

**Status of NOAA Fisheries Commercial Landings
and Bio-statistical Data
for
The U.S. Virgin Islands
1973- Present**

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US Virgin Islands Commercial Landings Data

For 1973-2003 NOAA-SEFSC has 57 individual ‘official’ files of reported commercial landings. These are as submitted on the fishing reports and are not adjusted by other factors. Of these, 50 are in MS Excel Spreadsheet format as submitted by the USVI DFW. The other 7 files are for fishing years 86-87 to 91-92 and are in *.DBF format. Five of these latter files are combined for all of USVI into calendar years. NOAA-SEFSC also has ‘unofficial’ Excel files for years 86-87 to 91-92 in both fishing year and calendar year combined format. It is expected that these 7 files will soon be replaced by re-entered and proofed data for those years from the USVI DFW.

The files generally are arranged by Fishing Year and Island with the fishing year being from July 1 – June 30 and the islands of St. Thomas and St. John grouped as one submission and St. Croix by itself as the other. Further, the files exist in different formats throughout the range of years. The primary drawback of MS Excel is that it is limited in capacity to ~60,000 records, thus the separate files. It is hoped that a consolidated data set can be achieved in the near future.

In addition to landings, there are compliance reports from the USVI-DFW for the individual permit holders. From these and estimates of landings by unlicensed fishermen the USVI builds its estimated landings. All files are submitted to NOAA-SEFSC under cover letter from USVI-DFW listing file titles and specifications. These are then confirmed by NOAA-SEFSC usually by email.

Many files have been resubmitted by the USVI-DFW following edit suggestions from NOAA-SEFSC. Also historical data were entered by USVI-DFW using a 20-column format. NOAA-SEFSC believes it has the official files in hand; however, **it is vital once again that NOAA-SEFSC and the USVI compare landing files and totals**. A list of the files and their descriptions and totals is provided in Table 1a of the Appendix. See also the graphs of reported landings in the Appendix.

BIOSTATISTICAL DATA

NOAA-SEFSC has USVI Bio-statistical data in the Trip Interview Program (TIP) format for the years 1983-2004. The TIP is the NOAA-SEFSC standard for commercial dockside interview and sampling protocol. Until 2004, Data were entered by USVI-DFW using the PC version of the TIP Data Entry Program. As of 2004 there is a web based on-line data entry system known as TIPONLINE which is in use by USVI-DFW.

Historically data have been validated at the PC level and sent to NOAA-SEFSC in a format compatible for loading to the SEFIN8I database master tables. Submissions come under cover letter and are noted as received by NOAA-SEFSC. The files are then loaded, undergoing more validations and load reports are transmitted back to USVI via email. Using TIPONLINE, some validations are done as the data are entered. The more complex ones are done once the once interview is entered and saved for validation. It is then listed as INVALID or VALID. The entry person may then edit the record. The tables for the TIPONLINE exist at NOAA-SEFSC in Miami.

CURRENT MAKEUP OF TIP DATA SET FOR CARIBBEAN
 Number of Trip Interviews

YEAR	Puerto Rico	USVI	Total
1980	34		34
1983	193	237	430
1984	703	414	1117
1985	387	867	1254
1986	555	506	1061
1987	408	490	898
1988	7	490	497
1989	104	424	528
1990	574	525	1099
1991	1020	912	1932
1992	733	84	817
1993	616	180	796
1994	270	159	429
1995	465	121	586
1996	334	91	425
1997	289	95	384
1998	464	86	550
1999	565	70	635
2000	491	41	532
2001	531	47	578
2002	530	123	653
2003	571	72	643
Grand Total	9844	6034	15878

SOURCES OF DATA IN TIP FOR CARIBBEAN

Source of Data	Number of Interviews
Caribbean Data Entry Project – Historical Data (Bolden and Woodhead) - all USVI but 59 interviews	4262
Caribbean Lobster Assessment 1990 Data	1179
Caribbean Sea-Map Pilot Study 1992 Data – Hooks	86
Caribbean Sea-Map Pilot Study 1992 Data – Traps	71
PR DNR Data Entered at NOAA-SEFSC 2004	1720
PR DNR Submission	7316
USVI DFW Submission	1065
USVI Spiny Lobster Data 1986-1991 entered at NOAA-SEFSC in 2001	179
Grand Total	15878

The above sources were identified and related to their current SEQUENCE_NUMBER in TIP. Numbers has changed from original entries.

