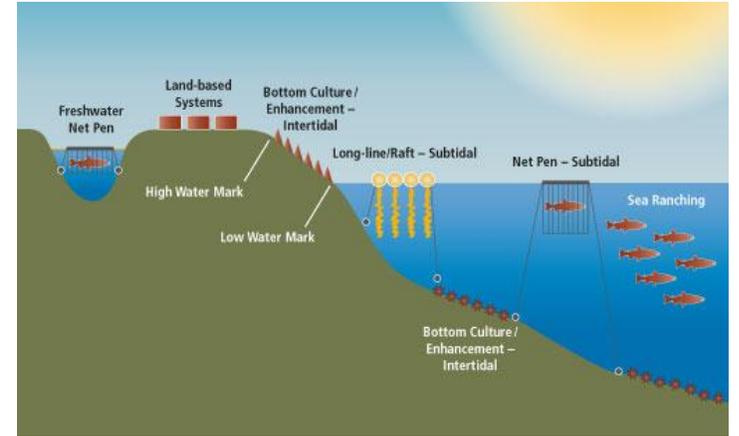
- 1. *Vulnerable*** nearshore and freshwater resources increasingly scarce
- 2. *Very*** young, but growing subsector
- 3. *Viable*** environmental best practices within reach
- 4. *Visionary*** industry allies
- 5. *Valuable*** government, academic and consultant partners
- 6. *Vacant*** niche
- 7. *Vogue*** in 15-20+ years

Discussion questions...

- Continue or abstain?

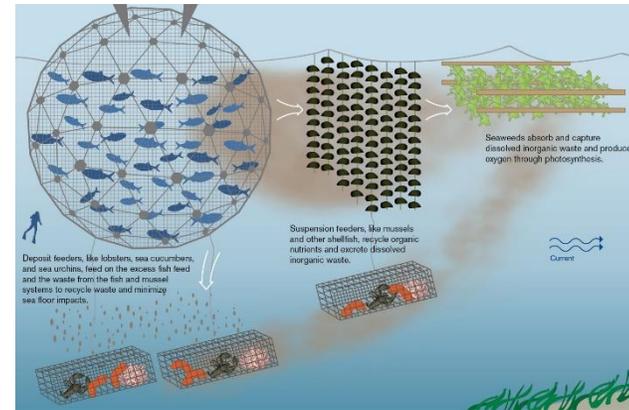
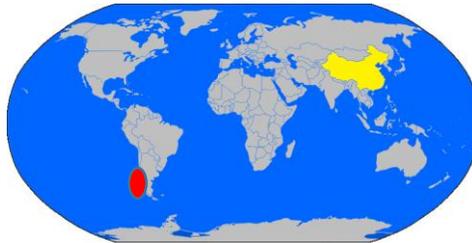


- Offshore or nearshore or freshwater or land-based?



- Finfish, shellfish, algae, coral or IMTA?

- Global, national, or local?



- Science, standards, operations, zoning, policy, advocacy?

- Funding sources



Beyond 2030, aquaculture will likely dominate future global fish supply.

Consequently, ensuring successful and sustainable development of global aquaculture is an imperative agenda for the global economy.