

An Example of Cooperation to Correct Commercial Fisheries Data-The Pound Net Fishery



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Alan Bianchi

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North Carolina Division of Marine Fisheries
3441 Arendell Street
P.O. Box 769
Morehead City, NC 28557

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ABSTRACT

The North Carolina Trip Ticket Program records the landings from all commercial trips that occur in North Carolina waters. However, this program is based on self-reporting. It relies on seafood dealers to submit data and to report the data accurately. It also relies on commercial fishermen and seafood dealers to communicate effectively with each other to make sure all data elements (gear used, license numbers, dates, species caught, quantity landed, etc.) are recorded correctly. Concerns were raised with the accuracy of data reported through the North Carolina Trip Ticket Program (NCTTP) after the North Carolina Marine Fisheries Commission (MFC) voted to implement a Southern Flounder (*Paralichthys lethostigma*) pound net quota during their fall business meeting in November 2015. Many commercial fishermen felt that their landings were incorrectly recorded as gill nets instead of pound nets. The MFC asked the NCTTP staff to look into these concerns. Data were compiled for each commercial fisherman who participated in the pound net fishery or who had a Pound Net Set Permit from 2011 to 2015. Compiled data were sent to each fisherman by certified mail for their review. Commercial fishermen were given two weeks from the time they received their letter to review their data and to provide documentation for any corrections. After applying the verified corrections, the total landings of Southern Flounder from pound nets from 2011 to 2015 increased by 4%, increasing from 3,338,739 pounds to 3,486,884 pounds. Since the pound net corrections simply shifted the allocation of landings by gear, the total Southern Flounder landings did not change. In reviewing the errors that occurred within the pound net fishery, most came from a breakdown in communication between the seafood dealer and commercial fisherman. In order to reduce future discrepancies and concerns, the NCTTP should continue to do outreach with seafood dealers and remind all parties how important it is to make sure trip ticket forms are filled out completely and accurately.

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1 INTRODUCTION

The North Carolina Trip Ticket Program (NCTTP) began 1 January 1994 (Lupton and Phalen 1996) and is the primary mechanism used to collect commercial fishery statistics for North Carolina. It is one of the most well-known trip ticket programs on the Atlantic Coast and is known for maintaining a high level of data quality. The NCTTP captures landings from sales of all commercial trips that occur within North Carolina waters. However, this program is based on self-reporting, meaning that it relies on seafood dealers to submit data and to report accurately. Seafood dealers are required to record every transaction with a commercial fisherman and can only purchase seafood from properly licensed commercial fishermen. Likewise, all properly licensed commercial fishermen in North Carolina can only sell their product to a licensed seafood dealer. Seafood dealers and commercial fishermen need to communicate effectively in order for the NCTTP to record accurate and correct data.

Data collected through the NCTTP is used to document trends in the commercial fishery (landings, ex-vessel value, and effort) and to help characterize the commercial fishery in North Carolina. The data is also used in state and regional stock assessments and fishery management plans. Potential impacts from various management strategies are also estimated with data collected by the NCTTP. Therefore, making sure accurate data are collected through the NCTTP is paramount.

Concerns were raised about the accuracy of data reported through the NCTTP after the North Carolina Marine Fisheries Commission (MFC) voted to implement a Southern Flounder (*Paralichthys lethostigma*) pound net quota during their November 2015 business meeting. The pound net quota was intended to reduce the Southern Flounder harvest from pound net gears by 38%. The pound net quota was also proposed to be split into six groups: Currituck, Albemarle, Hatteras, Ocracoke, North Core and South Core. Commercial fishermen were concerned that their trip tickets were incorrectly filled out by seafood dealers, which would have a potential impact on final quota determinations. Many commercial fishermen felt their landings were incorrectly recorded under gill nets instead of pound nets. The MFC asked the NCTTP staff to look into these concerns.

1.1 GOALS AND OBJECTIVES

The goal of the investigation was to determine if any data were incorrectly recorded and correct inaccuracies. The investigation had the following objectives:

- 1) Send commercial fishermen their trip ticket data for review;
- 2) Resolve and correct discrepancies;
- 3) Compile updated landings.

2 METHODS

Data in the NCTTP were compiled for the time frame of 2011 to 2015 for each commercial fisherman who had landings of Southern Flounder from pound nets or had obtained a pound net permit. To compile the data, the software package SAS[®] was used (SAS[®] 2004). The Data step and PROC SQL procedures were used to combine trip ticket and license data and the PROC Means procedure was used to summarize the data by commercial fisherman.

Data were then sent to commercial fishermen by certified mail for their review. A letter was also sent explaining why the data were sent and to contact the NCTTP if there were discrepancies in their data. Commercial fishermen were given two weeks from the time they received their letter to review their data and to provide documentation for any corrections. NCTTP staff then reviewed and verified the proposed corrections from commercial fishermen by consulting with corresponding seafood dealers, Marine Patrol officers, and Fisheries Management technicians. Once verified, the corrections were then recorded and applied to the NCTTP data.

