1977

Historical surf clam records and summary statistics for surf clam management project : final report

Gerald L. Engel
Virginia Institute of Marine Science

Final Report
Contract Number 03-5-043-342

Historical Surf Clam Records and Summary Statistics for Surf Clam Management Project

Contractor - Virginia Institute of Marine Science
Gloucester Point, VA 23062

Report Prepared by - Gerald L. Engel

Date - December 1, 1977

Inhouse--Please contact Fisheries Management Branch
State-Federal Relationship Division (FNE23)
National Marine Fisheries Service
State Fish Pier
Gloucester, MA 01930
for more details of this report.

Others should contact contractor.

Final Report - Contract Number 03-5-043-342

Historical Surf Clam Records and Summary Statistics for Surf Clam Management Project

Report Prepared by - Gerald L. Engel
Department of Computing and Statistics
Virginia Institute of Marine Science
Gloucester Point, VA 23062

December 1, 1977

Introduction and Objectives of the Project

The project, funded by the National Marine Fisheries Service (NMFS), had as its original objectives, the following:

1. Regarding Historical Data
   a) Develop a data processing system for surf clam data.
   b) Develop analysis procedures for surf clam data, including definition of a "standard fishing unit" and a standard measure of effort.
   c) Keypunch and verify historical surf clam vessel captain interview data.
   d) Prepare results of historical data on a year-by-year basis for the areas under study, including the number of vessels operating in each area, the average time at sea, the average time fishing, the total catch for the period, the average catch per hour fishing time, and the catch per standard unit of effort.
2. Regarding Current Management Data
   a) Develop a form for collecting current data based on the analysis of historical data and projected management needs.

b) Design a system for distributing and retrieving the forms.

c) Refine the data processing system for direct data entry.

Much of the material associated with the "Current Data Management" was deferred since future work on surf clam management was assigned to the Regional Councils rather than NMFS. The system as developed, and described later in the report is, however, consistent with the objectives stated.

On March 5, 1976, after the major portion of the historic data had been processed, an advisory group was sent by NMFS to the Virginia Institute of Marine Science (VIMS) to discuss modifications and interpretation of the project based on the experience gained to that point. A complete summary of the meeting appears as appendix 1 to this report. The key issues covered at this meeting included the following:

a) Complete copies of the files should be available that would, in addition to supplying length measurement, give the average length of the clams measured.

b) Summary reports should be prepared by vessel by ports. These should be monthly summaries and include the average hours fished, the average number of tows per trip, the average depth, the average catch and the total catch.

c) A study should be made of the data to determine if there are a significant number of cases where data is reported on the same vessel in different ports. If this is the case, summaries of vessels across ports should be prepared.

d) A study should be made to determine if the fishing areas can be refined to see if locations of fishing beds can be established. This would be effected, as a pilot study, by sorting loran bearings to see how much information exists in a specific area.

e) Catch per hour would appear the only reasonable approximation to standard unit of effort available from the data. Future work would require including physical characteristics of the vessels, but this would require additional input and research.

f) This kind of data gathering effort, processing and reporting should be continued in the future.

In August, 1977, the State of New Jersey requested that certain data collected in their manditory reporting program for the surf clam fishery be entered into the system and processed. Specific analysis was requested as follows:

a) The total number of bushels harvested from New Jersey waters by month, with total for five-month season (Dec. 1, 1976 through April, 1977). Also, total number of bushels taken from New Jersey waters outside the season.

b) Printout showing bushels of clams harvested by location off New Jersey. Within territorial waters this would show harvest for areas one mile wide by five or ten miles long. Outside territorial waters a five-by-five mile grid system would be acceptable.

c) Total number of bushels harvested by month, outside New Jersey, by total reporting vessels.

d) Harvest per tow hour, range, mode, and average for both New Jersey and non-New Jersey waters, by month.

e) Time fishing, range, mode and average for both New Jersey and non-New Jersey waters, by month.

f) Time spent at sea, range, mode and average for both New Jersey and non-New Jersey waters, by month.

g) Total number of licensed and unlicensed vessels that clammed in New Jersey waters.

h) For each month, the total number of vessels that exclusively clammed in New Jersey waters during the period December 1, 1976, through April 30, 1977.