While validations occurred on the data in the past, they were not sufficient at the level of lengths and weights for individual species. Some validations of this nature were attempted by NOAA-SEFSC but the data need to be fixed at the source or signed documentation should be obtained for these edits. It is now time to make these edits in the data at least for the species pertinent to this SEDAR. With this in mind NOAA-SEFSC has done the following:

- Procedures for review of suspect length and weight data:
 - A file was created (jbennett.tip41_usvi) to identify and edit for these. Both lengths and weights are looked at individually and flagged for records with the following limits:
- Yellowtail Snapper lengths <152 mm and >750 mm. **23 records < 152 mm and 4 records > 750 mm were found.**
- Yellowtail Snapper weights <85 grams and >3523 grams. **0 records <85 grams and 49 records > 3523 grams were found.**
- Spiny Lobster lengths <50mm and >150 mm (Carapace length type is assumed from protocol). **725 records < 50mm and 497 records > 150 mm were found.**
- Spiny Lobster weights <130 grams and >2356 grams. **41 records <130 grams and 2081 records > 2356 grams were found.**
 - Only Spiny Lobster and Yellowtail Snapper have these type flags. These flags are basically arbitrary, but are roughly based on general size limits in commercial catch. It was found that in the initial stages of the proposed data clean up it would be better to use simple limits rather than statistical methods due to the large proportion of incorrect length types (centimeters being reported as millimeters was typical). This problem rendered statistical methods inefficient. After initial clean up more statistical methods such as standard deviations may be used as checks.
- Lengths and Weight relationships are flagged for <0.50 or >2.0 ratio for weight/calculated weight from established length/weight regressions for all species having ratios available. The regression formulas used came from NOAA Tech Memo 215 by Bohnsack and Harper (1980) and FAO Fisheries Report 619 for Spiny Lobster. **4,920 overall records, including 116 Yellowtail Snapper records and 2,836 Spiny Lobster records were flagged for l/w regressions.**

- Formulas are as follows:
Spiny Lobster weight calculated in grams = $0.00422 * CL^{2.64091}$
where CL = Carapace Length mm.
Finfish calculated log of weight in grams = $\text{LogW} = \text{LogA} + (b * \text{LogL})$ then
Wcalc in grams = LogW^{10} where LogA and b are constants.
- Total count for all records is 274,741 (file does not include 2004 entries). It is anticipated that once initial clean up is made other runs will be needed. A primary problem is that length units were incorrectly recorded and input for the length entered. Also possible are misplaced decimal errors which may have occurred in entry or load to system.
- A thorough review of the suspect data is needed. More runs by statistical methods on a continuous basis are needed both against load file and at regular intervals.
- Lists of suspect data are provided and the data are flagged in the MS ACCESS table JBENNETT_TIP41_USVI. Regression factors are also listed in the table for convenience.
- Major Issues to be resolved at this meeting.
- We must agree on edits for flagged bio-statistical records.
- Do we have the correct landings files?
- Does NOAA-SE have all the bio-statistical records in TIP?
- How can we re-create a single unique identifier that is constant in USVI and NOAA-SE data?
- How can we improve validation of landings data?
- How can we improve validation of bio-statistical data?
- What will the editing cycle be for landings records?
- What will the editing cycle be for bio-statistical records?
- How can we house the landings data in a unified table?