3 RESULTS

The NCTTP compiled data for 163 pound net fishermen. On 27 May 2016, certified letters were mailed out to all 163 fishermen. The total postage for mailing the letters was \$1,226. The average postage per letter was \$7.52. Out of the 163 letters, 161 were either successfully delivered (154; 96%) or returned (7; 4%). The fate of the last two letters is unknown. The majority of letters were successfully delivered within one week (82%). However, some letters were not successfully delivered until two weeks or later. One letter was not delivered until 35 days after it was mailed (the maximum length it took for any of the certified letters to be delivered).

Shortly after the certified letters were sent, staff in the NCTTP received calls from concerned fishermen who asked why they were receiving the letter and what they needed to do. Staff in the NCTTP clarified the instructions and asked commercial fishermen to review the data sent to them and provide any documentation for data that was incorrect. Many commercial fishermen worked together and visited their seafood dealers and their local NCTTP port agents to review their data and determine if any corrections were needed. The NCTTP staff verified the corrections by consulting with Marine Patrol officers, as well as Fisheries Management staff, who worked in those areas.

The NCTTP received corrections for misreported data through June 2016. The last set of corrections were received on 1 July 2016. Out of the 163 commercial fishermen, 16 sent in verified corrections (10%). Most of the corrections were gear code changes, where gill nets were recorded as the gear fished as opposed to pound nets. Some corrections resulted in the reverse situation where pound nets were originally recorded when gill nets were the actual gear fished. Other changes included some inaccurate license numbers and species corrections.

After corrections, the total landings of Southern Flounder from pound nets for 2011 to 2015 increased by 4%. Total landings from the Southern Flounder pound net fishery during that

time period were originally reported as 3,338,739 pounds. Once the verified corrections were applied, the pound net landings of Southern Flounder increased to 3,486,884 pounds. The corrections resulted in an additional 148,145 pounds of Southern Flounder from pound nets over the five-year period. The increase in landings ranged from just over 1,000 pounds in 2011 to nearly 91,000 pounds in 2013 (Table 3.1). The total percent change was highest in 2013, nearly 10% (Table 3.1). The Albemarle Group saw the largest increase (22%) while the Currituck and Ocracoke groups didn't have any changes (Tables 3.2 to 3.7).

4 DISCUSSION

The NCTTP has a variety of data quality checks in place to ensure that the data reported on trip tickets is complete and accurate. These steps include a preliminary screening of all trip tickets submitted to make sure all fields are filled out correctly and that the data are legible, a double key-entry process that ensures data entry errors are determined and corrected, a warnings report review which involves the comparison of trip ticket data to customized reports that flag anomalous records, two six-month stage edit processes where trip ticket data are scrutinized by port agents to ensure the data are correct, and an analytical review by analysts who ensure all corrections have been applied. Even with numerous checks, the quality of the data that is submitted is highly dependent on seafood dealers to make sure they fill out trip tickets correctly and completely. The NCTTP also relies on the ability of seafood dealers and their office staff to communicate effectively with commercial fishermen. Without this effective communication in place, the quality of the data submitted through the NCTTP is considerably less.

Seafood dealers can increase communication with commercial fishermen by ensuring they provide commercial fishermen with copies of their completed trip tickets. Paper trip tickets are four-part forms: one part for the use of the seafood dealer, one part for the use of the commercial fisherman, and two parts for the use of the NCTTP staff. Seafood dealers who report electronically have the ability to print out a commercial fisherman's trip tickets from the NCTTP software. Seafood dealers and commercial fishermen can also use NCTTP dock tickets in case the seafood dealer's computer is not located at the unloading site. By having the dealers provide these forms, they can double check their landings totals with their own records. Commercial fishermen can also make sure all of the data fields are filled out correctly; for instance, making sure the correct gear codes were selected or the correct waterbody where the fishing activity occurred was recorded.

In reviewing the errors that occurred within the pound net fishery, most came from a breakdown in communication between the seafood dealer and commercial fishermen. In many instances, commercial fishermen were not given copies of their trip tickets but, instead, were given receipts or custom made dock ticket forms (not NCTTP dock ticket forms). These receipts and custom dock ticket forms only contained the total landings for the commercial fisherman and his payout by species. These receipts and custom dock ticket forms did not show the gear type or waterbody that was also reported on the trip ticket. Therefore, commercial fishermen did not realize that the wrong gear codes were being reported or that the data needed to be corrected until potential management measures were being considered. There were also times when commercial fishermen did not relay to their seafood dealers that they had a license change. In these cases, commercial landings were attributed to the incorrect fisherman. These types of

errors are very hard for the NCTTP staff to determine and correct, especially if the license is still valid but under another fisherman's name. Making sure that seafood dealers are using the correct license number is also in the best interest of commercial fishermen because of the possibility of creating quotas and aid programs in the future.