Virtually, all the objectives of the project were met. In the sections that follow a summary of the work accomplished will be given, methods utilized to store and process data will be reviewed, programs developed will be discussed, problems encountered in dealing with the data will be briefly reviewed, and recommendations for future efforts in this area will be given.

Summary of Accomplishments

The major accomplishment of the project was the reduction of the historic surf clam interview forms to computer readable form and their entry into a system for subsequent processing. The forms were supplied by Mr. John Ropes of the NMFS Middle Atlantic Coastal Fisheries Center, and following their processing and entry have been returned. An inventory of the number of forms processed by port and by year is attached as appendix 2. Appendix 3 provides a finer distribution

of this information, and gives the distribution of data items (interview forms) per vessel per year per port. It should be noted that a number of interview forms, involving the New Jersey ports, in the period 1971-1974 were not included in the set of forms supplied. This fact was pointed out to NMFS officials, but they were unable to locate the forms.

Data forms for surf clam landings in New Jersey for the period December, 1976-August, 1977, were received in August, 1977. These forms were processed in a form similar to that utilized on the interview forms, and was entered into the system.

With the interview forms, information was also supplied regarding the vessels of the surf clam fleet. This data was prepared in machine readable form, and entered into the system. In March, 1977, additional information was supplied updating and correcting the vessel information. This material was recently entered into the system.

The various general and summary reports referenced in the previous section, both for the interview forms, and for the New Jersey Landings were prepared, and distributed as appropriate. The question of the problem of reporting vessels across prots was investigated, and is seen in the summary shown in appendix 3. The reporting system was constructed in such a manner that reporting across ports is possible.

Efforts were made to reduce the data by evaluating the data in terms of location. The analysis entailed sorting interview forms by year and location, computing a relative measure of abundance (catch/unit effort) and plotting the locational abundances over time. This

procedure produced a set of iso-abundance curves documenting both the location and historic depletion of the surf clam beds. Though the processing is certainly easy within the system, difficulties with the quality of location data presented serious problems in terms of further processing. Similar locational problems presented problems that prevented preparation of reports relative to location in the case of the more recent New Jersey landing data. These problems and others will be discussed in more detail, later in this report.

Though not within the general objectives of the project, an important feature, or benefit, of the system, was to supply reports as required by individuals needing information on the surf clam industry. Some of these programs will be discussed in following sections.

Methods Used in the Project

The data file for the interview data is organized by port, vessel, and date in that order. A separate subfile was generated for each port by years. A consistent system for the coding of ports and vessels was necessary to complete this portion of the project. These codes were an expansion of those started by NMFS in the collection of interview information. A complete list of port codes appears as appendix 4 of this report, and a complete list of vessel codes appears as appendix 5. The procedure used for the coding of the interview data is given in appendix 6. It should be noted that the formats described handle both types of interview forms that were used in the collection of the historic data. The various processing programs were constructed so that they would automatically switch from one format to the other.

Due to the form in which the New Jersey Landing data (December, 1976-August, 1977) were received, the data was simply organized by month. This organization provided for the processing requested when the data was supplied, and also allows for the evaluation of these data for its consistency with the historic data. These forms supplied slightly different information than that supplied by the interview forms, and as a result, a separate format was constructed for this information. It is detailed in appendix 7, and it should be noted that, as far as possible, it is consistent with the form of the historic interview forms. If it is deemed appropriate in the future, these data may be integrated into the files with the historic interview forms.

The vessel information was coded in a form only slightly modified from that originally suggested by NMFS. The details of the vessel format is given in appendix 8. The entry of this information required the use of a coding system for vessel owners. This coding system, which is also an expansion of that used earlier by NMFS, is given in appendix 9. It should be noted that the process of updating the vessel file and processing of the New Jersey Landings (December, 1976-August, 1977) went in at the same time. As a result, certain temporary vessel codes were utilized in the processing of the New Jersey Landings. These are detailed at the end of appendix 5, and the changes indicated should be made, if the files are to be integrated in the future.

