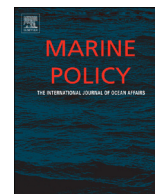




ELSEVIER

Contents lists available at ScienceDirect

## Marine Policy

journal homepage: [www.elsevier.com/locate/marpol](http://www.elsevier.com/locate/marpol)

## Perspectives on developing a non-commercial saltwater fishing license program in Hawai'i



Ellary TuckerWilliams<sup>a,\*</sup>, Christopher A. Lepczyk<sup>b,1</sup>, Christopher T. Hawkins<sup>c</sup>

<sup>a</sup> University of Hawai'i at Mānoa, Interdisciplinary Studies, 2500 Campus Road, Hawai'i Hall 110, Honolulu, HI 96822, United States

<sup>b</sup> University of Hawai'i at Mānoa, Department of Natural Resources and Environmental Management, 1910 East-West Road, Sherman 101, Honolulu, HI 96822, United States

<sup>c</sup> University of Hawai'i at Hilo, Tropical Conservation Biology and Environmental Science, 200 West Kāwili Street, Hilo, HI 96720, United States

## ARTICLE INFO

## Keywords:

Fishing permit  
Recreational  
Funding allocation  
Stakeholder

## ABSTRACT

Recreational (non-commercial) fishing licenses are used throughout the United States to contribute funding for the management of recreational fisheries and associated resources and help quantify participation. Non-commercial fishing license programs have aided habitat restoration and conservation, hatchery production, harvest regulations, education, and improving fishers overall experience and satisfaction with the resource. Contrastingly, Hawai'i is the only coastal US state that does not have a saltwater non-commercial fishing license program. The lack of a license program is problematic for several reasons, including its implications for baseline data regarding who or how many individuals utilize the resource. Given anecdotal information about recently changing fishers' attitudes, the goal was to quantify knowledge, interest, and behavior of Hawai'i's non-commercial fishing participants regarding the potential adoption of a state saltwater non-commercial fishing license. Specifically, under what circumstances would Hawai'i's non-commercial fishing community support or not support a licensing program? Did the level of support and acceptance of a fishing license program vary with sociodemographic factors? Finally, what is an acceptable cost range for a license among Hawai'i's non-commercial fishers? To answer these questions, an online survey of 101 self-identified non-commercial Hawai'i fishers was conducted. The findings suggest that non-commercial fishers may support a fishing license program, but only if the funds generated from license fees are dedicated to improving the resource, particularly enforcement of current regulations. Correspondingly, a saltwater non-commercial fishing license costing between \$11–19 was acceptable for 81% of survey participants. Our findings suggest provide a needed baseline on advancing fisheries management in Hawai'i.

### 1. Introduction

Throughout the United States, recreational (non-commercial) fisheries management programs are funded by a variety of sources, such as federal aid via the Dingell-Johnson Sport Fish Restoration Act, state general funds, and non-commercial fishing license fees [25,26]. The use of recreational fishing licenses as a means to fund field biologists and manage recreational fisheries performance has addressed many conservation concerns [14,25]. As a commonly-used management tool, non-commercial fishing license programs have aided the advancement of hatchery production, population management of fish stocks, population surveys [8,22,23,25], habitat conservation and improvement [8,23], species conservation, recovery [14,22,23] and harvest regulations [25], fisheries and stakeholder research [22,23,26],

maintenance of aesthetic beauty and marine infrastructure [14], fishers' satisfaction [14,26], experience, access, education and outreach [14,22,23], and overall movement towards a more sustainable fisheries program [14].

Funding from fishing license programs facilitate fisheries management and research. For example, in Alaska the monies generated from the state recreational fishing license program helps the Alaska Department of Fish and Game to support programs like the Chinook Salmon Research Initiative and the Division of Subsistence. Monies generated are also allocated towards the control and removal of invasive species (e.g., northern pike, zebra mussel etc.), maintenance of research laboratories (e.g., genetics, pathology, and biological data collection), fish counts, preservation of critical habitat, and fish passage improvements [1]. Likewise, the Washington Department of Fish and

\* Correspondence to: Auburn University, School of Forestry and Wildlife Sciences, 602 Duncan Drive, Auburn, AL 36849, United States.

E-mail address: [ezt0019@auburn.edu](mailto:ezt0019@auburn.edu) (E. TuckerWilliams).

<sup>1</sup> Current address: Auburn University, School of Forestry and Wildlife Sciences, 602 Duncan Drive, Auburn, Alabama 36849, United States.

Wildlife allocates monies received from its recreational fishing license program towards the operation of 24 hatcheries, lake and stream habitat rehabilitation, game fish management, enforcement of fishing regulations and steelhead trout population monitoring and management [30]. A small portion of the funds generated by non-commercial fishing licenses fees is diverted from license sales and goes towards funding the Regional Fisheries Enhancement Group, a non-profit organization focused on salmon recovery and is responsible for community outreach and education, riparian habitat enhancement and protection, instream habitat restoration, nutrient enhancement, salmon passage improvement and research [31]. Similar to how hunting license programs operate, those individuals utilizing the resource are paying for the access to and continued management of that resource. By purchasing a recreational fishing license, license holders contribute to fisheries management, conservation, and research aimed at sustaining the resource for future public use and enjoyment.

