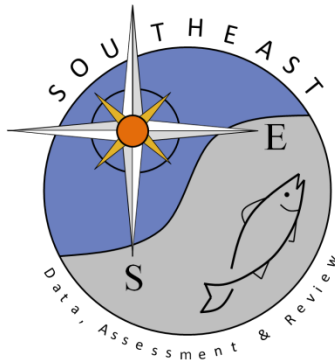


Building a Timeline of Major Socioeconomic Events Affecting Lobster Fisheries in St. Croix USVI

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Building a Timeline of Major Socioeconomic Events Affecting Lobster Fisheries in St. Croix USVI

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Introduction

In this working paper we summarize socioeconomic events that potentially influenced spiny lobster landings in St. Croix. Figure 1 provides a general timeline of the events identified thus far. The events are sorted into 3 categories: economic, environmental, or regulatory. Some details regarding how each event affected the lobster fishery are included in Tables 1-3. The information summarized in this working paper is intended to serve as a starting point for further discussion of major events. After the SEDAR 57 Data Workshop (June 20-22 2018), this pre-decisional draft working paper should be updated to highlight the most significant events and elaborate on how they affected the spiny lobster fishery of St. Croix.

In addition to summarizing major socioeconomic events, we compiled time series of quantitative socioeconomic indicators. Table 4 includes the monthly unemployment rate for St. Croix (US Virgin Islands Department of Labor 2018). The monthly unemployment time series is also plotted in Figure 2.

Conclusion

Stock assessments conducted through the SEDAR framework in the US Caribbean traditionally do not incorporate quantitative socioeconomic data. However, documenting major socioeconomic events is useful as it provides supplemental information that can be used to better interpret changes observed in the spiny lobster fishery of St. Croix. Additionally, by expanding and elaborating on the events summarized here, this document will help identify key socioeconomic events and indicators that can be used to quantitatively investigate responses observed in the fishery data that are related to major socioeconomic events.

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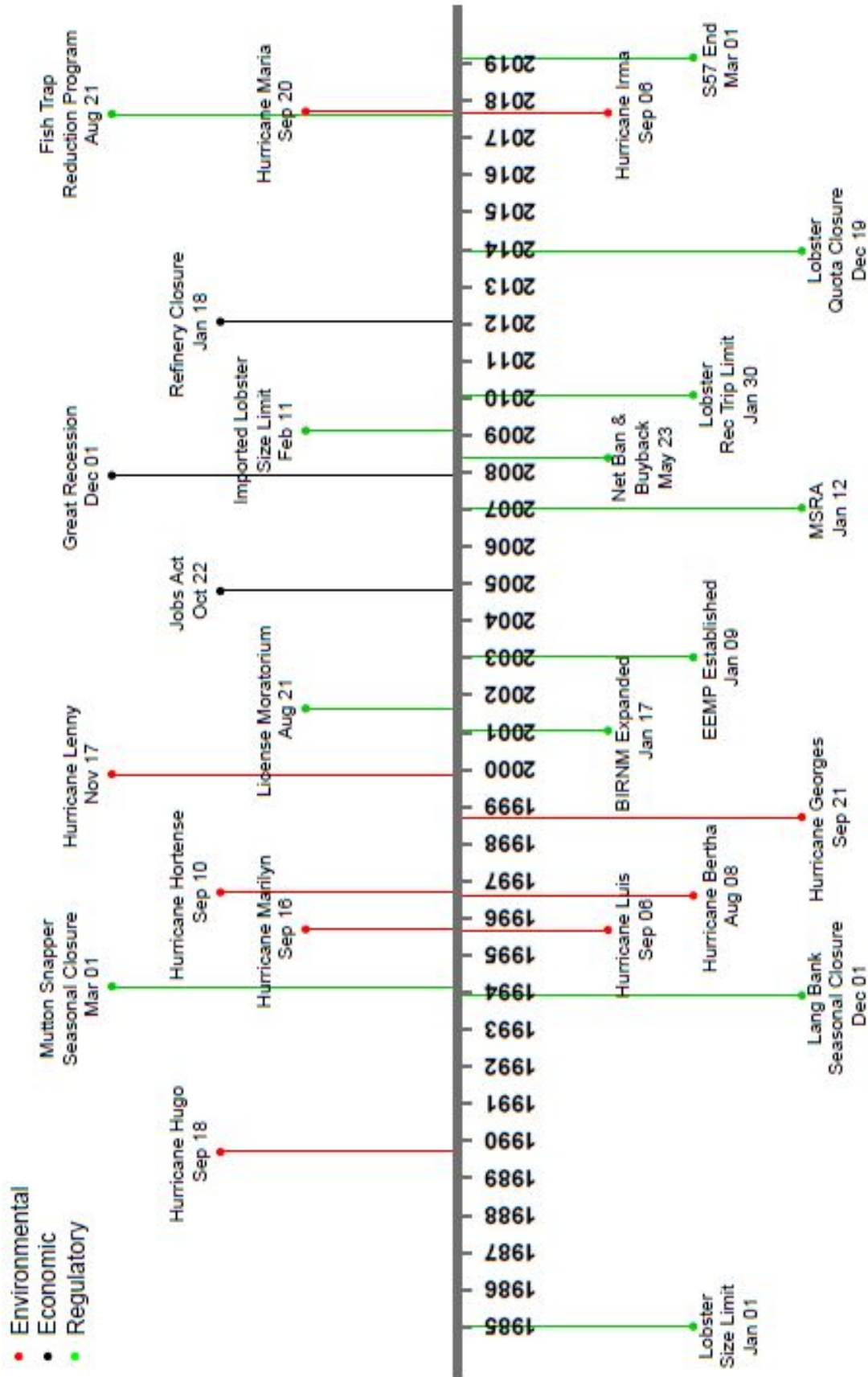


