A large school of skipjack swims alongside yellowfin and bigeye tuna

David Itano / ISSF

Harvest strategies: Preserving Pacific fisheries for the future

Adopting harvest strategies is key to achieving a sustainable and profitable future for the region's critical tuna fisheries

THE WESTERN AND CENTRAL PACIFIC OCEAN is home to the biggest tuna fishery in the world. It is arguably one of the best managed tuna fisheries in the world. Stocks of all three tropical tunas and north and south Pacific albacore are 'in the green,' that is, not overfished and not subject to overfishing (Figure 1). Adopting harvest strategies will ensure these fisheries remain healthy, within a target range and profitable for future generations.

Members of the Western and Central Pacific Fisheries Commission (WCPFC) have cooperated in the management of these important fisheries, securing economic and food security benefits for their peoples and their futures. These efforts have generated results.

Despite this success, the substantial challenges facing the region's important fisheries demand a more modern approach. Climate change, shifts in stock distribution, uncertain economic viability, increased competition and other drivers of overfishing will impact the fishery.

Harvest strategies, a process that WCPFC members made a commitment to implementing in 2014 and leaders in the Pacific Islands Forum Fisheries Agency also endorsed, can play a key role in meeting the challenges ahead and maintaining the successful and sustainable future of the region's tuna fisheries.[1]

"PITIA supports the use of harvest strategies as a tool to effectively manage the sustainability of the Pacific tuna stocks thus supporting the economic viability of domestic tuna operators that generate economic activity for SIDS (Pacific Island Developing States) and Pacific employment thereby contributing to better socio economic outcomes for the peoples of the Pacific."

Brett Haywood, Chairperson, Pacific Island Tuna Industry Association (PITIA)

