

**HURRICANES IRMA AND MARIA DAMAGE ASSESSMENT:  
PROVISIONAL RESULTS FOR THE U.S. VIRGIN ISLANDS  
COMMERCIAL AND FOR-HIRE FISHERIES**



Photo: Daryl Bryan

60-day Interim Report  
National Oceanic and Atmospheric Administration (NOAA)

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## 1. INTRODUCTION

Hurricanes Irma and Maria struck Florida, Puerto Rico and the U.S. Virgin Islands (USVI) in September 2017. On February 9, 2018, the Secretary of Commerce declared a federal fisheries disaster in the Florida, Puerto Rico and the USVI, citing Magnuson–Stevens Fishery Conservation and Management Act (MSA) Section 315 and Interjurisdictional Fisheries Act (IFA) Section 308(d).

This report provides results from a rapid appraisal of impacts to fishing communities in the USVI from Hurricanes Irma and Maria; separate reports are being prepared for Puerto Rico and Florida. This report also serves as NOAA Fisheries (NMFS) 60 day assessment of impacts from these storms, a requirement for disaster declarations filed under MSA 315. More specifically, MSA 315 requires that within two months after a catastrophic regional fishery disaster, the Secretary of Commerce, through NOAA Fisheries, will provide the Governors of affected states (in this case USVI, Puerto and Florida) an economic and socio-economic evaluation of the affected region's fisheries using the best information available. The goals of this evaluation are to assess the impacts of Hurricanes Irma and Maria in affected communities in the USVI that are involved in commercial or charter fishing, and characterize the effects of the storm on fishing-related businesses and infrastructure.

This report is the 60-day assessment analysis of the impact of Hurricanes Irma and Maria in the U.S. Virgin Islands (USVI). The damage assessment underlying this report was conducted by the USVI Department of Planning and Natural Resources (DPNR), Division of Fish and Wildlife (DFW) with the assistance of the National Oceanic and Atmospheric Administration (NOAA). DFW staff surveyed commercial fishermen and charter vessel captains (including some who also commercially fish) and crew, and the owners of six fishing-related businesses such as marine supply and tackle shops between October 27 and November 30, 2017. A few additional surveys were completed in early 2018 by individuals who were unavailable in the fall.

Preliminary estimates from this study indicated that economic losses amounted to \$7,793,555 and that 39 jobs were lost, at least in the short term, for the commercial and for-hire fishing fleets. Additional losses were reported by the handful of tackle and marine supply stores interviewed, but we lack a sampling frame from which to extrapolate damages to the larger population.

## 2. BACKGROUND

The U.S. Virgin Islands (USVI) are a territory of the United States located in the southeastern Caribbean region, adjacent to another U.S. territory, Puerto Rico. The USVI consists of three primary islands (St. Thomas, St. John, and St. Croix) as well as a number of smaller islands, only one of which (Water Island) is inhabited. The population of the USVI was 106,000 according to the 2010 U.S. Census. As with many other Caribbean islands, the USVI has a tourism-dominated economy that is strongly tied to benefits provided by the tropical marine environment, including commercial and recreational fishing (Bureau of Labor Statistics 2014).

During the 2017 Atlantic hurricane season, the USVI islands were impacted by two major storms. On September 6, Category Five Hurricane Irma passed directly over St. John and St. Thomas. St. Croix is approximately 30 miles to the south and escaped Irma relatively unscathed. However, two weeks later on September 20, the eye of Category Five Hurricane Maria passed just offshore of the southwestern tip of St. Croix before turning north and crossing Puerto Rico. The combined effects of the two storms heavily impacted much of the territory's infrastructure, including that of the fishing industries. Significant damage was caused to fishing-related infrastructure, ports, docks, fishing businesses, vessels, and fishing gear. This report gauges the degree of damage to the commercial and charter fishing fleets.

### 2.1. USVI Fishing Industries and Coastal Communities

The USVI commercial fishing industry is relatively small and artisanal. Compared to much of the U.S. mainland, there is no dealer network, with most commercial fishermen harvesting their catch one day and selling it by the roadside the next, although a few fishermen do sell directly to restaurants and resorts (Fleming, Armentrout and Crosson 2017). The fleets are largely in St. Thomas and St. Croix, with a few fishermen still working from the much less populated St. John. The USVI charter fleet likewise works mostly from St. Thomas and St. Croix, predominantly the former due to its larger share of tourism traffic.