APPENDIX: Table 1a

FILE_NAME	SIZE	MOD_DATE	DATA_RECORDS	TOTAL_LBS
STT73-74.XLS	23.0 KB (23,552 bytes)	Tuesday, August 05, 2003, 2:22:54 PM	61	3337.75
STT74-75.XLS	341 KB (349,696 bytes)	Wednesday, September 17, 2003, 12:44:15 PM	2787	191180.5
STX75-76.XLS	140 KB (143,872 bytes)	Wednesday, September 17, 2003, 11:10:49 AM	1055	64763
STT75-76.XLS	565 KB (578,560 bytes)	Wednesday, September 17, 2003, 1:27:40 PM	4655	273421.5
STX76-77.XLS	87.5 KB (89,600 bytes)	Wednesday, September 17, 2003, 11:11:32 AM	571	7690.25
STT76-77.XLS	357 KB (365,568 bytes)	Wednesday, September 17, 2003, 11:00:33 AM	2735	170673.5
STX77-78.XLS	119 KB (121,856 bytes)	Wednesday, September 17, 2003, 11:12:05 AM	935	56628.5
STT77-78.XLS	650 KB (665,600 bytes)	Wednesday, September 17, 2003, 11:01:25 AM	5545	426444.25
STX78-79.XLS	131 KB (134,656 bytes)	Friday, September 26, 2003, 2:55:33 PM	987	117299.85
STT78-79.XLS	622 KB (636,928 bytes)	Wednesday, September 17, 2003, 11:02:17 AM	5331	480602.5
STX79-80.XLS	70.0 KB (71,680 bytes)	Wednesday, September 17, 2003, 11:13:27 AM	452	24887.5
STT79-80.XLS	665 KB (680,960 bytes)	Wednesday, September 17, 2003, 11:03:14 AM	5510	475864.3
STX80-81.XLS	149 KB (152,576 bytes)	Friday, September 26, 2003, 2:59:31 PM	1056	71553
STT80-81.XLS	592 KB (606,208 bytes)	Wednesday, September 17, 2003, 11:04:01 AM	5052	580336
STX81-82.XLS	594 KB (608,768 bytes)	Monday, September 22, 2003, 2:19:34 PM	2781	154612.2
STT81-82.xls	601 KB (615,424 bytes)	Friday, September 26, 2003, 10:56:47 AM	5224	460104.25
STX82-83.XLS	526 KB (538,624 bytes)	Friday, September 26, 2003, 3:08:52 PM	4144	186135
STT82-83.XLS	727 KB (744,448 bytes)	Friday, September 26, 2003, 10:59:24 AM	6165	557353.25
STX83-84.xls	846 KB (866,816 bytes)	Wednesday, September 17, 2003, 2:12:42 PM	6265	307463
STT83-84.XLS	891 KB (912,384 bytes)	Wednesday, September 17, 2003, 2:34:38 PM	7138	625547.75
STX84-85.xls	1.63 MB (1,719,808 bytes)	Friday, September 26, 2003, 3:11:37 PM	7470	332694
STT84-85.XLS	877 KB (898,048 bytes)	Friday, September 26, 2003, 12:54:37 PM	7437	593576.25
STX85-86.XLS	58.5 KB (59,904 bytes)	Thursday, September 25, 2003, 3:02:58 PM	427	16724
STT85-86.XLS	1.07 MB (1,125,376 bytes)	Monday, September 29, 2003, 11:37:28 AM	8412	602285
*LOGB86_7.DBF	703 KB (719,872 bytes)	Tuesday, December 05, 2000, 1:06:26 PM	11987	837388
*LOGB87_8.DBF	251 KB (257,959 bytes)	Thursday, October 18, 2001, 2:30:46 PM	11203	690328
*USVI88.DBF	366 KB (375,247 bytes)	Tuesday, December 05, 2000, 1:06:30 PM	6005	0
*USVI88.DBF	366 KB (375,247 bytes)	Tuesday, December 05, 2000, 1:06:30 PM	8992	593946
*USVI89.DBF	511 KB (523,769 bytes)	Tuesday, December 05, 2000, 1:06:32 PM	8671	577102
*USVI89.DBF	512 KB (523,769 bytes)	Tuesday, December 05, 2000, 1:06:32 PM	4096	326137
*USVI90.DBF	810 KB (829,612 bytes)	Tuesday, December 05, 2000, 1:06:34 PM	5151	383908
*USVI90.DBF	811 KB (829,612 bytes)	Tuesday, December 05, 2000, 1:06:34 PM	7414	629758.25
*USVI91.DBF	1.74 MB (1,825,623 bytes)	Tuesday, December 05, 2000, 1:06:42 PM	7843	683144.8

