Report of the Workshop on Different Approaches to Limit the Number of FADs in the Oceans

7th Meeting of the IATTC Ad hoc Working Group on FADs

La Jolla, CA, USA, 12-13 May 2023

ISSF INTERNATIONAL SEAFOOD SUSTAINABILITY FOUNDATION

Photo: David Itano

Background and Objectives

Background

ISSF INTERNATIONAL SEAFOOD SUSTAINABILITY FOUNDATION

- FADs impact target tuna stocks, non-target species and the broader ecosystem.
- Limiting the number of FADs, together with other measures such as biodegradable FADs, can be a tool to address several, if not most, of these impacts.
- The tRFMOs limit the number of dFADs indirectly by limiting the number of actively monitored satellite buoys and related regulations (buoy activation/deactivation rules, purchase limits, etc.).
- Many dFADs remain in the water after buoys are deactivated, especially if there are no requirements to retrieve lost or abandoned FADs.
- Could different principles of economic theory be used to make limits more effective?

Objectives

Workshop's overarching question:

What are the different ways to implement a limitation in the number of FADs in the ocean with a special focus on incentives?

Workshop was held March 1-3, 2023 in San Diego, CA.

Participants (providing individual expertise): Rohan Currey, Laurent Dagorn, Josh Graff-Zivin, Susan Jackson, Jon Lopez, Gala Moreno, Hilario Murua, Dan Ovando, Victor Restrepo (Chair), Gerald Scott and Dale Squires.

FAD impacts

FAD Impacts

Fishery impacts

- Increased catchability of tunas. Can be **positive** (more profitability, reduce fuel use, increase SKJ availability) or **negative** (increase capacity).
- Increased catchability of non-target spp: Can be **positive** (utilization of minor tunas) but **usually negative** (for ETP species or undesirably small tunas).

Environmental impacts

- **Negative** (ghost fishing –if entangling–, pollution, beaching in VMEs).

Limiting the number of FADs at sea deals with most of the negatives

But other actions can also go a long way, most importantly **Biodegradable non-entangling FADs**.

All RFMOs are progressing in this and many fleets are also implementing these progressively and voluntarily.

FAD limits, currently

Current status

MEASURE	IATTC Res. C-21-04	ICCAT Rec. 22-01	IOTC Res. 19/02 and 23-02	WCPFC CMM 2021-01
Limit # active buoys per vessel	Yes	Yes	Yes	Yes
Limit # buoy purchases per year	No	No	Yes	No
Require a level of FAD retrieval	Yes	No	Yes (in 23-02)	No
Limit supply/support vessels	Yes - Prohibit	Yes	Yes (19/02); Prohibit (23-02)	Yes - Prohibit
Encourage FAD biodegradability	Yes	Yes	Yes (19/02) Timeline for 100% (23-02)	Yes
Spatio-temporal total or FAD closures	Yes	Yes	Yes (in 23-02)	Yes
Buoy (re)activation-deactivation rules	Yes	No	Yes	Yes

All tRFMOs have limiting regulations. Not uniform. Some fleets follow voluntary practices that are also limiting.