The islands of the USVI are small and, in a sense, entirely consist of coastal communities, with the ocean never more than a short drive away. Nonetheless, there are concentrations of commercial and charter fishing fleets on St. Thomas in the Frenchtown neighborhood of the USVI capital of Charlotte Amalie, on the north side of St. Thomas (particularly around Hull Bay and Magens Bay), and in the east end community of Red Hook. On St. Croix, the fleet is less concentrated, but there are concentrations near the towns of Christiansted on the northeast coast and Frederiksted on the west coast.

### 2.2. Importance of Fishing and Seafood Industries to the Territorial Economy

Economic data on the USVI is less extensive in comparison with the economic data available for mainland United States. As estimated by the Bureau of Economic Analysis (2014), the non-farm employment of the islands is approximately 39,000, with the domestic product estimated to be \$3.8 billion in 2013. Commercial fishing is a relatively small contribution, employing a few hundred fishermen and helpers between the islands and producing \$5 million worth of landings in the same year. IMPLAN data for the USVI is not available and NOAA has not completed any economic impact analyses for the area. Landings for recent years are below in Table 1.

Table 1. USVI Commercial fisheries landings, 2010-2015.

Year	Pounds	Value
2011	1,113,798	6,223,883
2012	904,200	5,423,043
2013	817,844	5,040,088
2014	813,367	5,100,884
2015	773,914	5,141,435

Recreational fishing statistics are not tracked by NOAA--there is no implementation of the Marine Recreational Information Program (MRIP) in the territory. Long-term recreational landings outside of sportfish tournaments are not available, nor are economic contribution estimates. The USVI Department of Planning and Natural Resources' Division of Fish and Wildlife recently implemented a recreational fishery data collection program utilizing logbooks distributed to charter vessels and recreational anglers and an online survey form for anglers to report their fishing effort and catch (<https://form.iotform.co/80293727553866>), in addition to the long-term data collection efforts at recreational tournaments.

A NOAA contractor completed a pilot study in 2016-2017 that finished data collection right before the hurricane impacts. There is no overall estimate of landings from this report, but the contracted samplers noticed a peak in landings in the beginning of the calendar year that corresponded with tourism visitation levels in the territory, with the lowest levels of fishing in late summer and early fall. The charter fleet was larger on St. Thomas and operated primarily out of the capital and Red Hook, and from Christiansted on St. Croix. Forty-four percent of respondents were visitors to the territory, and 56% were USVI residents. Visitors to St. Thomas spent an average of 7.3 nights on island and fishing for an average of 3.2 days. Only 8% of visitors came to St. Thomas to fish as their primary purpose, and they spent on average \$1,295.45 on their trip. Visitors to St. Croix spent two weeks or more on the island. No visitors came to St. Croix to fish as their primary purpose, and they spent on average \$1,979.10 on their trip (MER Consultants 2017).

### 3. METHODS

#### 3.1. Survey Design

The data used to conduct this impact assessment was gathered specifically to evaluate the economic and social impacts of the storm on the state using two different methods: a field survey and an online survey. The survey instrument was based on a rapid-assessment form that had previously been used by NOAA and several states to assess hurricane impacts on fishing businesses and communities. DFW adapted the form and added several questions to address local needs based on known fishing methods and gear usage in the islands. Copies of the survey forms can be found in Appendix A.

#### 3.2. Sampling Frames and Target Sample

The primary targeted population was members of the commercial and charter fishing fleets based in the islands of the USVI. Depending on availability, surveyors also tried to contact local fishing-related businesses such as tackle shops, marine supply stores and marinas. DFW staff utilized the commercial fishing databases to compile a list of licensed and active commercial fishers. DFW and NOAA do not license for-hire fishing charter operators in the USVI. However, DFW staff are familiar with most of the boats of the for-hire fleet, and a list of those was compiled for surveying.