WCPFC leads tRFMOs in catch and stock status

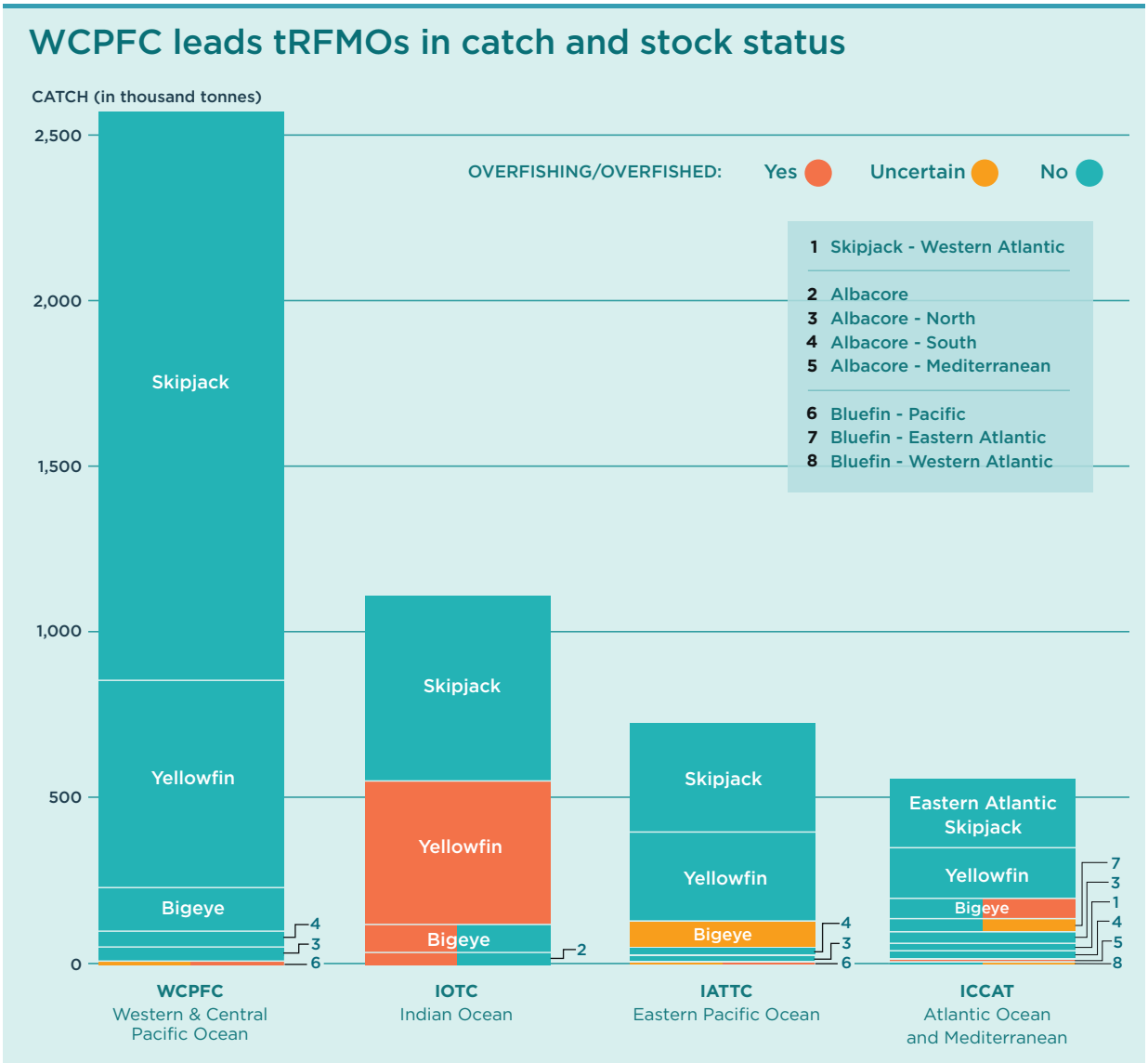

Figure 1. Catch and stock status for major tuna stocks. Color indicates stock status, with the left side of the bars displaying overfishing status and the right side displaying overfished status. WCPFC has both the greatest catch and the healthiest stock status.

5 reasons to adopt harvest strategies

Harvest strategies:

1. are a **future-proofing step**, ensuring the fishery continues to be managed according to short, medium and long term sustainability and economic objectives with an upfront investment of time and effort that pays off in the long run.
2. put the **fisheries managers in the driver's seat** by taking a proactive, rather than reactive, approach to setting management objectives.
3. are **robust to year-on-year changes** to a fishery, making overall management less impacted by short-term variabilities, shocks and biological uncertainties. This also removes the need to make management changes every year.
4. have had **proven success** in other fisheries around the world.
5. play an important role in **market-based decisions**, including third party certifications.

WHAT IS A HARVEST STRATEGY?

HARVEST STRATEGIES PLAY A KEY ROLE in modern fisheries management.

Fisheries are in a constant state of change through time. They can change because of biological, environmental, technological, social or economic reasons. Harvest strategies—also known as management procedures—provide a decision-making framework with pre-approved management actions to respond to changes in a fishery and maintain stocks at desirable levels. They are a practical and strategic management tool that allows all relevant parties to agree on how to manage the fishery over the longer term, instead of relying on ad hoc and often reactive responses when something unexpected happens.

Harvest strategies work by determining a long-term vision for the fishery that meets a range of objectives, such as sustainable utilisation. This includes setting a desirable target of biomass and/or fishing mortality for the fishery and setting pre-agreed rules for fishing opportunities when the biomass is above, below or within the target range. For example, if the biomass of a fishery is below target, a harvest strategy could trigger more stringent rules, such as decreases in fishing days, or adding temporal or spatial measures. Due to the inbuilt review process, harvest strategies can be adjusted in the future to respond to changes in management objectives or new information.

"The WCPFC membership is taking the necessary steps to develop and adopt harvest strategies for the key WCPO stocks, recognising the role they have to play in effective Pacific fisheries management and ensuring sustainable development utilisation over the longer term."

Francisco Blaha,
independent fisheries advisor

Per the WCPFC management measure (CMM 2014-06), harvest strategies should include:

- **Management objectives:** Management objectives set out the overall vision of where fishery managers want the fishery to be. To allow success to be measured, one or more **performance indicators** are developed for each management objective. These indicators should be specific, quantifiable and include probabilities—such as the probability that catches will be above or below a certain reference point.

- **Reference points:** Reference points can relate to one or more management objectives. They serve as benchmarks to compare the status of the fishery. The **target** reference point refers to where the stock/fishery should be. The **limit** reference point defines a danger zone beyond which fishing is no longer sustainable.

