

Socioeconomics of the Lionfish Derby Fishery

Socioeconomía de la Pesca Derby Pez León

Socio-Économie de la Pêche Rascasse Volante Derby

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EXTENDED ABSTRACT

Introduction

Throughout the western North Atlantic Ocean, Caribbean Sea, and the Gulf of Mexico, invasive Indo-Pacific lionfish (a complex of *Pterois volitans* and *P. miles*) have established dense populations, greatly impacting their host environments (Morris and Whitfield 2009).

Resource managers across the adopted range are working to develop strategies to minimize the destruction being caused by these fish. Lionfish tournaments – sometimes called “derbies” – have been an important tool in not only raising local awareness, especially within the recreational diving community, but also in suppressing local populations of lionfish (Green and Akins 2013). As understanding increases of the potential of these competitive events to control the lionfish population, they are becoming an increasingly important tool for resource managers and other concerned stakeholders.

The primary purpose of lionfish derbies is, of course, to make steps towards controlling the lionfish population. However, in addition to that purpose, there is an additional potential benefit of stimulating the local economy through derby-related expenditures by participants. Tournaments generally have the ability to attract visitors and their money to the communities where they are held, and lionfish tournaments are no different (Thailing et al. 2001). Five tournaments in Florida and the Bahamas were surveyed to learn about participant’s derby-related expenditures as well as their attitudes and fishing behaviors

Methods

The survey instrument consisted of 30 questions designed to gather information about tournament participants experience with lionfish derbies and tournaments, attitudes towards lionfish and how those have changed since first participating in a lionfish event, general fishing behaviors, tournament expenses, and demographics. The survey instrument was originally designed by Adam Nardelli (Nardelli et al. 2013).

A total of five lionfish tournaments were surveyed. Four were located in Florida (Pensacola, Clearwater, Key Largo, and Boca Raton) and one was in Green Turtle Cay, Bahamas. Participants were approached when they brought their fish to the weigh-in station and asked to complete the six and half minute survey.

Several efforts were made to ensure that the expenses represented here reflect the actual expenditures by individual anglers. For example, the survey text indicates that all expenses should be reported per person, rather than per boat. When issuing the instrument, the surveyor reminded the participant that each survey was for an individual and only costs personally incurred should be reported. In instances where the expenses were far higher than those of other participants in the same derby, the amount was divided by the number of members on the team.

Results and Discussion

Surveys were conducted at five tournament events and were administered to a total of 127 people. Derby events were varied in their location, size and, duration. Overall, there were trends showing an increase in lionfish knowledge, in time spent pursuing lionfish and in the skill with which lionfish were caught. Participants were primarily motivated by the desire to remove an invasive species from the reefs and spent approximately \$820 dollars to do so at these derbies.

Across all five tournaments, a total of \$98,992 was reported as being spent – only the 120 surveys that indicated an expenditure were counted in this analysis. The highest categories for expenditures overall were boat gas and oil (\$24,370), transportation to reach the event (other than automobile fuel) (\$18,655), and lodging (\$16,791). The top categories for number of participants were groceries with 85 (71%) respondents, boat fuel and oil with 80 (67%), and automobile fuel with 78 (65%) (Table 1).

The categories of expenditures that represented the largest percentage of the overall total were those that came from the segments of the participants that traveled in from out of town – lodging and transportation, which together comprised 40% of the total reported spent. Events that brought in the most amount of money had the highest percentage of visiting participants. Derbies that are looking to increase the economic contribution from their events might do well to promote the event outside of the host community.

This study shows that derby events are beneficial for the communities where they are held, not only due to the economic contributions, but also do to the increase in knowledge among participants. Managers can use this information to further encourage the creation of lionfish derby events which will, in turn, reduce the number of lionfish in the environment. An interesting direction for future research would be to compare the expenditures and general fishing attitudes of lionfish competitors versus anglers in other kinds of fishing tournaments. In addition, a comparison between derby and non-derby lionfish anglers could portray the behaviors of those that pursue lionfish outside of competitions. By obtaining this information, resource managers can better understand the differing motivations of these groups and use that information to potentially encourage higher levels of lionfish removals.

KEY WORDS: Lionfish, socioeconomics, tournaments

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Table 1. Summary of all expenses including number of participants with an expense in each category, the average per number of purchasers, the average per total number of respondents and the total expenditure across all surveyed events.

Expense Category	Participants	Average per purchaser	Average per respondent	Total
Car Fuel	78	\$56	\$33	\$4224
Rental Car	3	\$29	\$3	\$260
Other Transportation	25	\$279	\$152	\$18655
Boat Fuel	80	\$292	\$207	\$24,370
Dock Fees	6	\$64	\$6	\$735
Boat Repairs/Upgrades	3	\$135	\$7	\$950
Charter Boat Fees	24	\$277	\$35	\$3,645
Tank Fills	59	\$38	\$25	\$2,702
Collecting Gear	55	\$93	\$40	\$5,021
Lodging	31	\$305	\$141	\$16,791
Ice	62	\$24	\$10	\$1,244
Groceries	85	\$123	\$84	\$10,321
Restaurant Meals	56	\$104	\$67	\$8,447
Tips	36	\$38	\$12	\$1,405
Other	3	\$38	\$1	\$202