The interview data, and vessel information is stored on tape at VIMS. A listing of the file names, for the tape files, is given as appendix 10. Due to the different nature of the more recent New

Jersey data, and some questions regarding the confidentiality of these data, they have not be included on the tape. These data are, however, recorded and stored on cards at VIMS.

The programs to process and reduce the data, which will be discussed in the next section, were all written in FORTRAN IV and executed on the IBM 370/115 computer at VIMS. All these programs are stored and available from the Department of Computing and Statistics at VIMS.

Program Products Developed in the Project

As would be expected in any project of this sort, a variety of programs were developed for the processing of the data base developed. Primary was a program to give a labeled listing of the raw data which was coded and is detailed in appendix 6. A secondary listing program was prepared, which in addition to the basic raw interview data, also gives the average size of the clams in the samples taken.

The summary listing program, suggested in the advisory committee meeting was also prepared. This summary by vessel by port provides monthly summaries and average hours fished, average tows per trip, average depth fished, average catch, and total catch.

As a part of the effort to study whether the data was of sufficient quality to identify the clam beds, several special purpose sort programs were developed as well as a program to plot the areas of catch.

Within the basic objectives of the study a program was also prepared to provide a labeled printout of the vessel information.

The ultimate usefulness and versatility of the preparation of a data base system of this type is to respond in a timely and effective manner to requests for special data products from the data base. Several such requests were received and processed within the period of the contract. Programs developed in this manner include the following: a program to provide a printout of total catch, total tows, and hours fishing by the four basic fishing regions (given in appendix 6) by port by year; a program to printout by port, vessel, date, location, catch per hour, and number of clams in the samples below and above 4-1/2 inches in length; and a program to printout the vessel names, vessel owner's name and location and gross tonage of the vessels.

A number of programs were developed in regards to the processing of the New Jersey Landings (December, 1976-August, 1977). Basic, of course, was a program to give a labeled listing of the raw data as detailed as in appendix 7. Additional programs provided for the following: a listing by month of licensed and unlicensed vessels; listing by month of time fishing and time at sea giving average, minimum and maximum values, mode, and range; listing by month of catch/tow, catch/hour, and catch/tow per hour giving average, minimum value, maximum value, mode and range; and listing by month of catch by vessel and total catch for the month.

Problems Encountered in the Project

As with any data project involving historic data, a number of problems were identified. In most cases, this had to do with the

design of data collection, or with the data recorded, and hence, could not be corrected, but rather had to be worked around. As an example, it was observed in the March 5, 1976, advisory meeting that the data supplied and thus, processed does not represent a complete coverage of the industry, but rather a report of those vessels the interviewer could reach and with whom the interviewer received cooperation. This is of course a problem of the interview method and presents problems and making inferences from the data to the industry in general. Such a problem will also exist with any voluntary reporting system.

The greatest problem with the processing of the forms had to do with poor copy, incomplete data, and obviously, incorrect data. Since we were deaing with historic data, about all that was possible to do in these cases was to ignore these cases since it would be impossible to reconstruct them.

Location data provided the biggest problem as far as processing was concerned, and as a result, virtually all processing involving the location fields could not be performed with any degree of confidence. A consistent system must be used to report location. The forms called for location to be based on loran A readings; however, these were inconsistently recorded, loran C was sometimes used, locations based on landmarks were occasionally recorded, and quite often no location was given.

The entire process of data reporting, whether voluntary or mandatory would be enhanced by the adoption of a simple but complete data form supplied will clear instructions on how it should be com-

pleted. Several forms have been proposed, all of which are certainly workable. It should, of course, be noted that fundamental to the form of data collection to be used, is the objective of what is wanted ultimately from the information.

Future Prospects and Recommendations

This project has demonstrated that it is possible to construct a data system to provide for efficient and timely reporting of data for the surf clam industry. Within such a system it is possible to provide routine reports of the fundamental parameters of the industry as well as special reports that may arise for specific purposes. At the same time it is possible to maintain the basic confidentiality of the data when required.

To have a complete and accurate system, a manditory reporting system would be required. In the absence of such a system, a voluntary reporting system would still provide a significant amount of information.

