

# Rights-based management in the Western and Central Pacific Ocean tuna fishery: Economic and environmental change under the Vessel Day Scheme



Elizabeth Havice\*

University of North Carolina-Chapel Hill, Geography Department, Saunders Hall, Campus Box 3220, Chapel Hill, NC 27599-3220, USA

## ARTICLE INFO

### Article history:

Received 12 October 2012

Received in revised form

6 February 2013

Accepted 13 March 2013

Available online 18 April 2013

### Keywords:

Vessel Day Scheme

Transferrable effort

Tuna

Pacific island countries

Western and Central Pacific Ocean

Rights based management

## ABSTRACT

Defining, strengthening and enforcing rights over fisheries resources is frequently identified as central to overcoming 'the tragedy of the commons' and associated environmental and economic challenges in fisheries systems. Though economic theory generally suggests that output control (e.g. quotas) creates the strongest incentives for efficiency and conservation, input controls (e.g. on effort) remain common. This paper explores the rationale for, and implications of, employing a transferable effort scheme in one of the largest and most valuable fisheries. In 2007, eight Pacific Island countries implemented the Vessel Day Scheme with the aims of strengthening their rights over tuna resources and control over economic and environmental trends. Four years since implementation, the scheme has significantly increased economic returns for the island states and generated improvements in data reporting. However, it has not generated a firm limit on fishing effort and its structure has made it difficult to directly target the biological concerns of individual species within the multi-species fishery. In the future, outcomes of the Vessel Day Scheme will continue to be tempered by the structural limitations of effort-based regulatory scheme, market conditions in the sector and the willingness of firms and island states to clarify, abide by and enforce the technical components of the scheme.

© 2013 Elsevier Ltd. All rights reserved.

## 1. Introduction

Fisheries management efforts have long been characterized as plagued by the 'tragedy of the commons' in which the lack of recognized and enforceable rights generates a race to fish and related environmental degradation and economic inefficiencies [1–3]. In keeping with this conceptualization, mainstream management approaches firmly situate rights-based management as a primary tool for overcoming environmental and economic problems in fisheries. According to this approach, creating secure, durable and tradable ownership rights, creates incentives to reduce capacity, which in turn, increases economic efficiency and profitability [4]. Of the options for creating 'rights', economists and modelers generally suggest quota (output control) systems as the most direct route to 'efficiency' because quota holders have incentive to maximize economic returns associated with their allocated catch, rather than to increase the volume of their catch within a given effort allocation (e.g. during an open season, or number of fishing days) [5,6]. However, in practice, managers often substitute or complement quota controls with *effort* controls in order to meet specific needs (practical, technical, political or otherwise) in a particular fishery.

In the tuna fishery in the Western and Central Pacific Ocean (WCPO), the highly migratory nature of tunas and the

international dimensions of tuna production systems and management schemes have made it particularly complex to develop and deploy 'rights' over the resource. In 2011, over 2.2 million tonnes of tuna valued at US\$5.5 billion were caught in the region, 1.7 million tonnes of which was caught by industrial purse seine vessels [7]. Of this, over 1.3 million tonnes (60% of total volume) was caught inside of the 200 mile exclusive economic zones of the eight Pacific island countries that are Parties to the Nauru Agreement (known collectively as the PNA countries): the Federated States of Micronesia, Kiribati, the Marshall Islands, Nauru, Palau, Papua New Guinea, the Solomon Islands and Tuvalu. These eight island states seek to manage tuna resources to generate economic returns in the long-run, not least because for some, tuna licensing fees represent a significant source of government revenue. Since the inception of industrial fishing in this region, the PNA countries have incrementally strengthened rights-based management in an effort to achieve economic and environmental goals. Most recently, the PNA countries have implemented the Vessel Day Scheme (VDS) for the purse seine fishery – a transferable effort program that has been operational since 2007. Given the volume, value and multi-jurisdictional nature of the fishery, the VDS is arguably the largest and most complex fishery management arrangement ever to be put in place.

In the years since its implementation, there have been few publicly available assessments of the opportunities and challenges of this approach to rights based management, limiting our

\* Tel.: +1 91 996 23414; fax: +1 91 996 21537.

E-mail address: [havice@email.unc.edu](mailto:havice@email.unc.edu)

understanding of how the transferable effort scheme is shaping economic and environmental outcomes in the tuna industry, and the broader lessons that the case lends to effort control approaches to rights based management. To contribute to filling these gaps, this paper proceeds as follows.

Section 2 offers a brief overview of conditions leading to the formation and implementation of the VDS, detailing the economic and ecological management objectives of PNA countries. Section 3 reviews why the transferable effort scheme was chosen as opposed to other rights based management approaches, before Section 4 offers a technical account of the VDS, focusing on what the scheme controls, its implementation systems and relationship with the Western and Central Pacific Fisheries Commission (WCPFC), the region's tuna RFMO (regional fisheries management organization). Section 5 draws on document analysis and interview data from nine interviews with industry representatives, government officials and international fisheries specialists to offer a preliminary review of the VDS vis-à-vis the stated objectives of PNA countries and the WCPFC. It demonstrates the dramatic economic changes that the scheme has initiated and the remaining economic and ecological benefits and challenges. The conclusion highlights that effort control can generate significant economic and ecological changes in the fishery by strengthening rights, but that the structure of the fishery in question as well as the politics associated with the formation, implementation and monitoring of the management approach, play a key role in determining management outcomes.