- **Acceptable level of risk of breaching the limit reference point:** The risk quantifies the likelihood of a negative outcome (i.e., breaching the limit reference point). It should be lower where uncertainty is greater.

- **Monitoring strategy:** A monitoring strategy is included in the development of the harvest strategy to track the performance of the harvest control rule, once implemented. It specifies what data inputs will be analysed to evaluate status and trigger a management response.

- **Harvest control rules (HCRs):** HCRs describe what management action should be taken at different population sizes or levels of fishing mortality. As the operational part of a harvest strategy, the HCR could specify, for example, when fishing mortality should be increased, reduced or cease.

- **Management strategy evaluation (MSE):** MSE is a simulation tool that allows candidate harvest strategies to be tested against a range of management objectives and 'what if' scenarios that reflect potential changes or uncertainties in the fishery. What if productivity of the stock changes? What if there is an unmanaged amount of catch being taken from the fishery? MSE allows the best performing strategy—the one most likely to achieve those objectives regardless of those uncertainties in the short, medium and long-term—to be chosen. It helps managers to balance trade-offs between potentially competing management objectives, most notably maximizing catch vs. population abundance.

Jeff Muir / ISSF

Harvest strategies are important to maintaining the sustainability of purse seine fishing in the Western and Central Pacific.

WHY USE HARVEST STRATEGIES?

HARVEST STRATEGIES ARE A VALUABLE TOOL for long term, sustainable management in the Pacific. They are transparent and offer greater certainty for fishery managers and industry. They ensure that all stakeholders know what will happen in the fishery based on pre-agreed management actions. Harvest strategies can be particularly useful for improving the biological or economic potential of a fishery, which is of vital importance to the Pacific. The WCPFC region is the largest and most valuable tuna fishery in the world. Although the Covid-19 pandemic has disrupted fishing activity and markets, the WCPFC region in 2021 still produced 2.5 million metric tons of tunas, with a delivered value of $4.6 billion US dollars.[2]

Harvest strategies also improve efficiency. The 'rules of the game' are decided in advance. A good harvest strategy will require an upfront investment of time and resources by Pacific managers before it can be agreed, but it also means that they have decided how they will collectively respond to changes or different circumstances in the fishery. This saves time in the long run. Fishery managers will be free to focus on other important issues with the confidence that a harvest strategy, if properly implemented, will ensure the management objectives can be achieved.

EXAMPLE: **WHY IT'S URGENT TO INVEST IN HARVEST STRATEGIES NOW**

DELAYING THE ADOPTION OF HARVEST STRATEGIES can have serious consequences. WCPFC members have delayed the adoption of a south Pacific albacore harvest strategy for the last three years. In 2021, WCPFC's Scientific Committee reported that there was a substantial decline in stock status in the most recent three-year period. Achieving the target reference point will be more challenging, because the scientific evidence shows that substantial cuts are now required. This threatens the economic survival of the southern longline fishery. If there had been a harvest strategy in place, the stock would be on a growth trajectory that would generate improved returns for the industry and communities that rely on fishing activity.

HARVEST STRATEGIES IN THE WCPFC

THE WCPFC INITIALLY MADE significant efforts to adopt harvest strategies for key tuna stocks in the region. It was the first of the RFMOs managing tropical tunas to commit itself to the harvest strategy approach. However, progress in recent years has stalled. The Pacific Community, as the scientific services provider in the region, has also developed a range of tools to support capacity building and decision-making for harvest strategies for WCPFC members.[3] WCPFC members need to accelerate their efforts to adopt harvest strategies. This will not only ensure these fisheries continue to deliver benefits to the region, but also provide the best chance of maintaining profitable fisheries in the short, medium and long terms.

"HCRs are also a market access tool as they help to ensure that the tuna fleet makes sufficient efforts to ensure that there will be enough tuna for future generations."

Marcelo Hidalgo, sustainability director, Fishing Industry Association – Papua New Guinea (FIA PNG)

Key WCPFC milestones for adoption of harvest strategies

2012

- Discussions began on elements of the harvest strategy approach at the first of four workshops.
- WCPFC agreed on principles for establishing the 'limit reference point' for tropical tunas and south Pacific albacore.