Hawai'i is unique within the United States in that it has not adopted a fishing license as a requirement to participate in saltwater recreational fishing [5]. However, Hawai'i has begun to examine the socio-political landscape and potential ecological benefits associated with instituting such a program. Understanding human perspectives and behaviors surrounding this potential change is essential to the ways in which Hawai'i manages its saltwater recreational fishers and fisheries as well as appropriate of 21st century natural resource management. Additionally, since a considerable amount of an agency's focus is now on managing people, pro-environmental outcomes are most often achieved through the regulation and enforcement of behavior rather than some direct manipulation of nature, which is especially true in marine resource management [16]. In recognition of this relationship, Kennedy and Thomas [15] developed a basic conceptual management framework that embraces and describes social values as the primary driver of natural resource management statutes and regulations. Their framework describes four interconnected systems and associated sub-components: social, economic, political, and ecological. Events in one system typically affect the operation of one or more of the other three systems. While no one system is dominant all of the time, Kennedy and Thomas argue that it is the response of the social system to economic and ecological stimulus that is the stable driver of resource management actions and that social response is expressed through the political system. Our study of Hawai'i fisheries management views and preferences is set in the foundations of this conceptual framework.

Beyond the Kennedy and Thomas model, because most fisheries are public trust resources, non-commercial fishery stakeholders should have a great deal of input into how the resource is managed [2,3,14]. Therefore, it is important to understand how fishers perceive the costs and benefits associated with any potential Hawai'i recreational fishing license program. Fishers' motivations for participating in non-commercial fishing often mirror what they view as important fishery management issues and are influential in their willingness to pay for a recreational fishing license. Previous research has indicated that motivations for fishing varies across fishers [9]. Non-commercial fishers' willingness to pay for a license is directly related to what benefits they perceived will accrue to the attributes that are important to their fishing experience [14,26,32]. For example, when North Carolina proposed a recreational fishing license program in 1997, coastal non-commercial fishers expressed a relatively low willingness to pay for a saltwater recreational fishing license unless the funds generated were earmarked for a dedicated fund to improve the quality of the fishery and fishers' experience through habitat restoration, better enforcement, research and education. In fact, if license monies would be directed towards these activities, which would result in better management and improved fishery performance, then 84% of fishers surveyed indicated their willingness to purchase a license [32]. When fishers perceived that their money would improve the resource, as well as their experience, they reported greater willingness to continue purchasing a license in the future. This was true also under a cost increase scenario, so long as

fisher satisfaction and fishery quality was to follow suit [27].

The Territory of Hawai'i had a marine recreational fishing permit requirement, but this requirement was not carried over to statehood in 1959 (Walter Ikehara, personal communication). Over the past decade the state and federal government have discussed re-implementing a saltwater recreational or non-commercial fishing license in Hawai'i. However, a lack of detail regarding annual costs, the disposition of the fees, and exemptions (e.g., for minors, seniors, and Native Hawaiians) has resulted in limited support among members of the fishing community, similar to that found in other natural resource management issues in Hawai'i [18,19]. Hence, today Hawai'i remains the only coastal U.S. state that does not require a saltwater recreational fishing license [17]. As a result, there are less data about Hawaii's non-commercial fishery than the state might otherwise have, and fishers remain unable to show their true strength in numbers to state and federal policymakers. In order to evaluate the potential for creating a fishing license program in Hawai'i, it is imperative to understand the stakeholders involved and their perceptions of the issue. The Pacific Islands Fisheries Science Center of the National Marine Fisheries Service (NMFS) attempted to address some of these knowledge gaps in the 2015 Hawaii Saltwater Angler Survey that looked at the attitudes and preferences of Hawai'i non-commercial fishers [20]. However, a lack of a license program from which to develop survey samples, has financial and logistic implications for state and federal recreational fishery managers and taxpayers as it is typically more expensive to conduct such surveys absent a license-holder database, because respondent frames must be developed tediously from a variety of sources, including in situ collection of names and addresses.

The dearth of information regarding total fishing effort, catch, and take, is of concern for understanding the ecological impacts of Hawai'i's non-commercial fisheries. Overfishing has been shown to reduce average size [12,4], abundance [12], age structure [4], and overall fish biomass [12,4]. Community composition and species diversity is also greatly affected by extensive fishing pressures [12,4]. In Hawai'i, the exploitation of large, slow maturing, highly desired upper trophic level species has led to a decrease in species richness and abundance and an increase in smaller, less desirable fishes (i.e. fishing down the food web; [10–12]). The unmonitored process of fishing down the food web, combined with critical habitat degradation, increased human population, improved fishing techniques [10], introduction of invasive species and pollution [11] has created a cause of concern towards the sustainability of the recreational fishery.

The goal for this study was to quantify the perspectives of Hawai'i's non-commercial fishing community regarding a saltwater non-commercial fishing license program. To address this goal we sought to address the following questions: 1) what are the circumstances in which Hawai'i's non-commercial fishing community would support or oppose a licensing program; 2) did the level of support and acceptance of a fishing license program vary with sociodemographic factors (e.g., age, level of education); and, 3) what is the most socially-acceptable cost for a license?

## 2. Materials and methods

To address the main research questions, a quantitative survey instrument was created in collaboration with social scientists and non-commercial fishing specialists at Hawai'i's Department of Land and Natural Resources (DLNR), NMFS, and the Western Pacific Fishery Management Council (WPFMC). The survey contained 34 questions, of which 19 were considered for the current analysis (Appendix A). The questions covered a variety of topics including general acceptance of a licensing program, cultural conflict, licensing cost/availability, fishing accessibility, subsistence concerns, environmental benefits and the delegation of fees. The questions were informed to some extent by inquiries previously developed by NMFS. The draft survey was peer reviewed by social scientists outside of Hawai'i and revised accordingly.

Download English Version:

<https://daneshyari.com/en/article/7487699>

Download Persian Version:

<https://daneshyari.com/article/7487699>

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