Figure 1. Timeline of Major Socio-Economic Events Affecting Lobster Fisheries in St. Croix from 1985 to present.

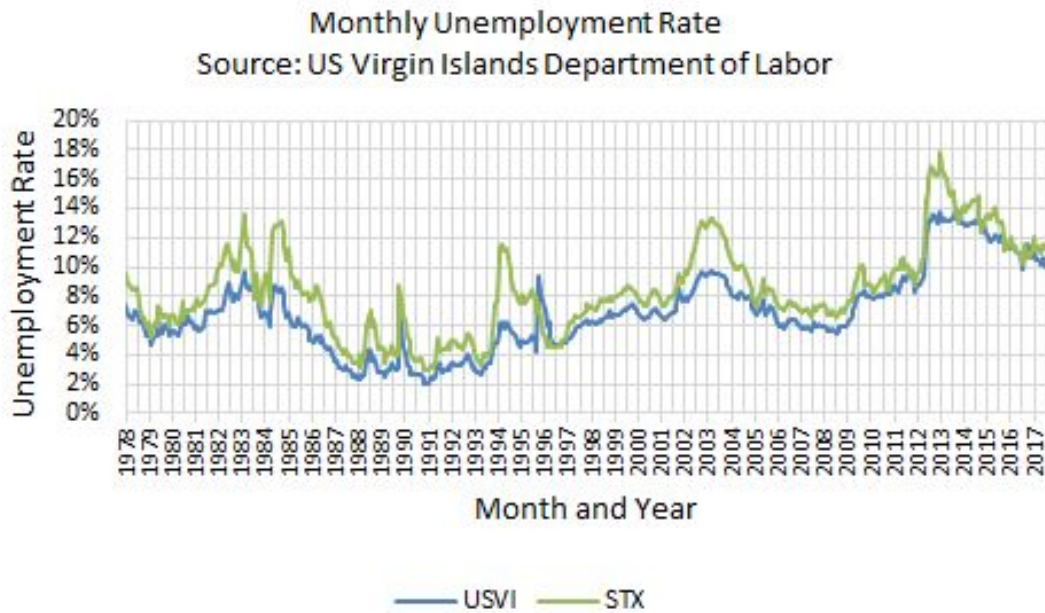


Figure 2. Rate of unemployment by month in the USVI and in St. Croix (STX). Source: US Virgin Islands Department of Labor 2018.

Table 1. Major economic influences to the lobster fisheries in the United States Virgin Islands.

Region	Year	Event
USA	2004	Jobs Act. The Jones Act negatively impacted the USVI economy by increasing residency and income restrictions associated with tax exemptions, (U.S. Virgin Islands Bureau of Economic Research 2014).
Global	2007	Great Recession. Economic difficulties were made worse by declines in tourism market related to the world financial crisis (U.S. Virgin Islands Bureau of Economic Research 2014).
St. Croix	2012	Refinery Closure. Closure of HOVENSA's Petroleum Refinery, the largest private sector employer and tax-payer (U.S. Virgin Islands Bureau of Economic Research 2014).