To be most effective, such data should be reported to a central data repository at periodic intervals (such as once a month) and entered into the data base system. Reports summarizing the data could then be supplied to the agencies requiring them on a regular basis, and the central repository would be in a position to provide special purpose reports on request.

This project has provided a historic basis for such a data base system. It is hoped that this type of system will be continued in the future to supply the information necessary for the management of the surf clam industry. The continuation of this work was recom-

mended at the March 5, 1976, advisory committee meeting and is strongly endorsed by all of us involved with the project.

Notes on Advisory Meeting, March 5, 1976
Surf Clam Data Processing Project
Contract #03-5-043-342

The background of the project was briefly outlined, and copies of the proposal, both as funded and as submitted were supplied to each attendee. Copies of the second quarterly report were also supplied to each attendee.

It was noted that virtually all the data supplied by the Oxford Lab had been punched. VIMS is currently in the final stages of checking the data for correctness. Printouts of the raw data were made available to the attendees for inspection. Problems which had been encountered in the processing of the data were briefly outlined.

A specific question was raised regarding some forms entitled "Day Trip Report" which were included with the catch data. It was noted by Mr. Ropes that these forms were for another purpose, and he took them back to the Oxford Laboratory.

Discussion went to the questions of the data products that would be useful and desirable from the system. The following were suggested:

1) Complete files should be available on tape (possibly on cards), as well as certain sub-files probably by ports.

2) Complete printouts of the files should be available that would, in addition to giving the length measurement, give the average length of the clams measured.

3) Printouts of the vessel information should be available.

4) Summary printouts by vessel by port should be prepared. These should be monthly summaries and include the average hours fished, the average number of tows per trip, the average depth, the average catch and the total catch.

5) A study should be made of the data to determine if there are a significance number of cases where data is reported on the same vessel in different ports. If this is the case, summaries of vessels across ports should be prepared.

6) A study should be made to determine if the fishing areas can be refined, to see if locations of fishing beds can be established. This might be effected, as a pilot study, by sorting on loran bearings to see how much information exists in a specific area.

Discussions continued on several additional points. The question of standard unit of effort was raised, and it was suggested that catch per hour is all that is really available from the data. A more valid approach would reflect the physical characteristics of the vessels including such things

weight, size, size of dredge, speed and so on. The current data does not lend itself to this kind of analysis, but it was suggested that future work include the updating of vessel information and the development of such a standardization procedure incorporating the work Joe Mueller has done in this area.

It was the feeling of the group that efforts should be continued in data collection of the type of the interview data. The original proposal from VIMS seemed to be acceptable as a good approach, and it was suggested that this proposal be resubmitted. It was noted that such a system of voluntary compliance did present problems in other areas, but in the absence of manditory systems, it was a reasonable approach.

Inventory of Surf Clam Data - Number of Interview Forms Processed

	New Jersey			Delaware	Maryland	Virginia			
Year	Barnegat	Pt. Pleasant	Wildwood	Lewes	Ocean City	Cape Charles	Chincoteague	Kiptopeke	Cyster
1964		316							
1965	8	1503	122						
1966		1166	230						
1967		486	389						
1968		803	503						
1969		911	1047	6	11				
1970		553	2750		277				
1971		32	231		253		55		
1972			1		421	57	36		68
1973			1		201	45		16	20
1974		128	4		230	109	11	30	25
1975					179	68	3	20	16

Number of Data Items per Vessel per Year per Port

SURF CLAM DATA MANAGEMENT PROJECT

The following chart gives the number of recorded reports by vessel and year. Within the cells the following codes were used:

P - Pt. Pleasant

W - Wildwood

B - Barnagat

LD - Lewes

OC - Ocean City

K - Kiptopeke

CC - Cape Charles

Chin - Chincoteague

OYS - Oyster

It would appear that little would be gained by printing a summary of vessels fishing more than one port in a single year.