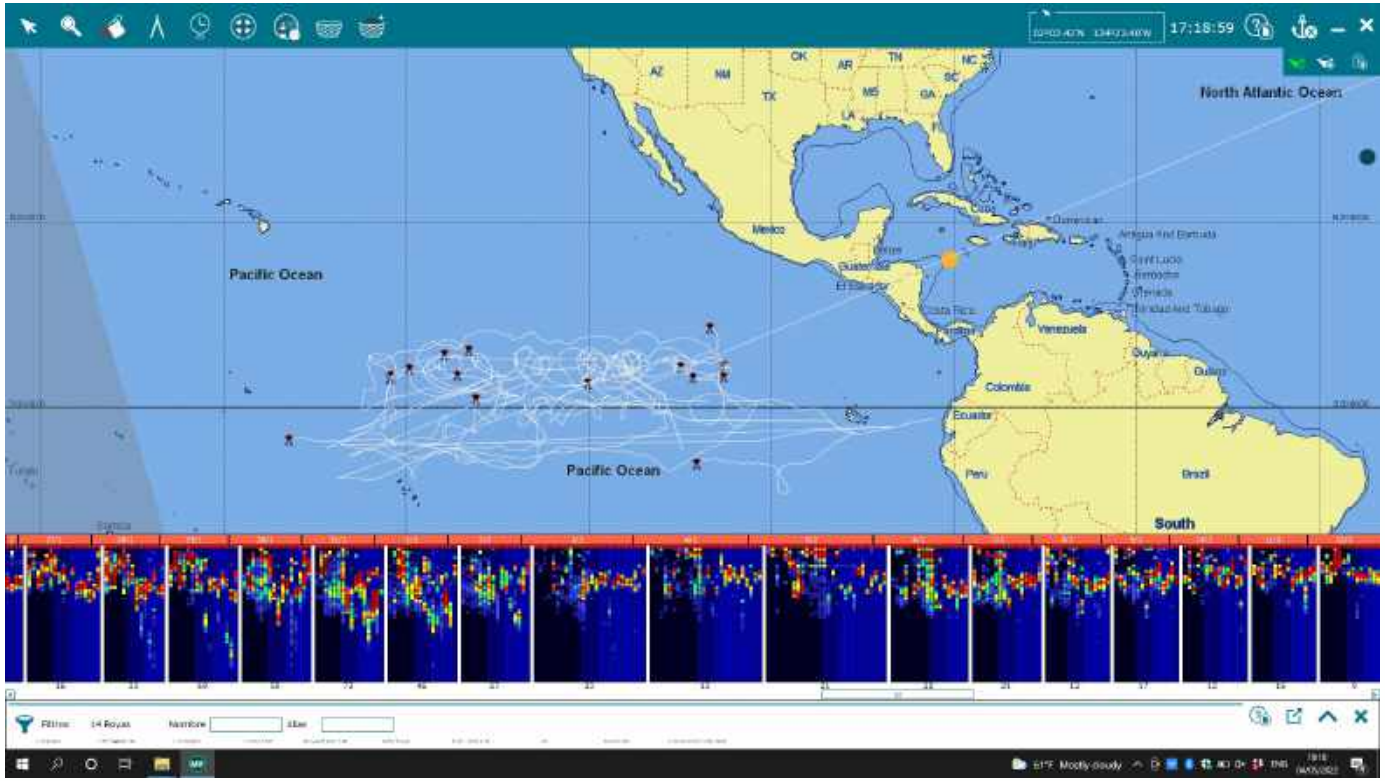
No tRFMO regulates FAD **deployments**. Limits on the number of **active dFADs** are convenient because verification of the compliance of active buoy limits is feasible and practical (few service providers).

Current status

FAD limits and other regulations have sometimes promoted the development of **Network Effects**: dFADs in a given company are managed centrally and assigned to individual vessels in the fleet.

1-2 decades ago, each vessel in a fishing company only could visualize the FADs it deployed

Now, all FADs deployed by a fishing company are available or visible to all company vessels



This **increases economic efficiency** by lowering unit production costs. dFAD sharing reduces the number of lost and abandoned dFADs and lowers the overall operating costs.