Table 2. Major environmental influences to the lobster fisheries in the United States Virgin Islands.

Region	Year	Event
St. Croix	1989	Hurricane Hugo. Fishers in St. Croix stated reefs degradation was primarily due to hurricanes damaging reefs and pollution (Kojis and Quinn 2006).
	1995	Hurricane Luis
	1995	Hurricane Marilyn
	1996	Hurricane Bertha
	1996	Hurricane Hortense
	1998	Hurricane Georges
	1999	Hurricane Lenny
	2017	Hurricane Irma
	2017	Hurricane Maria

Table 3. Major regulatory influences to the lobster fisheries in the United States Virgin Islands (USVI).

Region	Year	Event
St. Croix	1961	BIRNM Established. Buck Island Reef National Monument established "to preserve this area of outstanding scientific, aesthetic, and educational importance for the benefit and enjoyment of the people" (Presidential Proclamation 3443).
USVI	1972	No-egg bearing. The U.S Virgin Islands Legislative Act 3330 prohibits the harvest of egg-bearing females and set a minimum carapace length of 3 inches.
Caribbean EEZ	1985	Spiny Lobster Size Limit. Spiny lobsters with a carapace length of less than 3.5 inches must be returned immediately to the water unharmed (49 FR 50049).
St. Croix	1993	Lang Bank Seasonal Closure. Seasonal spatial closures implemented to protect red hind spawning aggregations during the spawning season (58 FR 53145). Fishing prohibited December 1 through February 28.
St. Croix	1994	Mutton Snapper Seasonal Closure. Seasonal spatial closure implemented to protect mutton snapper spawning aggregations during the spawning season (58 FR 53145). Fishing prohibited March 1 through June 30.
St. Croix	2001	BIRNM Expanded. Buck Island Reef National Monument greatly expanded (Presidential Proclamation 7392).
USVI	2001	License Moratorium. U.S. Virgin Islands Department of Planning and Natural Resources implemented a moratorium on the issuance of new commercial fishing licenses in their territorial waters 0-3 miles (DPNR 2016).
St. Croix	2003	EEMP Established. St Croix East End Marine Park established to "protect territorially significant marine resources, and promote sustainability of marine ecosystems, including coral reefs, sea grass beds, wildlife habitats and other resources, and to conserve and preserve significant natural areas for the use

		and benefit of future generations” (USVI 2002).
USA EEZ	2007	MSRA. The Magnuson-Stevens Reauthorization Act established annual catch limits and accountability measures (MSRA 2006).
St. Croix	2008	Net Ban & Buyback. Gill and Trammel net ban & buyback. Fishermen who were bought out decreased parrotfish and increased lobster landings and switched from nets to spear guns and traps (Agar 2013).
Caribbean EEZ	2009	Imported Spiny Lobster Size Limit. Minimum carapace length of 3.5 inches implemented for imported spiny lobster to enhance the conservation of the spiny lobster resource and improve effectiveness of law enforcement related to such conservation (76 FR 82414).
Caribbean EEZ	2012	Spiny Lobster Rec Trip Limit. Bag limit of 3 spiny lobster per person per day with a vessel limit of 10 spiny lobster per vessel per day (76 FR 82414).
St. Croix EEZ	2013	Spiny Lobster Quota Closure. Fishing year reduced by the amount necessary to ensure that landings do not exceed the applicable ACL in 2013 (78 FR 18247). Closed December 19 through December 31.
St. Croix	2017	Fish Trap Reduction Program. The Virgin Islands Fish Trap Reduction Program requires that commercial fishers reduce their total amount of fish traps by 10% in St. Croix.

Table 4. Rate of unemployment by month for St. Croix (US Virgin Islands Department of Labor 2018).

