

Science, Service, Stewardship



Health Insurance Coverage and Commercial Fishing in North Carolina

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Previous works from this data set:

Crosson, S. 2015. Anticipating exit from North Carolina's commercial fisheries. *Society & Natural Resources*. Forthcoming.

Crosson, S. 2011. Resistance to Alternative Management in Fisheries: Economic and Cultural Considerations of North Carolina's Commercial fishers. *Politics and the Life Sciences* 30 (2): 31-42.



Methods

Data from two sequential surveys conducted by the North Carolina Division of Marine Fisheries (DMF) + trip ticket totals

319 completed surveys, right before ACA passage

149 from inland-working fishermen (2010)

170 from ocean-working fishermen (2009)

“Do you have health insurance?” (binary)

if yes, “Who pays for it?” (**self**, other job, spouse plan, other)



If commercial fishing is *the most dangerous profession* (Janocha 2012), then ...

Are fishermen working in more dangerous areas and/or with more dangerous gear more likely to purchase health insurance?

Are fishermen with more to lose (higher fishing incomes, more capital wrapped up in gear) more likely to purchase health insurance?



Assumption:

fishermen would use the formula $RISK = PROBABILITY * CONSEQUENCE$ (Windle et al 2008) to assess the potential impacts of job-related injuries with and without health insurance coverage and make the tradeoffs of out-of-pocket costs vs potential benefits.



Increased probability: areas

Areas are the Atlantic Ocean or inland southern district (very nearshore).

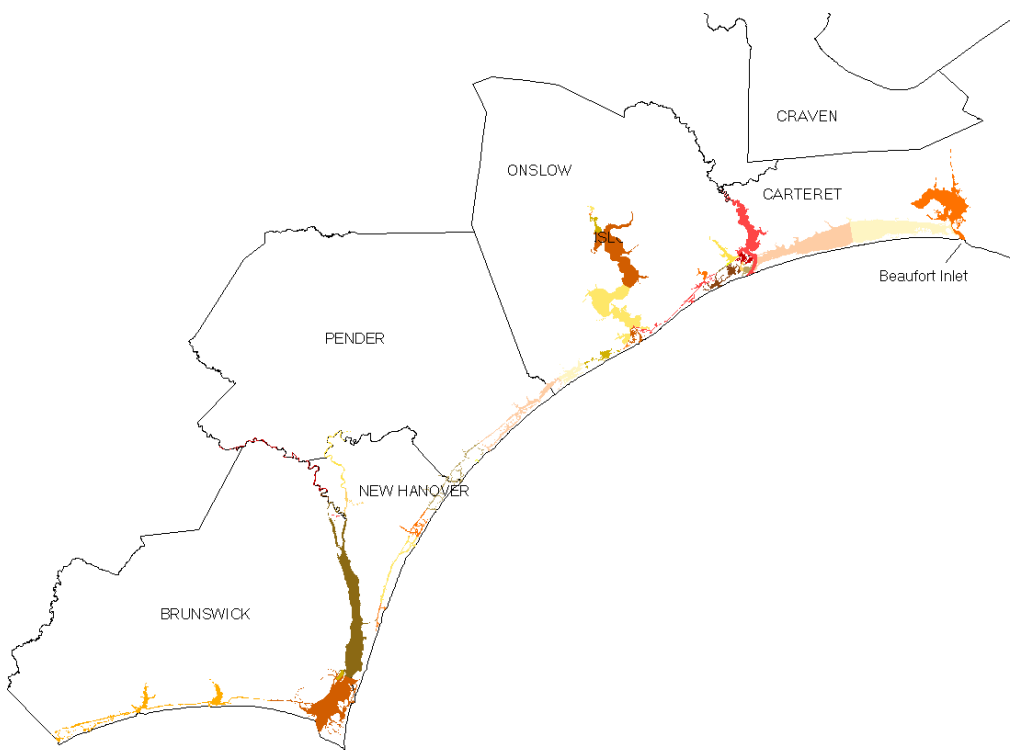
Increased probability: gears

Four most common gear types among respondents: crab pots, shrimp trawls, gill nets, and rod & reels.