Alternative and complementary approaches

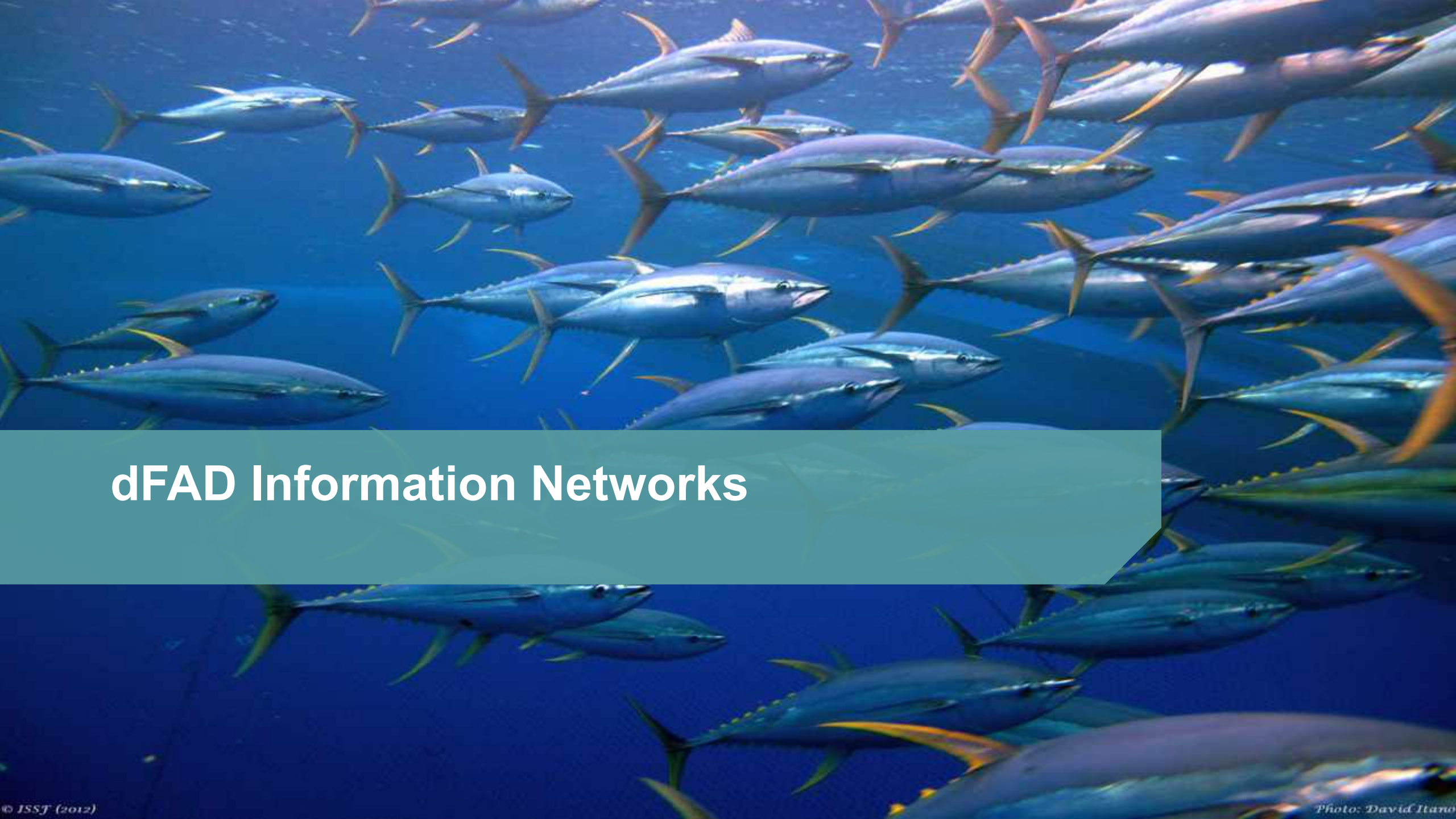
Conditions that would make any system more effective

ISSF INTERNATIONAL SEAFOOD SUSTAINABILITY FOUNDATION

- Comprehensive dFAD and buoy registers.
- High-resolution-operational reporting of FAD information at a regional (tRFMO) level, near real-time (within months).
- Clear dFAD/buoy ownership rules that eliminate or greatly reduce free riders and assign rights, obligations, and responsibilities.
- More transparent compliance processes that include sanctions.
- Remote buoy deactivation/reactivation not allowed.

Incentivizing fewer deployments and higher retrieval

- Penalty (P)-reward (R) tradeoffs between dFAD numbers and dFAD sets.
- Deposit/Return-like systems where the limit on dFADs for a vessel one year is somehow related to the number of dFADs retrieved in the previous year (P/R).
- Using penalties for stranded dFADs or a retrieval "bounty" (P/R).
- Require dFADs/buoys to be transferred (to another fleet or to an entity like an NGO that will then assume responsibility, use and/or retrieve the FAD) when leaving the fishing zone (P).
- Limit annual buoy purchases which reduce deployments and incentivize avoiding abandoning FADs (P). It also incentivizes FAD sharing.