2014

WCPFC adopted CMM 2014-06, a measure on establishing a harvest strategy for key fisheries and stocks in the western and central Pacific ocean.

2015

- WCPFC adopted the first harvest strategies workplan, which has been updated regularly.
- WCPFC adopted an interim target reference point for skipjack.
- WCPFC agreed that the level of risk of breaching the limit reference point should be between 0 and 20%, for the purpose of determining the acceptability of potential harvest control rules.

2018

WCPFC adopted an interim target reference point for south Pacific albacore.

2022

WCPFC holds the first science-management dialogue meeting with a focus on skipjack and south Pacific albacore.

HARVEST STRATEGIES AROUND THE WORLD

MANY NATIONAL AND INTERNATIONAL FISHERIES already have implemented harvest strategies to the benefit of the stocks and peoples that rely on them (Figure 2). At the other tuna management organizations:

- The Commission for the Conservation of Southern Bluefin Tuna adopted its first harvest strategy in 2011. Since then, the southern bluefin tuna stock rebuilt from 5% to 20% of unfished spawning stock biomass. It continues to rebuild to a goal of 30% of unfished spawning stock biomass by 2035. With the stock increasing, total allowable catches have increased 87%.

"While all four key tuna stocks in the WCPO are currently assessed to be in good shape and exploited sustainably, there remains a need for effective management action to ensure this continues. Implementing harvest strategies will assist in this and enable ongoing sustainable benefits to be achieved."

Dr. Graham Pilling, head of the Oceanic Fisheries Programme, The Pacific Community

- The Indian Ocean Tuna Commission (IOTC) adopted a harvest strategy for bigeye tuna in 2022, and is developing harvest strategies for albacore, yellowfin and swordfish. A harvest control rule is in place for skipjack, and IOTC is working to expand it to a fully-specified harvest strategy.

- The International Commission for the Conservation of Atlantic Tunas agreed on a harvest strategy for north Atlantic albacore in 2017 that has permitted catch increases in every management cycle. Seven other harvest strategies are being developed, including for the four tropical tuna stocks.

- The Inter-American Tropical Tuna Commission is developing a harvest strategy for bigeye tuna, among other stocks.