#### 3.3. Survey Implementation

Implementation of the survey was advertised through a number of different formats: distributed flyers, social media and radio announcements, and government press conferences. DFW staff also spread word of the survey via personal contact with fishers and visits to businesses. No phones were utilized in the process, as phone service had not yet been restored to the Territory. Copies of the flyer are available as Figure 2 in Appendix A.

Surveyors (DFW staff) were available at spots in Hull Bay, Frenchtown, and Red Hook (at the DPNR Division of Fish and Wildlife office) on St. Thomas. On St. Croix, surveyors (DFW staff) were at the DPNR offices in Frederiksted and Center Island. Staff were stationed at the St. Croix locations three days a week (Mondays, Wednesdays, and Fridays) and staff were stationed at the St. Thomas locations four days a week (Mondays, Wednesdays, Fridays, and Saturdays). Additionally, DFW staff were present at a location in Cruz Bay, St. John, for two days to conduct interviews for St. John-based fishers. In total, DFW staff spent fourteen days on St. Thomas/St. John and nine days on St. Croix conducting surveys around the islands from mid-October to mid-November. Furthermore, staff were available to conduct surveys at the DFW offices on other days during the week during and after the main assessment period, to



accommodate fishers who were unable to attend any of the scheduled sessions at the aforementioned locations.

Affected parties were asked to bring as much documentation as possible about losses, such as the quantity, type, and location of lost and damaged gear, estimates on the value of damaged capital, and photographs documenting the damage. They were also asked to estimate the length of time they were not available to fish and potential revenues lost to that point, in comparison with the previous year's revenues. Commercial fishers and charter captains and crew who did not sustain lost or damaged gear, but suffered loss of income due to not being able to fish, were also encouraged to participate in the assessment. Staff recorded responses on survey forms and later entered them through an online interface, where they were stored in a database. Some fishers did not have complete information at the time of the interviews, and later returned to meet with DFW staff to update their information, for example after receiving quotes to repair damaged vessels and gear.

Since some fishers had needed to leave the islands during the time of interviewing or otherwise had been unavailable, an online form was set up to collect late responses. Those responses were later added into the primary database as well.

## 4. RESULTS

### 4.1. Characteristics of the sample

DFW staff surveyed 92 commercial fishers and 18 charter captains. The latter group includes five charter captains who also commercially fish. For the purpose of this analysis, respondents who categorized themselves as both charter and commercial fishers were placed into the charter category.

Most (84%) of the commercial fishers considered themselves to be full time, as did 83% of the charter fishers. Most (93%) reported themselves as the business owner. A majority (66%) of the respondents resided on St. Thomas, with 31% on St. Croix and the remaining 3% on St. John. Results from St. John are added to those of St. Thomas unless otherwise noted in the report (the two islands are managed as one unit).

Six fishing-dependent businesses were surveyed, including two bait and tackle shops, four marine supply stores, and one marina. DFW staff visited two additional marinas, but the marina staff declined to participate in the assessment, citing the need to first contact corporate representatives. DFW staff provided their contact information to marina staff, but received no further communication regarding the survey.

## 4.2. Impact from Maria and Irma

### 4.2.1. Economic losses incurred by commercial fishermen

DFW records currently list 104 licensed and currently registered commercial fishers on St. Thomas/St. John and 112 on St. Croix. However, not all of these licensed fishers are regularly active in commercial fishing. The number of active commercial fishers is considerably smaller-- DFW records indicate there were 64 active fishers on St. Thomas/St. John and 88 on St. Croix in 2016. We defined "active" as licensed and registered fishers who fished for at least 3 months out of the year. Fishers who do not engage in commercial fishing activity for an entire month are required to turn in a report to DFW stating that they did not fish for that month. Fishers who submitted "did not fish" reports for at least nine months out of the year were not considered to be "active" for the purpose of this assessment. However, all fishers, whether active or inactive, were encouraged to participate in this assessment.

We estimated losses differently for active and inactive fishers. To estimate capital losses (boats, gear, infrastructure, and other damages) for the fleet, we multiplied the average loss per respondent fishers by the number of *registered* fishers on that same island in the rapid assessment. To estimate lost income, we multiplied the average estimated loss per respondent fishers by the number of *active* fishers on that same island. Insurance was nearly non-existent for the fishers, but we did deduct the small amount that covered part of the losses of one of the fishers.