ADA ADELIA	001		P-31	P-42	P-12	P-32	W-1 P-31	P-28	P-3				
ADA C. LORE	002	P-10	P-54	P-38	P-14	P-46	P-55	W-75 P-6	W-8	OC-9			
ADELE	003	P-1	W-2 P-19	P-20	W-10 P-3	W-10	W-11			Oys-1			
ADVANCE	004											CC-2	CC-4
ALTHEA	005	P-10	W-2 P-26	P-31	P-22	P-29	P-29	P-38	P-4			P-18	
AMERICAN CLAMMER	006			P-1		W-12 P-3	CC-1	OC-22	CC-7 Chin-6	OC-7			
ANN C	007						W-6		OC-31 Chin-3	OC-33	OC-9	OC-10 Chin-2	OC-8
ANNA S	008				W-7	W-5	W-9	W-17					
ARLINE SNOW	009	P-9	P-39	P-34	P-23	W-10 P-8	W-30	W-29	W-3			W-1	
ASPEN SNOW	010											W-1	
AZALEA	011									Oys-10			
BEVERLY SNOW	042	P-10	P-31	P-28	W-2 P-6	W-10	W-30	W-53	W-4				
BEVERLY SNOW II	043					W-2	W-41	W-94	W-11				
BIG STAR	044									CC-2			
BLUE RUN	045										CC-3	CC-3 Chin-1	CC-1

VESSELS	No.	64	65	66	67	68	69	70	71	72	73	74	75
BLUE POINTS	046					W-9	W-12						
BRIGANTINE	047											Oys-2	Oys-1
BRIGHT EYE IV	048												
BRITT ANN MARCHER	049						W-19	W-74	Chin-2				
C & B CAMPBELL	081	P-7	P-40	P-39	P-3								
C D PARMELEE	082			W-5	W-13	W-1	W-8	W-39					
C M RIGGIN	083				P-5	P-35	P-51	W-65 P-5	W-8	OC-6 Oys-1			
CAPTAIN HENRY	084										CC-1	CC-5	CC-8
CAREY	085	P-5	P-36	P-16	W-4	W-3		OC-2	Chin-2 OC-1	OC-15 Chin-2	OC-11	OC-13	OC-13
CAROLELLE	086				P-7	P-33	P-40	P-38	P-3			P-12	
CASCO	087	P-9	P-41	P-22	W-5	W-16	W-22	W-30	W-5		W-1		
CASEY & BROWN	088				P-16	P-41	P-50	P-32				Oys-1 W-1	
CHARLIE B	089				W-4	W-1							
CHRIS BOB	090					P-10	P-38	P-29			Oys-1		
CHRISTINE ANN	91				W-11	W-8	W-12						

VESSELS	No.	64	65	66	67	68	69	70	71	72	73	74	75
CHRISTOPHER SNOW	092	P-17	W-4 P-26	P-19	W-5	W-17	W-25	W-59	W-8	CC-3			
CITY OF SOUTHPORT	093						OC-2	OC-22	OC-9	Oys-2 OC-26	OC-11	OC-20	OC-19
CLYDE A PHILLIPS	094	P-2	W-4 P-31	P-14	P-7	W-5 P-17		OC-21	OC-25 Chin-3	OC-26			
CONDOR II	095												
CORA JEAN SNOW	096	P-15	W-2 P-42	P-44	P-16	W-15	W-20	W-47	W-6		CC-4	CC-13	CC-3 K-1
CORA MAY SNOW	097						W-21	W-90	W-7	CC-3		P-10	
CAPT. RICK	098											CC-4	
CORA JEAN SNOW II	099										K-1	CC-8	
DALE RIGGIN	121	P-3	P-32	P-30	P-5	P-23	P-51	P-39	P-4				
DAWN	122				P-1								
DEE C	123												
DESIRE	124		W-1										
DON	125		P-13	P-7	P-13	P-43	P-18	P-4					
DONNA (RUTH M)	126												K-2
DORSEE I	127	P-8	W-4 P-25	P-31	P-18	P-20	P-24						