Table 1a, Cont'd.

FILE_NAME	SIZE	MOD_DATE	DATA_RECORDS	TOTAL_LBS
*USVI91.DBF	1.74 MB (1,825,623 bytes)	Tuesday, December 05, 2000, 1:06:42 PM	8901	741475.45
*USVI92.DBF	716 KB (733,966 bytes)	Tuesday, December 05, 2000, 1:06:46 PM	8530	700761.15
STX92-93.xls	1.49 MB (1,569,792 bytes)	Wednesday, September 01, 2004, 3:49:47 PM	8821	549636
STT92-93.xls	1.65 MB (1,737,728 bytes)	Wednesday, September 01, 2004, 2:42:14 PM	7895	807283.5
STX93-94.xls	2.01 MB (2,108,928 bytes)	Wednesday, September 01, 2004, 3:50:07 PM	11003	712796
LOGB93.DIF	1.13 MB (1,195,008 bytes)	Wednesday, August 27, 1997, 10:39:48 AM	7303	743181.16
STX94-95_OF.xls	1.24 MB (1,300,480 bytes)	Wednesday, September 01, 2004, 3:50:28 PM	8196	540240.75
STT94-95.xls	1.27 MB (1,341,440 bytes)	Wednesday, September 01, 2004, 3:45:33 PM	6888	767715.54
STX95-96_OF.xls	1.05 MB (1,107,456 bytes)	Wednesday, September 01, 2004, 3:50:48 PM	6750	362207
STX95-96_NF.xls	218 KB (223,232 bytes)	Wednesday, September 01, 2004, 3:51:11 PM	1027	50793.5
STT95-96.xls	872 KB (892,928 bytes)	Wednesday, September 01, 2004, 3:46:05 PM	4909	561071.44
STX96-97_OF.xls	275 KB (281,600 bytes)	Wednesday, September 01, 2004, 3:51:32 PM	1537	362207
STX96-97_NF.xls	1.85 MB (1,947,136 bytes)	Wednesday, September 01, 2004, 3:51:52 PM	7869	436877.75
STT96-97.xls	1.00 MB (1,050,624 bytes)	Wednesday, September 01, 2004, 3:46:33 PM	5589	693751.9
STX97-98.XLS	2.54 MB (2,671,616 bytes)	Wednesday, September 01, 2004, 3:52:17 PM	11207	782010.3
STT97-98_OF.xls	1.80 MB (1,897,984 bytes)	Wednesday, September 01, 2004, 3:46:56 PM	4932	583239
STT97-98_NF.xls	734 KB (751,616 bytes)	Wednesday, September 01, 2004, 3:47:20 PM	1124	118880
STX98-99.xls	1.96 MB (2,061,824 bytes)	Wednesday, September 01, 2004, 3:52:37 PM	9119	607341.15
STT98-99_OF.xls	183 KB (187,904 bytes)	Wednesday, September 01, 2004, 3:47:41 PM	381	30293
STT98-99_NF.xls	1.09 MB (1,153,536 bytes)	Wednesday, September 01, 2004, 3:48:05 PM	4727	561318
STX99-00.xls	2.35 MB (2,471,424 bytes)	Wednesday, September 01, 2004, 3:52:57 PM	10321	724153.25
STT99-00.xls	1.90 MB (2,001,408 bytes)	Wednesday, September 01, 2004, 3:48:26 PM	5557	600688.5
STX00-01.xls	2.88 MB (3,021,312 bytes)	Wednesday, September 01, 2004, 3:53:17 PM	12287	897110.8
STT00-01.xls	2.12 MB (2,225,664 bytes)	Wednesday, September 01, 2004, 3:48:49 PM	6397	676950.9
STX01-02.xls	5.55 MB (5,825,536 bytes)	Wednesday, September 01, 2004, 3:53:36 PM	15256	1142060.75
STT01-02.xls	1.66 MB (1,747,968 bytes)	Wednesday, September 01, 2004, 3:49:08 PM	7006	829376.67
_stx 02-03 david final ok.xls	7.59 MB (7,967,232 bytes)	Thursday, February 05, 2004, 8:28:59 AM	14951	1103592.5
STT02-03.xls	1.63 MB (1,719,808 bytes)	Wednesday, September 01, 2004, 3:49:27 PM	6531	834771.35