This produced estimated total capital losses of \$3,147,164 and lost revenue of \$485,641, which produces total losses of \$3,632,806 at the time of surveying, for St. Thomas and St. John. These results are shown in Table 2.

Table 2. Estimated losses of the St. Thomas and St. John commercial fishing fleet.

Loss Category	Number impacted	Average loss	Total loss	Share of total loss
Vessel damage	104	\$11,167	\$1,161,383	32%
Gear damage	104	\$15,509	\$1,612,898	44%
Facilities damage	104	\$1,478	\$153,732	4%
Other damage	104	\$2,107	\$219,150	6%
Lost income	64	\$7,588	\$485,641	13%
Total economic loss			\$3,632,806	
Number of jobs lost			22.3	

This also produced estimated total capital losses of \$1,473,815 and lost revenue of \$674,850, which produces total losses of \$2,148,665 at the time of surveying, for St Croix. These results are shown in Table 3.

Table 3. Estimated losses of the St. Croix commercial fishing fleet.

Loss Category	Number impacted	Average loss	Total loss	Share of total loss
Vessel damage	112	\$4,212	\$471,699	22%
Gear damage	112	\$7,639	\$855,600	40%
Facilities damage	112	\$156	\$17,500	1%
Other damage	112	\$1,152	\$129,017	6%
Lost income	88	\$7,669	\$674,850	31%
Total economic loss			\$2,148,665	
Number of jobs lost			10.6	

Job losses were moderate. To estimate loss of crew positions, we initially multiplied the change in average crew size per commercial fishing operation (as noted on the survey) by the number of active fishermen on the same island. However, with many boats not running and most crew members paid under some sort of share system rather than formally employed with wages, the actual lost positions is undoubtedly higher. When captains cannot fish, crews do not get paid, notwithstanding reported job losses. Interviewers noted that most individuals interviewed reported the number of crew they will use once they are back to fishing again, not the number working at the time of the interview. For that reason, we decided to recalculate job losses based on the total number of jobs pre-storm and the time vessel owners reported it would take to return to fishing (up to one year). This would result in the number of annual job equivalents that would be lost. These job losses are temporary – most jobs will be recuperated once vessels return to fishing. Based on this approach we have calculated 22.3 job losses for St Thomas and St John, and 10.6 losses for St Croix, for a total of 32.9 full time equivalents (FTEs).

#### 4.2.2. Economic losses incurred by charter operations

DPNR does not license charter operations in the territory, so official numbers are not available for comparison regarding the larger license frame that respondents are representing. However, DPNR staff is aware of at least 27 active charter operations on St. Thomas/St. John, and at least 14 on St. Croix. As with commercial fishermen, we multiplied the average loss per charter operation by the estimated number of total charter operations on that same island in the rapid assessment. To estimate lost income, we did the same, assuming that all charter operations are actively engaged when defining the charter frame.

This produced estimated total capital losses of \$1,151,604 and lost revenue of \$533,230, which produces total losses of \$1,684,834 at the time of surveying, for St. Thomas and St. John. These results are shown in Table 4.

Table 4. Estimated losses of the St. Thomas and St. John charter fleet.

Loss Category	Number impacted	Average loss	Total loss	Share of total loss
Vessel damage	27	\$35,438	\$956,824	57%
Gear damage	27	\$5,321	\$143,660	9%
Facilities damage	27	\$287	\$7,740	0%
Other damage	27	\$1,607	\$43,380	3%
Lost income	27	\$19,749	\$533,230	32%
Total economic loss			\$1,684,834	
Number of jobs lost			5.3	

This also produced estimated total capital losses of \$50,750 and lost revenue of \$276,500, which produces total losses of \$327,250 at the time of surveying, for St. Croix. These results are shown in Table 5.

Table 5. Estimated losses of the St. Croix charter fishing fleet.

Loss Category	Number impacted	Average loss	Total loss	Share of total loss
Vessel damage	14	\$3,625	\$50,750	16%
Gear damage	14	\$0	\$0	0%
Facilities damage	14	\$0	\$0	0%
Other damage	14	\$0	\$0	0%
Lost income	14	\$19,750	\$276,500	84%
Total economic loss			\$327,250	
Number of jobs lost			.5	

Job losses in the charter sector were calculated as in the commercial fishing sector, multiplying crew size by estimated time to return to fishing. This generated estimates of 5.3 FTEs lost on St Thomas and St John, and .5 FTE lost on St Croix.

