

Economic Impact Analysis of North Carolina's Commercial Fisheries -- Commercial Harvesters Survey

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Study Objective

- To collect detailed information on NC commercial harvester costs and distribution channels to support the companion Economic Impact Analysis (EIA) study.
- One of four surveys supporting the EIA.
- Survey results tabulated statewide, by region for 3 regions (north, central, south), and by target species for 4 target species groups (crab, shrimp, shellfish, finfish).

Study Scope

- Focus on calendar year 2019
- Rather than average of years, because fishing activities from the most recent year would still be fresh in the minds of fishermen, and cost and price information would be the most recent.
- But, focus on a single year has the drawback that study results will reflect any unusual events that occur in the chosen year.
- Changing flounder regulations in 2019.
- Hurricane Dorian struck NC on September 6, 2019.
The survey collected info on harvester responses to hurricane Dorian
Actions taken by harvesters to protect fishing vessels
Numbers of missed fishing trips.

Study Scope

- Targeted all *active* NC commercial fishing license holders as of Nov. 27, 2019. (incl. SCFL, RSCFL, Shellfish License, Land and Sell)
- *Active* defined as: positive trip ticket sales between July 2018-Nov 2019.
- Of 5086 license holders, 2496 active. (96 of the 2496 were out of state)

Survey Methods

- Pre-survey postcard (Dec. 10, 2019)
- Survey mailed to all 2496 active (Febr. 21, 2020.) \$50 gift card incentive
- Follow-up post card (Mar 5, 2020)
- Follow-up 2nd survey mailing (Apr 23, 2020)

- COVID-19 pandemic reached North Carolina on March 3, 2020, perhaps reduced response rate.

- 566 Surveys returned out of 2496 mailed
- Survey Response Rate: $566/2496 = 22.7\%$

Survey Results -- Representativeness

- Harvester Age (date of birth)
- Harvester Gender
- Harvester Race/Ethnicity
- Geographic Region (region in which harvester is based)
- Harvester Vessel Length

- Gear Type and Target Species hard to assess, used Vessel Length as proxy

- Survey matched population well, except low out-of-state response and under-sampling of no vessel / small vessel length
- Survey results were weighted for vessel length to adjust for this under-sampling

Survey Results – Gear Types

Gear Type	Number of Survey Respondents
BEACHSEINE	4
CASTNET	4
CHANNELNET	6
CHANNELNET HAND	1
CRABPOT	136
CRABPOT GILLNET	1
CRABPOT GILLNET DREDGE	1
DREDGE	18
ELEC REEL	18
FISHPOT	6
FYKENET	1
FYKENET GILLNET CRABPOT	1
GIG	60
GILLNET	278
GILLNET CRABPOT	3
GILLNET HAND	1

Survey Results – Gear Types

Gear Type	Number of Survey Respondents
HAND	105
HOOPNET	5
LONGLINE	8
OYSTERCAGE	12
POUNDNET	49
RODNREEL	126
RODNREEL SPEAR	1
RUNAROUNDNET	8
SKIMMER	4
SPEAR	17
TRAWL	86
TRAWL HAND	3
TROLL	18
TROTLINE	2
TOTAL	983

Survey Results – Target Species

Target Species	Number Reporting
AMBERJACK	1
BAITFISH	1
BLACKDRUM	4
BLACKSEABASS	7
BLUECRAB	137
BLUECRAB FINFISH	2
BLUECRAB OYSTER	1
BLUEFINTUNA	12
BLUEFISH	17
BUTTERFISH	3
CATFISH	20
CLAM	38
CLAM OYSTER	3
CLAM OYSTER	1
COBIA	5
CONCH	1
CROAKER	6
CROAKER BLUEFISH	1

Survey Results – Target Species

Target Species	Number Reporting
DOGFISHSHARK	2
DOLPHIN WAHOO	1
EEL	2
FINFISH	27
FLOUNDER	130
FLOUNDER FINFISH	2
FLOUNDER HORSESHOECRAB	1
FLOUNDER KINGFISH SPANISHMACKEREL BSB	1
FLOUNDER KINGFISH SPOT	1
FLOUNDER SPANISHMACKEREL BSB	1
FLOUNDER STRIPEDWHITEMULLET WEAKFISH	1
FLUKE	2
GROUPEL	12
GROUPEL SNAPPER	4
HOGFISH	2
KINGFISH	19
KINGMACKEREL	40
KINGMACKEREL BLUEFINTUNA	1
MAHI	17
MENHADEN	2
MONKFISH	1