dFAD Information Networks

Photo: David Itano

Alternative and complementary approaches

Three assets of a dFAD

© ISSF

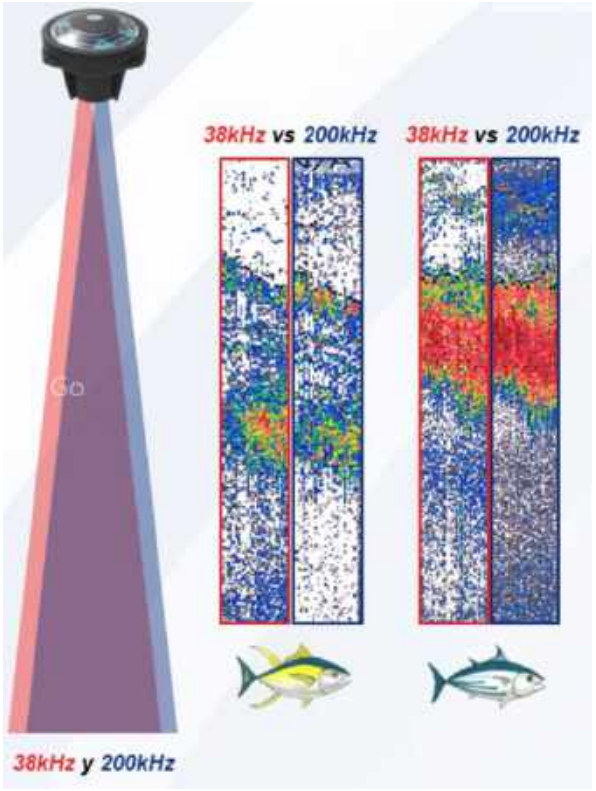
The FAD itself:

$100s

© Marine Instruments

The echosounder buoy:

$1000s



© Satlink

The information:

Potentially $ millions

Voluntary multi-fleet networks

Multiple companies share dFADs, for example within a fleet association, a Fisheries Improvement Project (FIP), or an MSC-certified fishery.

Different ways to implement:

- Participants can request access to dFADs nearby, or
- A central control center assigns dFADs

Tied to rewards and/or penalties that incentivize lower dFAD impacts:

Example:

- Market rewards for deploying only biodegradable FADs or achieving a level of FAD retrieval or deploying fewer dFADs

Mixed managed comprehensive network

- Each vessel or company would deploy a number of dFADs that it would continue to monitor.
- Information from all the dFADs deployed by all vessels would go to a centralized system (tRFMO or third-party run) that would continue to monitor all of them.
- Vessels would plan their trips driven by their own dFAD network but could also pay a fee to access information on other´s dFADs in the central system.
- Other vessels could just pay to access others' dFADs without deploying any.
- Less expensive, collectively, to deploy the dFADs in such a network. DFADs would become a public good rather than open-access
- The overall number of dFADs would be lower than in current practice and presumably without a loss in catch and with greater efficiency.
- Likely dFAD loss will be reduced and there should be greater opportunities for dFAD retrieval.
- Needs penalties for free riders (those that appropriate FADs from others).

Fully managed comprehensive network

- A **centralized system (tRFMO or third party) would control** deploying all dFADs, maintaining and retrieving them and selling dFAD information (position and biomass) to vessels.
- Vessels would not be allowed to deploy or track their own dFADs.
- Information (position, biomass) could be sold in different ways (auction, subscription, etc)
- dFADs would become a regulated common property, replacing open access.
- The network would be expensive to set up the first time. Use a combination of philanthropy, funding from vessels, processors, governments. It could be maintained by fees afterwards.
- Likely benefits: better information, greater efficiency, effective compliance, scientific data support, fewer dFADs and increased FAD retrieval.
- In terms of difficulties, this type of network would likely be hard to accept by the current fishing culture.

Conclusions

Conclusions

The workshop made recommendations, primarily based on economic theory, for additional or alternative approaches that could be taken to limit dFADs in ways that would be efficient while minimizing losses to the fishing fleets.

These include:

- **Moving to fully non-entangling biodegradable dFADs,**
- **Incentivizing limited deployments and more retrievals,**
- **Sharing dFAD information through networks.**

tRFMOs should take note and encourage or implement such actions.