#### 4.2.3. Economic losses incurred by tackle and marine supply shops

We do not have estimates for the sampling frame for the number of marine-related affected businesses in the USVI. However, we did survey six tackle shops and marine supply stores, which reported a total of \$242,392 in damages to (in decreasing order) the facility, equipment/supplies, and bait. Since only one marina was surveyed and responses were confidential, the marina's economic losses are not included in this report. All of the businesses had reopened quickly after the storms, but reported 7 fewer employees overall, so report that

number for an FTE lost estimate rather than the format we used for the commercial and charter fishing fleets.

## 5. CONCLUSIONS

This report provides provisional damage estimates for the commercial and charter fishing fleets of the United States Virgin Islands from the combined effects of Hurricanes Irma and Maria in September 2017. The responses of 110 owners and crew were broken down by sector and island group, then scaled up to estimate damages for their respective fleets. Total damages are projected to have been \$7,793,555 and 39 jobs were lost, at least in the short term. An additional \$242,392 in damage were reported by the six tackle and marine supply shops interviewed, with another seven jobs lost and over one million dollars in lost business, but these numbers were not scaled to represent all of the potentially affected marine-related businesses.

Table 6. Summary of losses by category and island.

Loss Category	St. Thomas / St. John	St. Croix
Total Damages by Sector		
Commercial Fishing Fleet Damages	\$3,147,163	\$1,473,815
Charter Fishing Fleet Damages	\$1,151,604	\$50,750
Marine Businesses Damages	\$242,392	
Income Losses by Sector		
Commercial Fishing Fleet Lost Income	\$485,641	\$674,850
Charter Fleet Lost Income	\$533,230	\$276,500
Marine Businesses Lost Income	\$1,216,232	
Job Losses by Sector		
Commercial Fishing Job Losses	22.3	10.6
Charter Fishing Job Losses	5.3	.5
Tackle Shops & Marine Supply Job Losses	7	

The estimates are likely to be underestimating the full extent of economic losses for two reasons. First, the estimates for lost income and wages are only for the time period up to the respondents' answering the survey, which was in the months immediately following the storm. Large portions of the islands suffered significant infrastructure damage that impaired both the local population and the tourist sector. This affected the markets for commercial seafood by

residents and tourists, and affected the volume of clients available to charter boats from the for-hire fleet. Further estimates of losses and the rebound of the fleets will take further study. Second, due to the limits in the number of respondents and sampling frame, we do not have estimates for impacts of all of the related marine sectors like tackle shops (some of which are only partially selling bait and tackle) and marinas.

## 6. REFERENCES

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## 7. APPENDIX A: Survey results

In total, 93 commercial fishermen (61 on St Thomas and St John, 32 on St Croix) and 17 charter operators (15 on St Thomas and St John, 2 on St Croix). Only seven of the respondents indicated that they were not the owners of the business. Economic losses reported from respondents are reported below in Table 6.

Table 7. Total estimated economic losses from respondents

		Vessel	Gear	Buildings	Other	Lost income	Total
St. Croix	Charter	\$7,250	\$0			\$39,500	\$46,750
	Comm.	\$134,771	\$244,457	\$5,000	\$36,862	\$245,400	\$666,490
	Total	\$142,021	\$244,457	\$5,000	\$36,862	\$284,900	\$713,240
St. Thomas	Charter	\$531,569	\$79,811	\$4,300	\$24,100	\$296,239	\$936,019
/ St John	Comm.	\$681,196	\$946,027	\$90,170	\$128,540	\$462,877	\$2,308,810
	Total	\$1,212,765	\$1,025,838	\$94,470	\$152,640	\$759,116	\$3,244,829
Total	Charter	\$538,819	\$79,811	\$4,300	\$24,100	\$335,739	\$982,769
	Comm.	\$815,967	\$1,190,484	\$95,170	\$165,402	\$708,277	\$2,975,300
	Total	\$1,354,786	\$1,270,295	\$99,470	\$189,502	\$1,044,016	\$3,958,069

Table 8. Percentage of respondents reporting losses by category.