Survey Results – Target Species

OYSTER	77
OYSTER CLAM	3
POMPANO	2
REDDRUM	6
RIBBONFISH	2
RIBBONFISH CROAKER	1
SCALLOP	13
SHAD	6
SHARK	3
SHEEPSHEAD	15
SHRIMP	89
SHRIMP CLAM OYSTER	1
SHRIMP FINFISH	1
SHRIMP OYSTER	1
SNAPPER	7
SNAPPER GROUPER	4
SPANISHMACKEREL	27
SPECKLEDTROUT	15
SPECKLEDTROUT KINGFISH	1
SPOT BLUEFISH	
SPINYLOBSTER	2
SPOT	40

Survey Results — Target Species

Target Species	Number Reporting
SQUID	1
STONECRAB	1
STRIPEDBASS	17
STRIPEDBASS SHAD	1
STRIPEDWHITEMULLET	30
STRIPEDWHITEMULLET MENHADEN	1
SWORDFISH	5
TILE	1
TILEFISH	3
TRIGGERFISH	2
TRIGGERFISH BLACKSEABASS WAHOO GROUPER	1
TROUT FLOUNDER	1
TUNA	18
TUNA MAHI	1
VERMILLION	2
VERMILLION SNAPPER	2
WAHOO	12
WEAKFISH	25
WHITEFISH	1
WHITEPERCH	4
WHITEPERCH CATFISH STRIPEDBASS	1
WHITEPERCH	2
WHITING	2
YELLOWFIN TUNA	1
TOTAL	980

Survey Results – Regions

NC Coastal Region	NC Counties
1. North Coast	Bertie
	Camden
	Chowan
	Currituck
	Dare
	Hertford
	Hyde
	Pasquotank
	Perquimans
	Tyrrell
	Washington
2. Central Coast	Beaufort
	Carteret
	Craven
	Pamlico
3. South Coast	Brunswick
	New Hanover
	Onslow
	Pender
4. Other NC (non-coastal)	(all non-coastal)
5. Out of State	(NA)

Survey Results – Harvesters

Variable	N	Mean	Median	Minimum	Maximum	Mean Post-Stratified
Number of Respondents ¹	564					
YearsInHomeCommunity	541	35.24	35	1	81	34.94
YearBorn	562	1966.87	1966	1934	2002	1966.93
NumberAdults	530	1.84	2	0	7	1.83
NumberKids	504	0.76	0	0	5	0.76
YearsCommercialFishing	539	25.69	25	1	70	25.08
BusinessYearsInCommunity	519	21.46	19	1	83	20.68
PctCommFishIncome (percent)	513	51.13	50	1	100	47.94
CommFishIncomeCategory	535	3.76	3	1	9	3.47
OthWork1(\$)	536	27380.65	5500	0	750000	27002.19
OthWork2(\$)	535	1650.24	0	0	100000	1428.52
OthWork3(\$)	535	385.91	0	0	60000	289.45
NumberCFVRs	564	1.61	1	0	10	1.57

Mean = average value

Median = typical value (50% of respondents have a value larger than the median, and 50% have a value smaller than the median)

Mean Post-Stratified = weighted/adjusted average (weighted by vessel length)

Survey Results – Harvesters

Percentage of Respondent's Total Income 2019 From Commercial Fishing	Number of Respondents	Percent
0 percent--9 percent	112	21.75
10 percent--19 percent	53	10.29
20 percent--29 percent	41	7.96
30 percent--39 percent	22	4.27
40 percent--49 percent	11	2.14
50 percent--59 percent	50	9.71
60 percent--69 percent	17	3.30
70 percent--79 percent	20	3.88
80 percent--89 percent	18	3.50
90 percent--100 percent	171	33.20
Total	515	100.00

Survey Results – Harvesters

Commercial Fishing Income Category		Number of Survey Respondents	Percent
1	\$0 or lost money	74	13.78
2	\$1 to \$4999	109	20.30
3	\$5000 to \$14999	111	20.67
4	\$15000 to \$29999	75	13.97
5	\$30000 to \$49999	50	9.31
6	\$50000 to \$74999	43	8.01
7	\$75000 to \$99999	28	5.21
8	\$100000 to \$199999	28	5.21
9	\$200000 or more	19	3.54
Total		537	100.00