Q & A

ISSF INTERNATIONAL SEAFOOD SUSTAINABILITY FOUNDATION

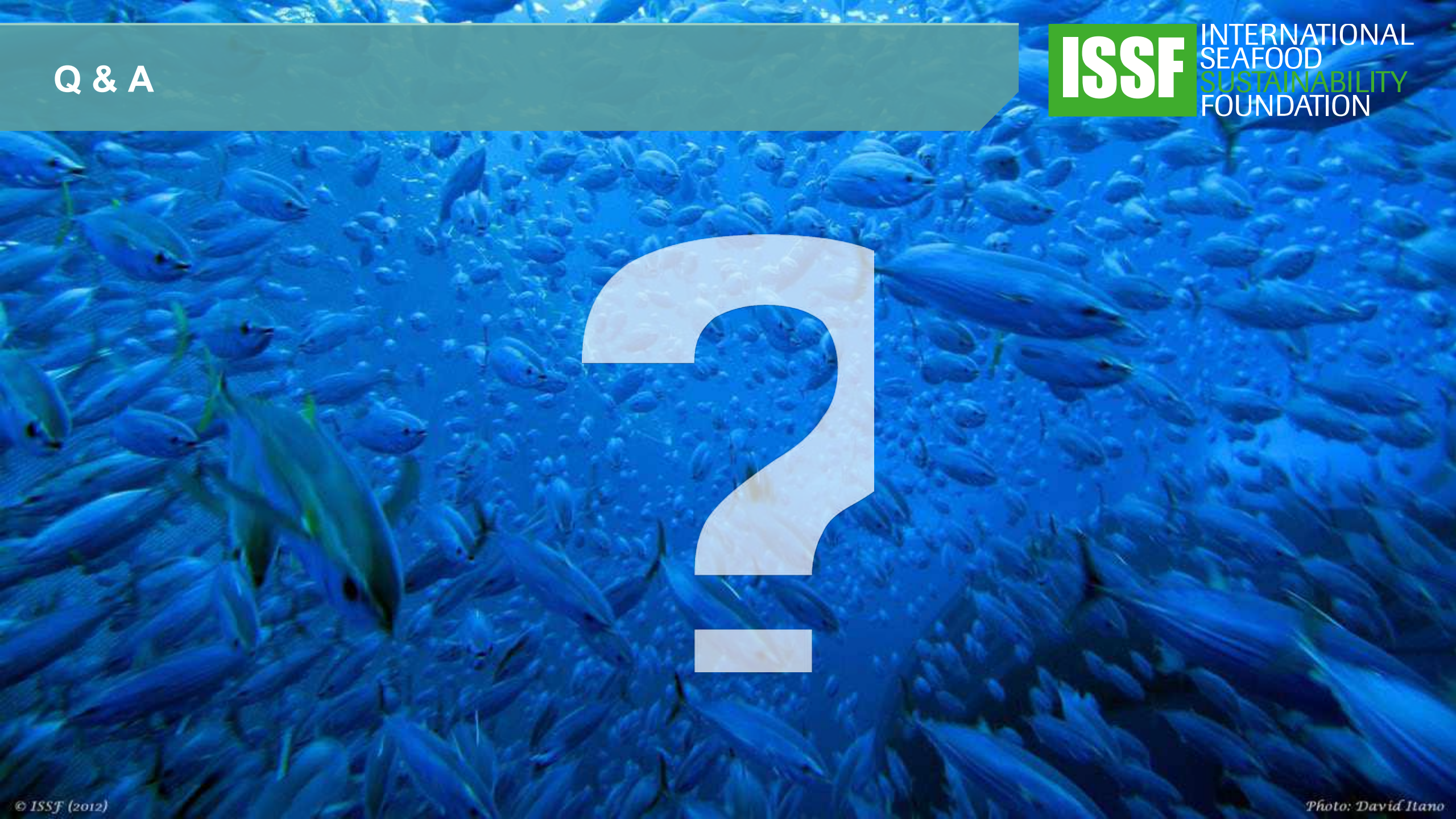


Photo: David Itano