## 2. Rights-based management in the WCPO tuna fishery: towards the Vessel Day Scheme

Industrial fishing activity commenced in the WCPO in the 1960s when US and Japanese fleets entered the region and fished under open access conditions without regulation or paying licensing fees. By the late 1970s, Pacific island countries and coastal states around the world declared their 200 mile exclusive economic zones (EEZs): their first step towards rights-based tuna management. With EEZs established, Pacific island countries deployed their nascent sovereignty over ocean resources to charge licensing fees and regulate fishing activities in their waters. Their claims were recognized internationally in 1982 upon the conclusion of the United Nations Convention on the Law of the Sea (UNCLOS).

Recognizing the economic and ecological challenges associated with managing a highly migratory stock through discrete national-level policies, in the early 1980s, the eight Pacific Island countries with the most tuna-rich waters – and thus, the greatest potential to collectively govern the transboundary fishery – formed a sub-regional alliance. They signed the Nauru Agreement, setting their sights on negotiating harmonized minimum terms and conditions of access for foreign vessels (which were negotiated over the following decades) [8], and cooperating to improve historically weak bargaining power in fisheries access agreements with the aim of increasing rents from fishing activity undertaken by foreign fishing interests.

In 1990, the PNA countries moved further towards regionally oriented rights-based management by initiating negotiations for the Palau Arrangement, which eventually introduced a limited entry licensing system that restricted the total number of purse seine vessels fishing in PNA waters [9,10]. The loosely formulated capacity control (eventually set at 205 purse seine vessels) was to generate economic and environmental improvements, not least because the PNA countries committed to reduce capacity by 10% to improve catch rates, generate licensing scarcity that would drive fish prices higher and control pressure on resources. However, by

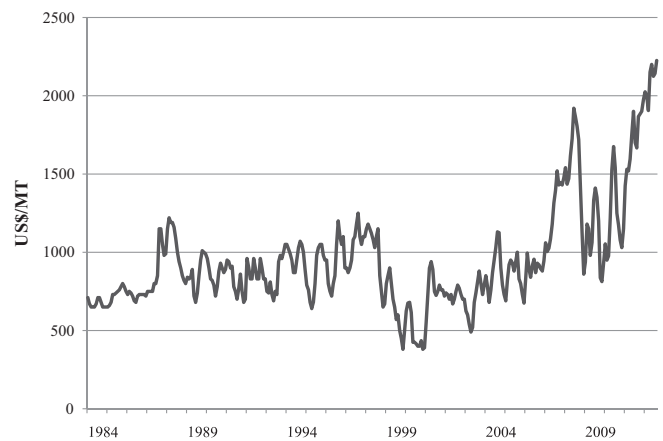


Fig. 1. Thailand Import Prices, Frozen Skipjack US\$/mt (1984–2009), not inflation adjusted. Source: [42].

the early 2000s, it was apparent that the Palau Arrangement's limited entry program was achieving neither economic nor environmental objectives. The access fees that PNA countries were charging fishing fleets hovered stubbornly around 5–6% of catch values [11,12] while bigeye and yellowfin tuna populations had begun to be negatively impacted by soaring purse seine catch volumes.

Several factors explain these outcomes. First, the 'rights' that the limited entry system initiated were allocated to distant water fishing nations according to flag, rather than being held and controlled by the PNA countries. In effect, this system guaranteed individual fleets a set number of licenses, eliminating competition between fleets for access and preventing new fleets from entering the fishery [13]. Second, though total vessel number was limited under the Palau Arrangement's license number scheme, vessel capacity grew through vessel size and technological improvements, a dynamic known as 'effort creep'.<sup>1</sup> Third, the limited entry system failed to implement a firm limit on entry: it allowed PNA countries to license domestic class vessels in addition to the total license number; when a state did not use its allocation, PNA countries were permitted to re-sell unused licenses. The Arrangement allowed the Parties to license additional vessels at a 20% premium [13]. As a result, from the late 1990s through the 2000s, purse seine catch volume increased dramatically (Fig. 2).

By the early 2000s, the legal imperative for regional management of the transboundary fishery had emerged. The United Nations Fish Stocks Agreement of 1995 clarified the UNCLOS mandate that coastal states and distant water fishing nations cooperatively manage highly migratory fish stocks in exclusive economic zones and on the high seas. It required that regional organizations be set up to facilitate management cooperation where it did not already exist. Building from work to develop a regional management mechanism already underway by the Pacific Island Forum Fisheries Agency (FFA), in 1997, Pacific island countries, Australia, New Zealand and distant water fishing nations began negotiations that ultimately led to the formation of the Western and Central Pacific Fisheries Commission (WCPFC), a new regional fisheries management organization that would oversee tuna management in the Pacific, including within PNA countries' exclusive economic zones (Map 1). Since WCPFC regulations were to be jointly agreed upon by coastal states and

<sup>1</sup> Older purse seines hold capacity is between 400 and 800 mt, while newer vessels have 1200–2000 mt. Under the limited entry scheme, each counted as one vessel.

Download English Version:

<https://daneshyari.com/en/article/7491784>

Download Persian Version:

<https://daneshyari.com/article/7491784>

[Daneshyari.com](https://daneshyari.com)