Survey Results – Vessels

Variable	N	Mean	Median	Minimum	Maximum	Mean Post-Stratified
YearVesselBuilt	534	1995.19	1995	1947	2019	1995.60
VesselLength(feet)	548	25.33	22	0	90	22.38
VesselHorsepower	518	217.61	150	10	3000	170.55
VesselRefrigeCapacity(lbs)	477	2811.30	0	0	500000	1811.58
YearsVesselOwned	469	12.54	10	1	51	12.28
VesselMktValue(\$)	473	100506.68	23000	0	6750000	74341.19
CrewSize	546	0.92	1	0	6	0.79

Survey Results – Trips by Month

Variable	N	Mean	Median	Minimum	Maximum	Mean Post-Stratified
JanTrips	428	4.39	0	0	31	4.70
FebrTrips	428	4.67	0	0	29	4.89
MarTrips	428	5.69	1	0	31	5.78
AprTrips	428	6.77	3	0	30	6.54
MayTrips	428	8.50	4	0	31	8.18
JunTrips	428	8.47	5	0	30	8.41
JulTrips	428	8.66	5	0	31	8.62
AugTrips	428	8.42	4.5	0	31	8.36
SepTrips	428	7.29	3.5	0	30	7.36
OctTrips	428	8.93	6	0	31	8.97
NovTrips	428	7.55	4	0	30	7.56
DecTrips	428	5.28	1	0	30	5.30

Survey Results – Sales by Month

Variable	N	Mean	Median	Minimum	Maximum	Mean Post-Stratified
JanSales (\$)	392	6564.00	0	0	492498	3871.97
FebrSales (\$)	392	4592.38	0	0	230326	2835.70
MarSales (\$)	392	5952.49	102.5	0	339195	3674.71
AprSales (\$)	392	7608.05	490	0	451072	4656.51
MaySales (\$)	392	9792.39	1000	0	494296	6141.93
JunSales (\$)	392	8368.67	825	0	369934	5337.16
JulSales (\$)	392	8262.89	950	0	504487	5194.30
AugSales (\$)	392	7092.93	800	0	329813	4558.18
SepSales (\$)	392	6129.61	600	0	261811	3927.12
OctSales (\$)	392	6828.34	1300	0	316193	4584.75
NovSales (\$)	392	7650.41	1000	0	360000	4789.58
DecSales (\$)	392	6019.79	0	0	329414	3685.89

Survey Results – Trip Costs

Variable	N	Mean	Median	Minimum	Maximum	Mean Post-Stratified
TripCost--Fuel (\$/trip)	449	442.55	40	0	27781	289.60
TripCost--Bait (\$/trip)	448	37.59	0	0	2000	26.67
TripCost--Ice (\$/trip)	449	37.40	0	0	1800	25.02
TripCost--Groc (\$/trip)	445	63.28	10	0	2850	41.10
TripCost--ExpGear (\$/trip)	440	34.91	10	0	2310	25.12
SharePctCrew	222	34.06	33	0	75	35.09

Survey Results

Vessel Fixed Costs (In-State)

Variable	N	Mean	Median	Minimum	Maximum	Mean Post-Stratified
NC Vessel Registration Fees (\$/yr) (VFC)	386	74.58	41.8	0	675	51.41
NC Vessel Loan Payment (\$/yr) (VFC)	380	4449.95	0	0	417800	2585.64
NC New Engine (\$/yr) (VFC)	380	2315.27	0	0	98000	1839.30
NC Engine Repair (\$/yr) (VFC)	380	2414.55	373	0	75000	1507.97
NC New Net Gear (\$/yr) (VFC)	380	1810.14	0	0	49979	1219.13
NC New Pot Gear (\$/yr) (VFC)	380	925.73	0	0	25000	771.85
NC New Line Gear (\$/yr) (VFC)	380	665.19	0	0	30000	379.33
NC Gear Repair (\$/yr) (VFC)	380	770.11	0	0	72354	516.07
NC New Electronics (\$/yr) (VFC)	380	712.69	0	0	26000	478.45
NC Electronics Repair (\$/yr) (VFC)	380	343.84	0	0	17900	195.31
NC Other Maintenance (\$/yr) (VFC)	380	1738.82	0	0	114000	1042.29
NC Boat Slip Rent (\$/yr) (VFC)	380	995.61	0	0	25000	671.05
NC Boat Yard (\$/yr) (VFC)	380	1083.47	0	0	75000	584.68
NC Vessel Cleaning (\$/yr) (VFC)	380	110.81	0	0	5000	75.76
NC Hull Insurance (\$/yr) (VFC)	380	880.93	0	0	25759	526.95
NC P&I Insurance (\$/yr) (VFC)	380	1132.13	0	0	46798.5	639.84
NC Property Tax on Vessel (\$/yr) (VFC)	385	636.70	114	0	36409.5	399.06