	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
1978	9.6	8.7	8.8	8.4	8.5	8.5	8.6	7.4	6.6	6.5	6.4	6.0
1979	6.3	5.2	6.0	6.3	6.0	7.3	7.1	6.6	6.7	6.7	6.0	6.6
1980	6.7	6.7	6.3	6.1	6.5	7.6	6.4	7.0	7.0	7.1	7.2	7.1
1981	7.3	7.8	7.3	7.5	7.6	8.0	8.6	8.6	8.8	8.8	8.9	9.8
1982	10.0	10.1	10.1	11.0	11.6	11.1	10.4	9.8	10.4	9.7	9.7	11.3
1983	12.3	13.6	12.8	11.4	11.3	10.9	7.8	9.6	8.2	7.6	7.4	8.8
1984	9.6	8.8	7.6	9.5	12.3	12.8	12.8	12.9	13.2	12.4	11.4	10.4
1985	11.2	9.5	9.2	9.1	8.6	9.1	8.6	8.2	8.2	8.3	8.2	7.6
1986	7.9	7.8	8.8	8.5	7.8	7.8	7.4	6.1	5.9	6.3	5.4	5.1
1987	5.1	5.2	4.6	4.4	4.1	4.4	4.3	3.9	3.9	3.4	3.4	3.4
1988	4.0	3.2	3.6	4.2	5.9	6.6	7.0	6.0	6.4	5.7	4.4	4.6
1989	4.6	4.2	3.5	4.1	4.0	4.7	4.2	3.9	4.0	8.8	7.9	6.7
1990	6.2	5.1	5.0	4.0	3.9	3.6	3.6	3.7	3.8	3.2	2.9	3.0
1991	2.9	3.3	3.1	3.6	3.5	5.2	4.2	4.3	4.4	4.6	4.8	4.3
1992	5.0	5.0	4.8	4.6	4.5	4.7	4.4	4.9	5.4	5.3	4.8	4.3
1993	4.2	3.8	3.6	3.3	4.0	4.0	3.9	4.0	4.2	5.7	7.5	7.7
1994	10.4	11.2	11.5	11.1	11.3	10.4	9.7	9.2	8.5	8.3	7.8	7.5
1995	8.1	7.5	7.5	7.8	8.0	8.4	7.9	8.0	6.9	7.5	6.3	5.5
1996	5.2	4.5	5.0	4.7	4.5	4.5	4.6	4.7	4.6	5.0	5.0	5.1
1997	6.1	6.2	6.3	6.7	6.5	6.6	6.6	6.7	6.8	7.0	7.5	7.2
1998	7.4	7.2	7.1	7.4	7.8	7.6	7.6	7.8	7.6	7.9	7.7	7.8
1999	8.0	8.0	8.1	8.2	8.5	8.6	8.4	8.7	8.6	8.5	8.3	8.1
2000	8.0	7.7	7.6	7.3	7.4	7.8	8.1	8.2	8.4	8.4	8.1	7.8
2001	7.4	7.4	7.4	7.7	7.9	8.0	8.1	8.4	8.5	9.5	9.1	8.9
2002	9.9	9.6	9.7	10.0	10.8	11.3	12.0	12.7	12.9	13.1	12.9	12.7
2003	13.0	13.3	13.3	13.2	12.9	12.8	12.8	12.4	12.0	11.7	11.4	10.9
2004	10.5	10.2	9.9	9.9	10.0	10.0	10.2	9.7	9.4	8.9	8.5	8.0
2005	7.6	7.4	7.9	8.3	9.2	8.7	8.2	8.6	8.5	8.4	7.8	7.5
2006	7.5	7.2	7.2	7.0	7.3	7.6	7.5	7.7	7.3	7.5	7.2	7.0
2007	6.9	7.0	7.1	7.2	6.8	6.5	7.3	7.2	7.1	7.3	7.4	7.5
2008	7.4	6.9	6.7	6.7	7.0	6.7	6.6	6.8	6.8	7.2	6.8	7.2
2009	7.7	7.6	7.8	8.1	8.9	9.3	10.0	10.1	9.8	8.8	8.7	8.9
2010	8.7	8.1	8.6	8.8	8.7	9.0	9.2	9.5	8.5	8.5	8.9	9.5
2011	9.9	9.9	9.8	10.5	10.7	9.9	10.0	10.2	9.3	9.7	8.8	9.1
2012	9.6	9.7	10.3	10.8	14.6	15.3	16.1	16.9	16.5	16.3	16.3	17.0
2013	17.8	16.6	16.3	16.0	15.0	14.8	15.1	14.8	13.6	13.0	13.8	14.0
2014	14.2	13.8	14.0	14.3	14.5	14.6	14.6	14.8	13.3	12.4	13.0	13.5
2015	13.6	13.3	13.4	13.6	14.0	13.1	13.0	13.1	12.0	11.1	11.3	11.5
2016	12.0	11.2	11.4	11.2	11.0	11.0	10.2	11.5	10.7	10.7	10.9	11.0
2017	12.1	11.1	11.4	11.3	11.0	11.6	11.3					