

Good governance for migratory fish stocks

As the oceans warm in response to continued greenhouse gas emissions, fish are moving to seek out their preferred environmental conditions. These shifts in distribution are changing the locations of the best fishing areas within the geographical ranges of fish species, and often the geographical ranges of the species as well.

Climate-driven redistribution of fish poses particular challenges for governance of transboundary stocks – many existing fisheries management arrangements will need to be revisited as the proportions of fisheries resources change within national jurisdictions. Where significant shifts in geographical range occur, countries may lose or gain access to resources, altering the composition and number of stakeholders involved in fisheries management arrangements.

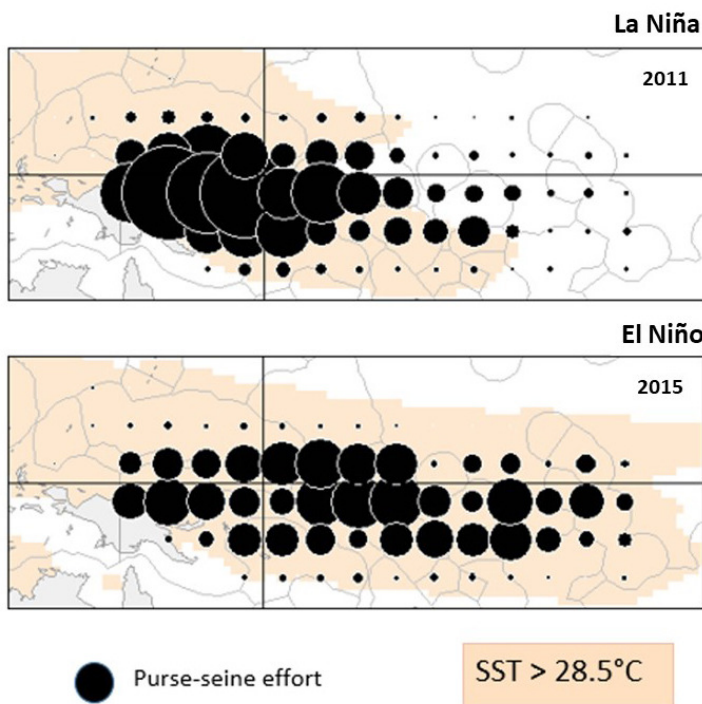


Fig. 1. The influence of climatic variability (El Niño and La Niña events), and the associated extent of the western Pacific warm pool, defined by sea surface temperatures (SST) > 28.5 °C, on the distribution of purse-seine fishing effort in the tropical Pacific Ocean; the size of the circles indicates the level of fishing days in that 50 x 50 square, with larger circles indicating relatively greater effort levels (source: Oceanic Fisheries Programme, Pacific Community).

Without a framework for co-operative, flexible governance of transboundary fisheries resources ‘on the move’ due to ocean warming, the risks of conflict and overfishing can be expected to increase. The recent ‘mackerel wars’ in the northeast Atlantic are a case in point. There, problems started in 2007 when much of the stock underpinning the mackerel fishery managed by the European Union, Norway and Faroe Islands shifted into Iceland’s exclusive economic zone (EEZ). The lack of cooperation among the stakeholders, driven by conflict over appropriate allocations of the resource, resulted in unsustainable fishing practices.

The good news is that several Pacific small island developing states (SIDS) have demonstrated that co-operative, flexible management arrangements for migratory fish stocks are possible. The eight Pacific SIDS that are the Parties to the Nauru Agreement (PNA) equitably share the benefits from industrial fishing for the tuna that move not only within their combined EEZs but also in response to climate. The PNA’s “vessel day scheme” (VDS) was developed to jointly manage purse-seine fishing effort targeting skipjack tuna.

The ‘cap and trade’ VDS sets the total annual purse-seine fishing effort within the combined jurisdictions of PNA members at ~45,000 fishing days and allocates these days to PNA members based on the past 8-10 years of fishing effort history in their EEZs. The VDS provides a trading mechanism among PNA members, allowing them to respond to the profound effects of the El Niño Southern Oscillation on the prime fishing grounds for skipjack tuna. This is important because during La Niña episodes, the best catches are made toward the west of the region, but during El Niño events fishing is most efficient up to 4000 km to the east (Fig. 1). During La Niña events, countries in the west buy days from members in the east to enable fleets to keep fishing in their EEZs. The reverse occurs during El Niño episodes. Thus, regardless of where the fish are caught, all PNA members receive revenue.

PNA members have a strong incentive to ensure that the VDS sustains purse-seine catches because many of them are tuna-dependent economies. In 2016, the access fees received by PNA members from purse-seine vessels operating within their EEZs provided 5-66% of all non-aid government revenue for PNA members (Fig. 2).

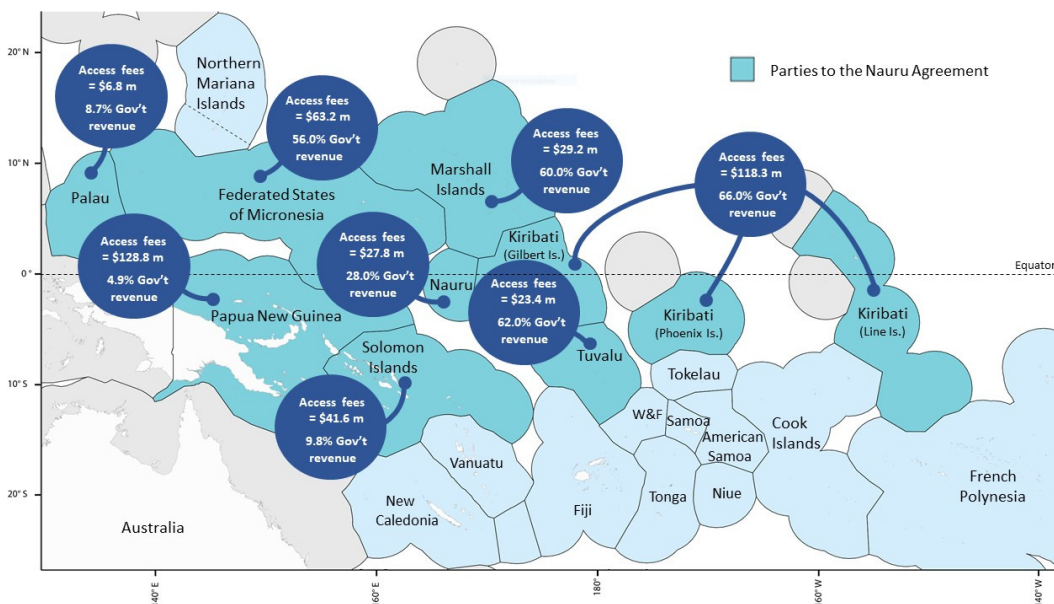


Fig. 2. Tuna-fishing access fees earned by the eight Pacific Island countries that are the Parties to the Nauru Agreement in 2016, and the percentage contribution of these fees to their total non-aid government revenue (source of data: Pacific Islands Forum Fisheries Agency).

The VDS also provides a non-confrontational adaptation to the progressive redistribution of skipjack tuna to the east projected to occur with ocean warming. Over time, PNA members in the east are expected to accumulate a greater effort history and receive more fishing days. However, the VDS does not encompass redistribution of tuna from the EEZs of PNA members to high-seas areas. Additional governance arrangements will be needed to enable PNA members to retain the important economic benefits they now receive from tuna, regardless of the impacts of ocean warming on tuna distribution.

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Publication

[Good Governance for Migratory Species](#)

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Science. 2018 Sep 21