Survey Results

Vessel Fixed Costs (Out-of-State)

Variable	N	Mean	Median	Minimum	Maximum	Mean Post-Stratified
Other State Vessel Registration Fees (\$/yr) (VFC)	380	59.35	0	0	3708	34.77
Federal Vessel Registration Fees (\$/yr) (VFC)	380	32.58	0	0	1025	23.32
Out-of-State Vessel Loan Payment (\$/yr) (VFC)	380	80.10	0	0	26764.71	47.21
Out-of-State New Engine (\$/yr) (VFC)	380	73.68	0	0	28000	27.63
Out-of-State Engine Repair (\$/yr) (VFC)	380	1.53	0	0	402.9777	1.66
Out-of-State New Net Gear (\$/yr) (VFC)	380	124.61	0	0	36000	76.91
Out-of-State New Pot Gear (\$/yr) (VFC)	380	146.78	0	0	25777.78	116.78
Out-of-State New Line Gear (\$/yr) (VFC)	380	2.82	0	0	1000	2.16
Out-of-State Gear Repair (\$/yr) (VFC)	380	5.21	0	0	1980	4.15
Out-of-State New Electronics (\$/yr) (VFC)	380	85.80	0	0	22941.18	55.07
Out-of-State Electronics Repair (\$/yr) (VFC)	380	2.46	0	0	468	1.96
Out-of-State Other Maintenance (\$/yr) (VFC)	380	3.25	0	0	755.5831	3.30
Out-of-State Boat Slip Rent (\$/yr) (VFC)	380	0.86	0	0	327.4194	0.69
Out-of-State Boat Yard (\$/yr) (VFC)	380	0.00	0	0	0	0.00
Out-of-State Vessel Cleaning (\$/yr) (VFC)	380	0.00	0	0	0	0.00
Out-of-State Hull Insurance (\$/yr) (VFC)	380	64.21	0	0	5352.94	39.29
Out-of-State P&I Insurance (\$/yr) (VFC)	380	24.92	0	0	4800	18.40
Out-of-State Property Tax on Vessel (\$/yr) (VFC)	380	0.69	0	0	148	0.64

Survey Results

Business Fixed Costs (In -State)

Variable	N	Mean	Median	Minimum	Maximum	Mean Post-Stratified
NC Fishing Licenses (\$/yr) (BFC)	564	547.18	400	30	6000	507.21
NC Accounting (\$/yr) (BFC)	476	460.38	0	0	59505	340.50
NC Telephone (\$/yr) (BFC)	476	541.99	0	0	5000	476.44
NC Internet (\$/yr) (BFC)	476	208.90	0	0	3600	195.41
NC Office Equipment (\$/yr) (BFC)	476	178.06	0	0	50000	143.94
NC Office Rent (\$/yr) (BFC)	476	285.13	0	0	27600	215.40
NC Association Dues (\$/yr) (BFC)	476	110.60	0	0	5000	75.31
NC Truck Payment (\$/yr) (BFC)	476	1246.30	0	0	22200	1058.27
NC Health Insurance (\$/yr) (BFC)	477	111.17	0	0	17712	81.94
NC Retirement Plans (\$/yr) (BFC)	477	24.32	0	0	8000	12.35
NC Property Taxes (\$/yr) (BFC)	477	178.86	0	0	7800	175.93
NC Paid Labor On Shore (office, misc.) (\$/yr) (BFC)	477	462.12	0	0	90000	289.06
NC Other 1 (\$/yr) (BFC)	476	213.27	0	0	24000	162.40
NC Other 2 (\$/yr) (BFC)	476	50.29	0	0	15750	40.90
NC Other 3 (\$/yr) (BFC)	476	22.75	0	0	5910	18.86
Value of Non-Paid Family Labor (\$/yr) (Sub-component of ReturnsToOwner)	477	1290.35	0	0	60828	1058.44

Survey Results

Business Fixed Costs (Out-of-State)