		Vessel	Gear	Buildings	Other	Lost income
St. Croix	Charter	50%	0%	0%	0%	100%
	Comm.	81%	69%	3%	66%	93%
St. Thomas	Charter	53%	67%	20%	40%	100%
/ St John	Comm.	75%	72%	33%	57%	91%



Table 9. Reported gear damages by gear type.

Type	# times reported
Traps	52
Line fishing gear	21
Electronics	17
Buoys	9
Coolers, freezers, ice machines	8
Nets	8
Safety gear	8
Rope	7
Boat gear	7
Spearfishing gear	6
Other	2

Table 10. Reported gear damages information for traps.

	St. Thomas/ St. John	St. Croix
# fishers who reported damaged or lost traps (fish, lobster, or both)	25	12
Avg. cost per trap	254	381
Avg. # traps lost	130	33
Total # reported lost or damaged traps	3256	396

## 8. APPENDIX B: Survey forms



Figure 1. Map of the U.S. Virgin Islands.



# **COMMERCIAL & CHARTER FISHERS:**



The Division of Fish and Wildlife (DFW) will be assessing hurricane damages sustained to fishing gear and boats used in the commercial and charter fishing industries, as well as damages sustained to fishing-related businesses (marinas, bait & tackle shops, etc.).

DFW staff will be available at the locations below to record your damages and losses following Hurricanes Irma and Maria.

Please bring as much information as possible about your losses, including:

- Quantity and location of lost or damaged gear (# of fish traps, nets, rods, etc.)
- Value of lost or damaged gear and equipment (e.g., cost per trap, cost of damages to boats, engines, ice machines, freezers, scales, etc.)
- Length of time you were not able to fish & revenue lost due to your damages
- Please bring receipts and photographs if possible to support your claims

## **ST. THOMAS/ST. JOHN SCHEDULE**

HULL BAY	Mondays (10/30, 11/6, 11/13)	10 am - 2 pm
FRENCHTOWN	Wednesdays (11/8, 11/15)	9 am - 12 pm
	Saturdays (10/28, 11/4, 11/18)	2 pm - 5 pm
DFW OFFICE (RED HOOK)	Fridays (10/27, 11/3, 11/10, 11/17)	10 am - 2 pm
CRUZ BAY, ST. JOHN (Location TBD)	Thursday 11/2 & Tuesday 11/7	10 am - 1 pm

## **ST. CROIX SCHEDULE**

DFW OFFICE (F'STED)	Mondays (10/30, 11/6, 11/13)	10 am - 2 pm
	Fridays (10/27, 11/3, 11/10, 11/17)	12 pm - 4 pm
DPNR ENFORCEMENT	Wednesdays (11/8, 11/15)	10 am - 2 pm

Figure 2. Advertisement for survey respondents.

**DATA FORM: COMMERCIAL FISHING — FOR-HIRE VESSELS**

VESSEL NAME: \_\_\_\_\_ (check one) Charter:  Harvester  Interviewer: \_\_\_\_\_ Date: \_\_\_\_\_

Interviewee: \_\_\_\_\_ Phone # \_\_\_\_\_ Address: \_\_\_\_\_  
 (check one) Owner:  Crew:  City/ST: \_\_\_\_\_

**VESSEL DAMAGES**

Total number of commercial fishing vessels or for-hire boats owned?

Was your vessel damaged by Irma or Maria (Y/N)?

--If no, record a \$0 /0% damage below and skip to "Gear Loss & Damages"  
 --If yes, ask for estimate of damages and insurance coverage for all vessels; if unable to provide in \$ terms, ask to provide percentage (50% damaged? Totaled or 100% damage?)

Primary Vessel Damages / Insurance				Vessel #2 Damages				Vessel #3 Damages				Vessel #4 Damages			
Damages		Insurance Coverage		Damages		Insurance Coverage		Damages		Insurance Coverage		Damages		Insurance Coverage	
\$	%	\$	%	\$	%	\$	%	\$	%	\$	%	\$	%	\$	%

**GEAR LOSS & DAMAGES (Includes losses/damages of gear deployed at sea as well as gear in storage. Record each gear type. )**

Did you have any gear loss or gear damages from Irma or Maria? (Y/N)

--If no, record a \$0 /0% damage below and skip to Building and/or Other Facilities  
 --If yes, ask for estimate of damages or loss; if unable to provide in \$ terms, ask to provide percentage (50% damaged/lost? 100% damaged or lost?)