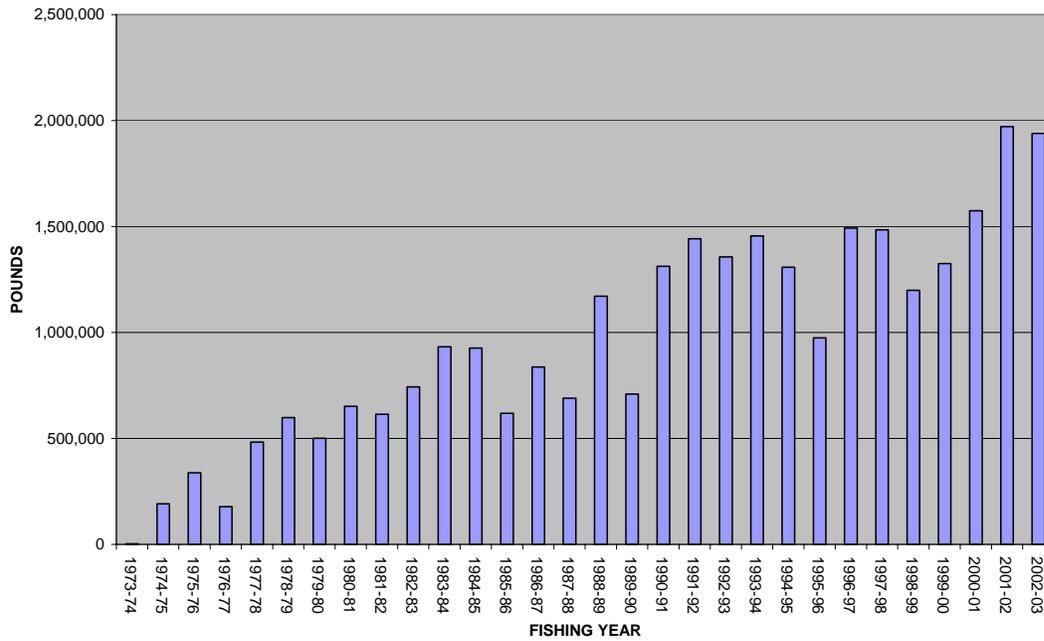
Table 1b. Summaries of Pounds Raw Landings