Variable	N	Mean	Median	Minimum	Maximum	Mean Post-Stratified
Out-of-State Fishing Licenses (\$/yr) (BFC)	476	105.63	0	0	29000	70.40
Federal Fishing Licenses (\$/yr) (BFC)	476	106.38	0	0	8000	79.56
Out-of-State Accounting (\$/yr) (BFC)	476	1.05	0	0	500	0.85
Out-of-State Telephone (\$/yr) (BFC)	476	38.50	0	0	10811.72	31.59
Out-of-State Internet (\$/yr) (BFC)	476	8.26	0	0	1200	5.87
Out-of-State Office Equipment (\$/yr) (BFC)	476	2.09	0	0	996	1.70
Out-of-State Office Rent (\$/yr) (BFC)	476	0.00	0	0	0	0.00
Out-of-State Association Dues (\$/yr) (BFC)	476	1.47	0	0	300	1.19
Out-of-State Truck Payment (\$/yr) (BFC)	476	41.43	0	0	13000	56.28
Out-of-State Health Insurance (\$/yr) (BFC)	477	45.12	0	0	14400	57.32
Out-of-State Retirement Plans (\$/yr) (BFC)	477	28.59	0	0	6000	12.59
Out-of-State Property Taxes (\$/yr) (BFC)	476	0.00	0	0	0	0.00
Out-of-State Other 1 (\$/yr) (BFC)	476	0.00	0	0	0	0.00
Out-of-State Other2 (\$/yr) (BFC)	476	0.00	0	0	0	0.00
Out-of-State Other3 (\$/yr) (BFC)	476	0.00	0	0	0	0.00

Survey Results -- Distribution Channels

Statewide Average (n = 508)

Distribution Channel ¹	Percentage of Ex-Vessel Sales
Processors	51.02
Seafood Markets	22.70
Other NC Dealers (Intermediaries)	10.23
Final Retail Customers ²	16.04
Total	100.00

Survey Results -- Distribution Channels By Target Species

FINFISH (n = 156)

Distribution Channel ¹	Percentage of Ex-Vessel Sales
Processors	56.49
Seafood Markets	24.73
Other NC Dealers (Intermediaries)	2.75
Final Retail Customers ²	16.02
Total	100.00

SHRIMP (n = 69)

Distribution Channel ¹	Percentage of Ex-Vessel Sales
Processors	42.89
Seafood Markets	8.23
Other NC Dealers (Intermediaries)	8.03
Final Retail Customers ²	40.84
Total	100.00

BLUE CRAB (n = 135)

Distribution Channel ¹	Percentage of Ex-Vessel Sales
Processors	53.03
Seafood Markets	19.41
Other NC Dealers (Intermediaries)	11.82
Final Retail Customers ²	15.74
Total	100.00

SHELLFISH (n = 148)

Distribution Channel ¹	Percentage of Ex-Vessel Sales
Processors	47.22
Seafood Markets	30.32
Other NC Dealers (Intermediaries)	17.70
Final Retail Customers ²	4.77
Total	100.00

Survey Results – Distribution Channels By Region

REGION 01 (Northern Coast) (n = 145)

Distribution Channel ¹	Percentage of Ex-Vessel Sales
Processors	65.37
Seafood Markets	14.81
Other NC Dealers (Intermediaries)	9.48
Final Retail Customers ²	10.34
Total	100.00

REGION 02 (Central Coast) (n = 197)

Distribution Channel ¹	Percentage of Ex-Vessel Sales
Processors	56.50
Seafood Markets	12.06
Other NC Dealers (Intermediaries)	9.02
Final Retail Customers ²	22.42
Total	100.00

REGION 03 (Southern Coast) (n = 166)

Distribution Channel ¹	Percentage of Ex-Vessel Sales
Processors	29.57
Seafood Markets	48.08
Other NC Dealers (Intermediaries)	15.16
Final Retail Customers ²	7.20
Total	100.00

Survey Results – Harvesters' Responses to Hurricane Dorian

Response to Hurricane Dorian		Number of Survey Respondents	Percent
1	No action--The vessel remained in the water in its home port	88	17.39
2	I took the vessel out of the water, but it stayed in its home port	219	43.28
3	The vessel is typically not in the water, it remained on land in its home port area	118	23.32
4	I evacuated the vessel by sailing it to a different port	16	3.16
5	I evacuated the vessel by trailering/driving it to a different location	65	12.85
Total		506	100.00

Survey Results – Harvesters' Responses to Hurricane Dorian

Variable	N	Mean	Median	Minimum	Maximum	Mean Post-Stratified
Damage from Dorian(\$)	504	564.78	0	0	150000	679.78
Dorian Reimbursement from Insurance(\$)	504	13.10	0	0	3000	5.83
Dorian Reimbursement from Govt(\$)	504	12.10	0	0	5000	2.26
Missed Trips before Dorian struck	373	5.08	3	0	30	5.26
Missed Trips after Dorian struck	371	8.66	5	0	90	9.29

Thank you!

Questions? Comments?

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