Another key component to the success of the NCTTP is the continued support and cooperation from the seafood industry. Staff in the NCTTP are constantly in touch with seafood dealers and commercial fishermen to help clarify and correct data that is anomalous. Without this cooperation, the trip ticket editing process would be much more difficult. This cooperation is essential when discrepancies arise and corrections are needed, such as what occurred with the pound net fishery. The NCTTP would have had a very difficult time determining these errors and getting the data corrected without the cooperation of the commercial fishing industry. With this cooperation, staff in the NCTTP were able to correct erroneous data reported for the pound net fishery and resulted in an increase in the 2011 to 2015 data by nearly 150,000 pounds.

In order to reduce future discrepancies and concerns, the NCTTP should continue to do outreach with seafood dealers and to remind them how important it is to make sure trip ticket forms are filled out completely and accurately. This includes making sure commercial fishermen license numbers are up to date. Reminders to seafood dealers can be placed in dealer reports that are produced twice a year by the NCTTP. Also, NCTTP staff, primarily port agents, can remind seafood dealers to double check their information. NCTTP staff can also remind seafood dealers that filling out trip ticket forms accurately is very important and to make sure that the correct species, gears, and waterbodies are selected because these data are used to help determine future management strategies. If needed, the NCTTP could develop an annual procedure to send commercial fishermen copies of their data for review and if discrepancies are noted they can be corrected. However, implementing such a procedure could become expensive to complete. Another enhancement that could be explored in the future is to develop an on-line portal that commercial fishermen and seafood dealers could have access to that would allow them to query their data based on a unique identifier and password. Currently, the NCTTP lacks the resources and funds to develop such a portal. In the meantime, commercial fishermen and seafood dealers are encouraged to request copies of their data at any time for their own personal review and to let the NCTTP know if there are any concerns or issues.

5 LITERATURE CITED

Lupton, B. Y. and P. S. Phalen. 1996. Designing and Implementing a Trip Ticket Program: Based on the North Carolina Experience. North Carolina Department of Environment, Health, and Natural Resources, Division of Marine Fisheries, Morehead City, NC.

6 TABLES

Table 3.1. Annual landings of Southern Flounder in the pound net fishery originally reported and after corrections were applied from 2011 to 2015.

Year	Original	Corrected	Change	% Change
2011	463,542	464,546	1,004	0.22
2012	548,883	569,388	20,505	3.60
2013	834,033	924,887	90,854	9.82
2014	828,046	860,216	32,170	3.74
2015	664,235	667,847	3,612	0.54
Total	3,338,739	3,486,884	148,145	4.25

Table 3.2. Annual landings of Southern Flounder Currituck Group pound net fishery originally reported and after corrections were applied from 2011 to 2015.

Year	Original	Corrected	Change	% Change
2011	0	0	0	0.00
2012	13,694	13,694	0	0.00
2013	35,136	35,136	0	0.00
2014	24,475	24,475	0	0.00
2015	31,052	31,052	0	0.00
Total	104,357	104,357	0	0.00

Table 3.3. Annual landings of Southern Flounder Albemarle Group pound net fishery originally reported and after corrections were applied from 2011 to 2015.

Year	Original	Corrected	Change	% Change
2011	17,959	15,747	-2,212	-14.05
2012	117,260	134,567	17,307	12.86
2013	91,907	180,457	88,550	49.07
2014	160,571	192,328	31,757	16.51
2015	105,578	105,891	313	0.30
Total	493,275	628,989	135,714	22.00

Table 3.4. Annual landings of Southern Flounder Hatteras Group pound net fishery originally reported and after corrections were applied from 2011 to 2015.

Year	Original	Corrected	Change	% Change
2011	73,755	73,755	0	0
2012	121,864	121,864	0	0
2013	119,494	119,494	0	0
2014	175,729	175,729	0	0
2015	95,241	95,263	22	0.02
Total	586,083	586,105	22	0.02

Table 3.5. Annual landings of Southern Flounder Ocracoke Group pound net fishery originally reported and after corrections were applied from 2011 to 2015.

Year	Original	Corrected	Change	% Change
2011	68,916	68,916	0	0
2012	94,673	94,673	0	0
2013	135,449	135,449	0	0
2014	116,580	116,580	0	0
2015	95,032	95,032	0	0
Total	510,650	510,650	0	0

Table 3.6. Annual landings of Southern Flounder North Core Group pound net fishery originally reported and after corrections were applied from 2011 to 2015.

Year	Original	Corrected	Change	% Change
2011	268,817	268,817	0	0
2012	177,594	177,594	0	0
2013	392,793	392,793	0	0
2014	300,901	300,901	0	0
2015	293,637	290,046	-3,591	-1.24
Total	1,433,743	1,430,151	-3,591	-0.25

Table 3.7. Annual landings of Southern Flounder South Core Group pound net fishery originally reported and after corrections were applied from 2011 to 2015.

Year	Original	Corrected	Change	% Change
2011	34,095	37,311	3,216	8.62
2012	23,798	26,996	3,198	11.85
2013	59,255	61,559	2,334	3.79
2014	49,790	50,204	414	0.82
2015	43,695	50,564	6,869	13.58
Total	210,663	226,632	15,969	7.05