FISHING_ YEAR	Data	Total
1973-74	Sum of LOBSTER_LBS	30
	Sum of SNAPPER_LBS	
	Sum of TOTAL_LBS	3337.75
1974-75	Sum of LOBSTER_LBS	6909.25
	Sum of SNAPPER_LBS	
	Sum of TOTAL_LBS	191180.5
1975-76	Sum of LOBSTER_LBS	13319.75
	Sum of SNAPPER_LBS	
	Sum of TOTAL_LBS	338184.5
1976-77	Sum of LOBSTER_LBS	14804
	Sum of SNAPPER_LBS	
	Sum of TOTAL_LBS	178363.75
1977-78	Sum of LOBSTER_LBS	54196
	Sum of SNAPPER_LBS	
	Sum of TOTAL_LBS	483072.75
1978-79	Sum of LOBSTER_LBS	44837.6
	Sum of SNAPPER_LBS	
	Sum of TOTAL_LBS	597902.35
1979-80	Sum of LOBSTER_LBS	25549
	Sum of SNAPPER_LBS	
	Sum of TOTAL_LBS	500751.8
1980-81	Sum of LOBSTER_LBS	44069
	Sum of SNAPPER_LBS	
	Sum of TOTAL_LBS	651889
1981-82	Sum of LOBSTER_LBS	47476.75
	Sum of SNAPPER_LBS	
	Sum of TOTAL_LBS	614716.45
1982-83	Sum of LOBSTER_LBS	40723.5
	Sum of SNAPPER_LBS	
	Sum of TOTAL_LBS	743488.25
1983-84	Sum of LOBSTER_LBS	53142.5
	Sum of SNAPPER_LBS	
	Sum of TOTAL_LBS	933010.75
1984-85	Sum of LOBSTER_LBS	29836
	Sum of SNAPPER_LBS	
	Sum of TOTAL_LBS	926270.25
1985-86	Sum of LOBSTER_LBS	31627.25
	Sum of SNAPPER_LBS	
	Sum of TOTAL_LBS	619009
1986-87	Sum of LOBSTER_LBS	29728
	Sum of SNAPPER_LBS	
	Sum of TOTAL_LBS	837388
1987-88	Sum of LOBSTER_LBS	46389
	Sum of SNAPPER_LBS	
	Sum of TOTAL_LBS	690328

Table 1b. Summaries of Pounds Raw Landings (cont'd)