Southern inshore district

Atlantic Ocean off North Carolina





Gear risks:

Thomas et al (2001): injuries were generally from falls on deck, entanglement in machinery, or being struck by an object (AK)

Marshall et al (2004): penetrating wounds from sea life & strained backs are common among NC commercial fishermen

Kucera et al (2010): injuries caused by knives, hooks, & other sharp objects are common among NC commercial fishermen



More on gears:

Lipscomb et al (2004): rod & reel have the highest injury rates among NC gears

Kucera et al (2009): significant lower back pain from the use of net reels and trap pulls, along with sorting the catch on board.



Increased consequences: lost catch

Catch value year of survey

Increased consequences: capital not being used

\$\$ tied up on gear and boats



Possible conflating variables

Age, as the overwhelming majority (78%) of fishermen who chose “other” as a source of coverage were age 65 or older and hence covered by Medicare

Household income expected to be positively associated with coverage

Marriage could make purchasing insurance unnecessary



Results

Fishermen working in the Atlantic Ocean environ were significantly more likely to have health insurance coverage (79%) than those working in the inland waterways (55%) ($p < .001$)

Difference is **DESPITE** higher age of inland fishermen (55) vs ocean fishermen (49) which means more are Medicare eligible. Inland fishermen were much more likely to note that they had health coverage provided from the “other category” (27%) than the ocean fishermen (7%) ($p < .001$).

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This suggests that fishermen working in ocean waters recognize their greater risk and are choosing to mitigate it by purchasing insurance.



Table 1. Comparison of means for responses to the binary variable (1=yes, 0=no) purchased own health insurance.

Variable	Mean (Standard Deviation)
Fishing with rod and reel (1 = yes, 0 = no)	0.34(0.47)*
Fishing with a shrimp trawl (1 = yes, 0 = no)	0.15(0.36)
Fishing with a gill net (1 = yes, 0 = no)	0.37(0.48)
Fishing with a crab pot (1 = yes, 0 = no)	0.08(0.27)
Fishing in the ocean (1 = yes, 0 = no)	0.53(0.50)***
Catch landings value	\$38,053 (\$86,343)***
Boat and gear value	\$86,922(\$176,655)***
Age	51.80(13.21)
Education (years)	12.19(2.83)**
Marital Status (1 = currently married, 0 = not currently married)	0.75(0.44)
Household income	\$43,076(\$29,189)***

Two-sample t-tests for differences in means for interval-level data, chi-square tests for independence for binary-level data indicated by *** $p < .001$, ** $p < .01$, * $p < .05$.



Probit regression for the binary DV *purchased own health insurance*.

Table 2. Determinants for the binary variable (1=yes, 0=no) purchased own health insurance.

Variable	Coefficient
Intercept	-2.5360***
Fishing with rod and reel	-.5448*
Fishing in the ocean	0.7193**
Catch landings value (units of \$10,000)	0.0378*
Boat and gear value (units of \$10,000)	0.0166*
Education	.0922**
Household income (units of \$10,000)	0.0497

Probit model results. Coefficient significance indicated by ***p<.001, **p<.01, *p<.05.



Primary drivers of purchasing health coverage are ocean fishing and a number of economic factors such as fishing business size, capital investment, and education.

Supports findings that working in the ocean causes higher injury rates due to fatigue (Jin et al 2001, Matheson et al 2001, Kurcera et al 2010)

Fishermen with higher fishing incomes and capital investments have more to lose from the consequences of injury (Smith and Wilen 2005)



Only gear choice that appears to be a factor is rod & reel, but negative? contrasts with Libscomb et al (2004) that found finfishing to be the highest injury-causing mode of commercial fishing in North Carolina due to repetitive baiting



Being a commercial fishermen is a risk factor for not having health coverage at all (Swartz et al 1993)

Commercial fishermen have often been ineligible to purchase many plans due to the insurance industry's perception of increased risk (Light et al 2001)

Because the passage of the ACA has likely reduced those costs, it will be worthwhile to do a longitudinal follow up in the near future to see if purchasing decisions have shifted.