Gear 1:				Gear 2:				Gear 3:				Gear 4:			
Damage/Loss		Insurance Coverage		Damage/Loss		Insurance Coverage		Damage/Loss		Insurance Coverage		Damage/Loss		Insurance Coverage	
\$	%	\$	%	\$	%	\$	%	\$	%	\$	%	\$	%	\$	%

**BUILDING and/or OTHER FACILITY DAMAGES:**

Do you own or lease buildings and/or other facilities (e.g., for charter vessel, a pier or dock) related to your fishing operations (Y/N)?

If yes record damages and insurance information. If no, move to Damages (Other)

Damages (Bldgs.)		Insurance Coverage		Damages (Other)		Insurance Coverage	
\$	%	\$	%	\$	%	\$	%

**FISHING / OPERATING STATUS**

Which fishery do you usually operate in at this time of year? (List all that apply) \_\_\_\_\_

Since Irma & Maria, are you back to fishing (Y/N)?  If yes, what date did you start back to fishing? \_\_\_\_\_

If no, how long do you think it will be until you will be able to return to fishing? Complete one: Weeks  Months

What prevented you from continuing to fish? (check all that apply) Damaged Vessel/Gear  Access to: Fuel  Bait  Ice  Other \_\_\_\_\_

Have you switched landing port because of Irma or Maria? (Y/N)

Have you switched fishery because of Irma or Maria? (Y/N)  Do you earn less in this fishery (Y/N)?

Relative to last year, how much fishing revenue have you lost to date because of Irma and Maria? (Lost revenue includes fishing for a less valuable specie \$ \_\_\_\_\_)

**NON-FISHING EMPLOYMENT** NUMBER OF CREW - PRIMARY VESSEL (include captain)

Are you a full-time fisherman (Y/N)?  Pre-Storm:  Post-Storm:

Figure 3. Commercial or charter fishing operation survey form.

**DATA FORM: FISHING-RELATED BUSINESS**

FIRM NAME \_\_\_\_\_ Interviewer: \_\_\_\_\_ Date: \_\_\_\_\_

Firm Type: Processor  Dealer  Fuel  Ice  Marine Supply  Marina  Bait and Tackle   
 (check all that apply):  
 OTHER FIRM TYPE: \_\_\_\_\_

Interviewee: \_\_\_\_\_ Phone: \_\_\_\_\_

Address: \_\_\_\_\_

**STRUCTURAL DAMAGE**

Was your business or facility damaged by Irma/Maria (Y/N)?

--If no, record a \$0 /0% damage below and skip to "Operating Status"  
 --If yes, ask for estimate of damages; if unable to provide in \$ terms, ask to provide percentage (50% damaged? Totaled or 100% damage?)  
 --Next, ask about damages to contents, seafood or bait, and/or pier or dock damages

Business/Facility Damages & Insurance				Seafood or Bait Losses & Insurance				Equipment & Other Merchandise Losses				Pier or Dock Damages & Insurance			
Damages		Insurance Coverage		Damages		Insurance Coverage		Damages		Insurance		Damages		Insurance Coverage	
\$	%	\$	%	\$	%	\$	%	\$	%	\$	%	\$	%	\$	%

**OPERATING STATUS**

Was your business closed after Irma or Maria? (Y/N)

--If no, skip to Number of Employees  
 --If yes, when did you re-open / when do you think you will re-open? Date Re-opened: \_\_\_\_\_  
 Expected Time to Re-opening: Weeks  Months

If a seafood processor or dealer, are you now handling lower value and/or less profitable species because of Irma and Maria (Y/N)?

Relative to last year, how much revenue have you lost to date because of Irma and Maria? If a seafood processor or dealer, include lost revenue from handling lower value species. \$ \_\_\_\_\_

**NUMBER OF EMPLOYEES**

Pre-Storms:  Post-Storms:

Notes:

Figure 4. Fishing-related business survey form.