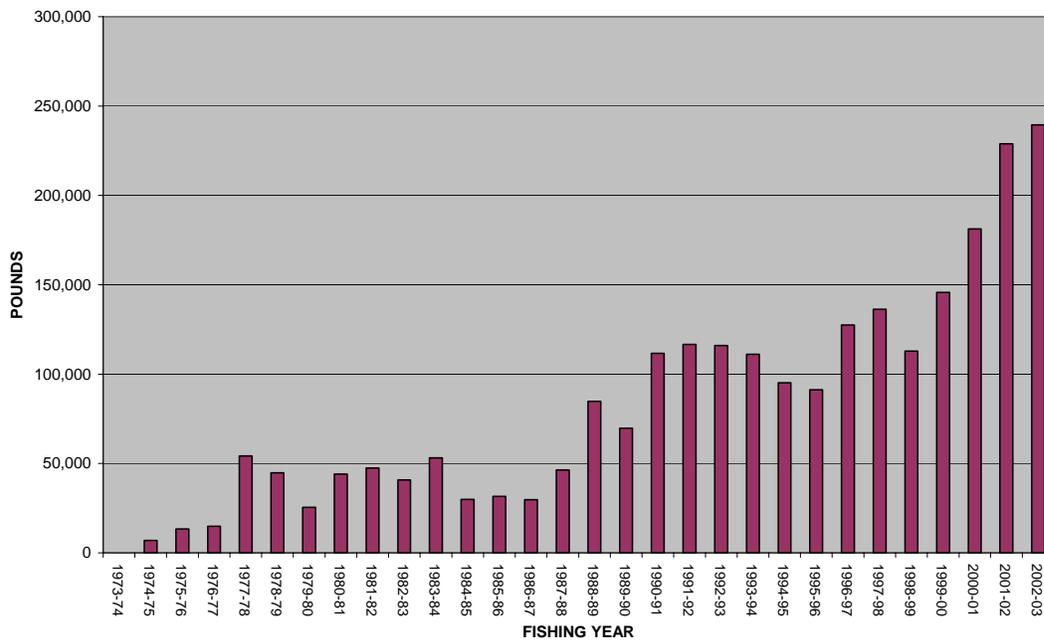
1988-89	Sum of LOBSTER_LBS	84656
	Sum of SNAPPER_LBS	
	Sum of TOTAL_LBS	1171048
1989-90	Sum of LOBSTER_LBS	69679
	Sum of SNAPPER_LBS	
	Sum of TOTAL_LBS	710045
1990-91	Sum of LOBSTER_LBS	111624.75
	Sum of SNAPPER_LBS	
	Sum of TOTAL_LBS	1312903.05
1991-92	Sum of LOBSTER_LBS	116658
	Sum of SNAPPER_LBS	
	Sum of TOTAL_LBS	1442236.6
1992-93	Sum of LOBSTER_LBS	116010.3
	Sum of SNAPPER_LBS	
	Sum of TOTAL_LBS	1356919.5
1993-94	Sum of LOBSTER_LBS	111081.5
	Sum of SNAPPER_LBS	
	Sum of TOTAL_LBS	1455977.16
1994-95	Sum of LOBSTER_LBS	95115.3
	Sum of SNAPPER_LBS	
	Sum of TOTAL_LBS	1307956.29
1995-96	Sum of LOBSTER_LBS	91246.2
	Sum of SNAPPER_LBS	9337
	Sum of TOTAL_LBS	974071.94
1996-97	Sum of LOBSTER_LBS	127542.4
	Sum of SNAPPER_LBS	51767.25
	Sum of TOTAL_LBS	1492836.65
1997-98	Sum of LOBSTER_LBS	136216.75
	Sum of SNAPPER_LBS	92477.5
	Sum of TOTAL_LBS	1484129.3
1998-99	Sum of LOBSTER_LBS	112915.5
	Sum of SNAPPER_LBS	171896
	Sum of TOTAL_LBS	1198952.15
1999-00	Sum of LOBSTER_LBS	145683.25
	Sum of SNAPPER_LBS	209159
	Sum of TOTAL_LBS	1324841.75
2000-01	Sum of LOBSTER_LBS	181237.75
	Sum of SNAPPER_LBS	256631.05
	Sum of TOTAL_LBS	1574061.7
2001-02	Sum of LOBSTER_LBS	228787.375
	Sum of SNAPPER_LBS	315580.15
	Sum of TOTAL_LBS	1971437.42
2002-03	Sum of LOBSTER_LBS	239350.5
	Sum of SNAPPER_LBS	336092.2
	Sum of TOTAL_LBS	1938363.85

USVI REPORTED COMMERCIAL LANDINGS FOR 1973-2003 (RAW DATA)