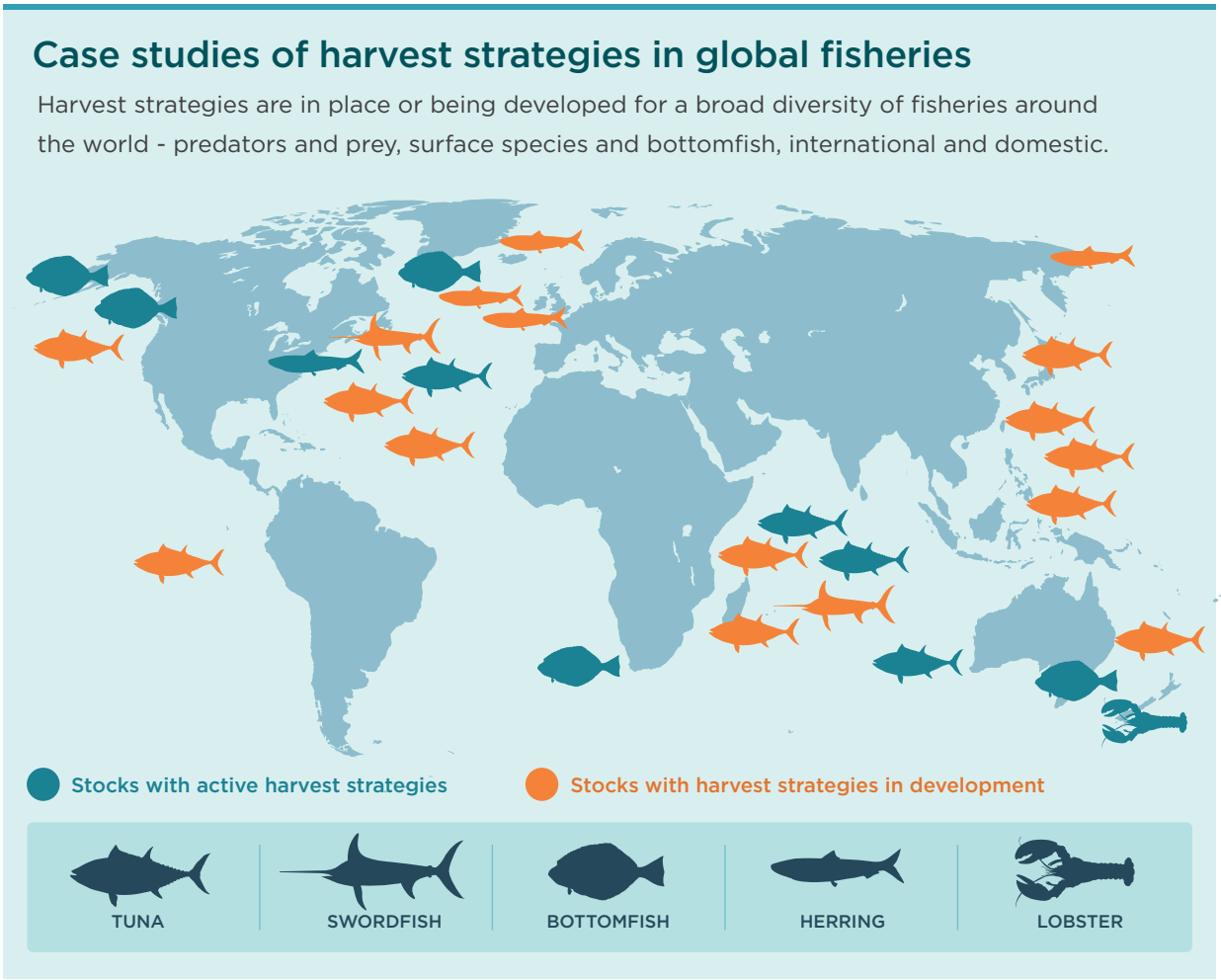

Figure 2

THE STAGE IS SET FOR HARVEST STRATEGIES IN THE WCPFC

Even the best managed fisheries must adapt to changes driven by biological, industrial or management imperitives. A harvest strategy is the best tool available to future proof a stock to changes that are inevitable, allowing the fishery to continue to provide revenues, food and jobs for the future. Although the process takes time, it is well spent. A harvest

strategy is the recognized best practice to achieve effective and efficient fisheries management outcomes, with proven benefits at national and international scapes.

> *"We fully support the establishment of harvest strategies for each target species as we see it as an effective management tool to ensure that the species of tuna that we rely on for our livelihood are sustainably harvested."*
>
> **Radhika Kumar, President**
> **Fiji Fishing Industry Association**

WCPFC has made progress, but has fallen behind the pace of other tuna regional fisheries management bodies. Continued inaction could have repercussions as markets increasingly demand fisheries managed with the most up-to-date approaches, such as harvest strategies. Fortunately, WCPFC has shown it has the leadership and spirit of cooperation to move forward.

As many of the technical questions surrounding the development of harvest strategies are being answered, it is now up to those with a stake in the WCPFC fisheries— managers, scientists, industry and market representatives, and other stakeholders —to drive the work forward by making smart choices to guide the development of harvest strategies.

It's critical to act now while the tropical tunas and albacore stocks are being fished within a biologically healthy range of biomass. Harvest strategies will ensure the sustainability and profitability of these fisheries long into the future.

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1 The Pacific Islands Forum Fisheries Agency members proposed WCPFC CMM 2014-06, a measure on establishing a harvest strategy for key fisheries and stocks in the western and central Pacific ocean. FFA leaders subsequently integrated a commitment to harvest strategies into their Regional Roadmap for Sustainable Pacific Fisheries.

2 Williams, P. and Ruaia, T. "Overview of Tuna Fisheries in the Western and Central Pacific Ocean, Including Economic Conditions – 2021," 2022. Available at: https://meetings.wcpfc.int/node/16217.

3 https://www.wcpfc.int/harvest-strategy. See Section V. Stakeholder Engagement and Capacity Building.

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