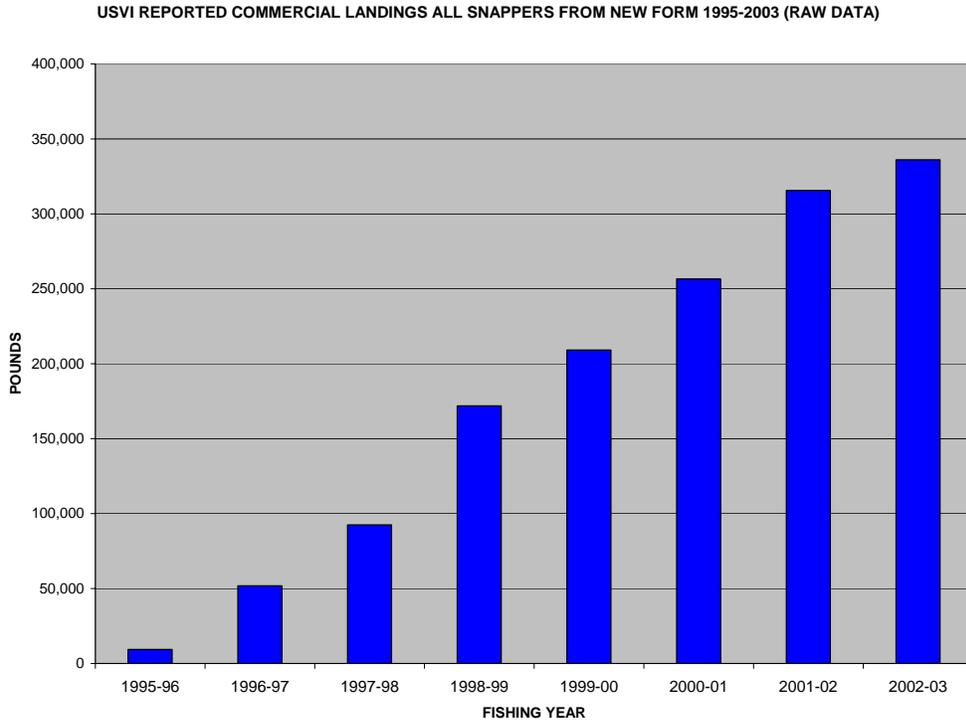


Graph 1. Total Landings

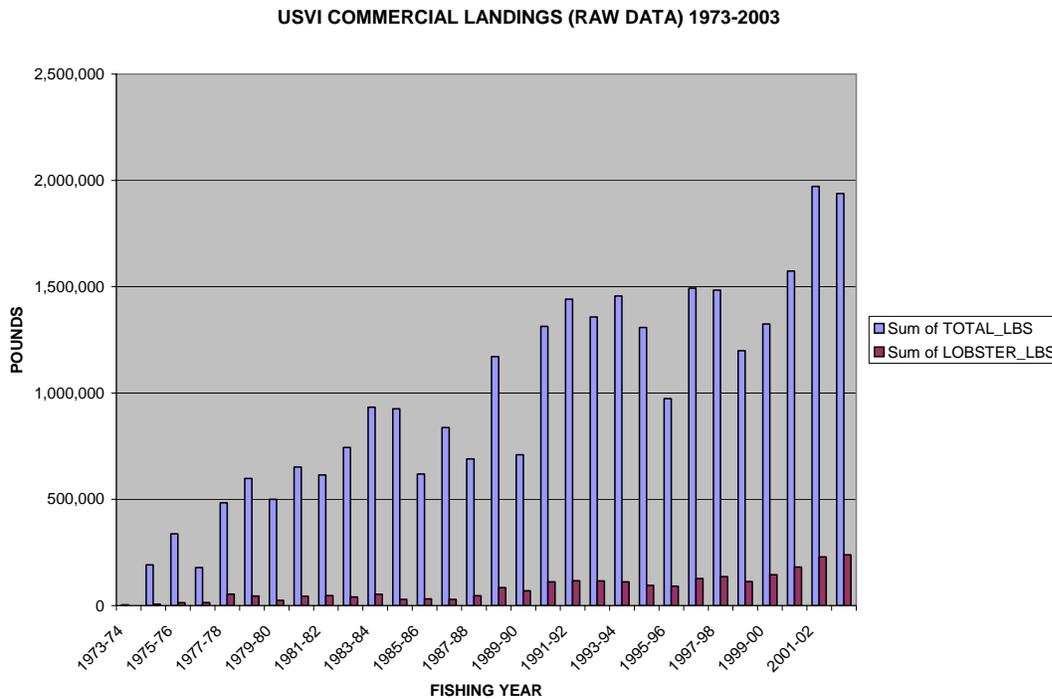
USVI REPORTED COMMERCIAL LANDINGS OF SPINY LOBSTER 1973-2003 (RAW DATA)



Graph 2. Spiny Lobster Landings



Graph 3. Snappers from New Form (Previous Snapper-Grouper Landings not displayed)



Graph 4. Comparison of Total Landings with Spiny Lobster