[illegible]													
[illegible]YSEE GIRLS	128			P-3			P-2				Oys-7	Oys-4	
EDITH MARCY	161				W-12	W-17							
EDNA	162									Chin-2			
ELEANOR MARCHER	163						W-2	W-40		CC-1 Oys-9			
ELEANOR WARNER	164				W-5								
ELIZABETH C	165		W-2	W-1									
ELLEN W	166				W-1	P-9 W-4		W-3	W-3				
EMILY MARGARETTE	167								CC-1 Chin-1	Oys-3 Chin-8		Chin-3	Chin-1
EMPRESS MARY	168	P-4	P-49	P-34	P-18	W-21	W-48	W-108	W-8				
ENDEAVOR	169												
ENOCH SNOW	170						W-25	W-118	W-10				
ENTERPRIZE	171						P-7	W-13 P-8	W-16	CC-2 Oys-12	CC-2 Oys-3		
EVELYN K II	172		B-4	W-1	W-9		W-44	W-127	W-9				
EVELYN K III	173		P-20	P-2	W-16	W-17							
ENTERPRISE E	175							W-27					

ENTERPRISE S	176							W-19					
F W SCHEPPER	201		W-7	W-21	W-7	W-4	W-1						
F NELSON BLOUNT	202						W-30	W-60	W-16				
FIRST LADY	203											K-5 CC-2	CC-4 K-1
FLORA KIRWAN	204									CC-5	CC-14	Chin-1 Oys-4 CC-7	CC-11 Chin-1
FRANCES E SOFFRON	205							W-17					
FRED H SNOW	206	P-14	P-41	P-37	W-11	W-17	W-27	W-80	W-5				
FRANCIS E SNOW	207											CC-2	K-4 CC-1
GAIL BORDEN	241		W-3	W-2									
GAIL SNOW	242						P-44	P-39	P-4			P-14	
GRACE ANN	243												
GULF HUSTLER	244											K-1 K-3	
H C HAYES	281										CC-1	CC-10	CC-6
HAROLD F SNOW	282						P-21	P-45	P-4			P-15	
HELEN L	283												

VESSELS	NO.	64	65	66	67	68	69	70	71	72	73	74	75
HELEN & LOIS	284	P-19	P-47	P-48	P-15	P-25	P-47	P-39	P-2				
HERMALINE	285		W-1	W-2									
INGRID S (ENTERPRIZE)	321										Oys-2	CC-3 Oys-3	Oys-4 CC-1 K-1
IRMA C	322												
JACK & DORIS	361						P-26	P-41	P-4			P-16	
JENNY	362				W-10	W-01							
JOAN EVELYN	363			P-2	P-8	P-40	P-40	W-19 P-1	Chin-1	CC-9			
JOAN R. JEFFRIES	364		P-49	P-22	P-5 W-6	W-8	W-22						
KATHLEEN RIGGIN	401	P-14	P-46	P-38	P-10	P-19	P-49	W-50 P-14	W-2				
KATIE E. SHARP	402			P-30	P-13	P-9		CC-23	Chin-5 CC-25	CC-30	CC-14	Chin-1 Oys-6 CC-6	Oys - 3
KELSO	403		P-12	P-21	W-3 P-13	W-7							
KIM BAY	404							CC-19	Chin-1 CC-24	CC-32	CC-14	CC-14	
L E YATES	441				P-4	P-3	CC-1	CC-12	CC-9	CC-15	CC-9	CC-17	CC-10
LANDSHY	442							W-3					
LIL ROBIN	443						CC-1	CC-18	Chin-4 CC-25	CC-33	CC-12	CC-20	CC-16

LINDA SNOW	444	P-6	P-20 W-1	P-33	W-3 P-27	W-3 P-29	W-7	W-4	W-5				
LINDA SNOW II	445				W-9	W-15	W-25	W-92	W-1				
LINNEA	446		W-11	W-23	W-24	W-12	W-17	W-37	W-5				
LITTLE HAROLD (PATTIE)	447										OC-11	OC-17	OC-15
FLOYD SHAW	448			W-4	P-21								
LOVELLA	449								Chin-2				
LAITA	45												K-3 OC-4
M S ROE	431	P-10	P-48	P-37	P-6	P-32	P-39	P-35				P-6	
MABEL SUSAN	432			W-12	W-10	W-7	W-10	W-38					
MADELINE B	483									Chin-4 Oys-2	Oys-3		
MAKO	484												
MARCELLA	485							OC-14	OC-7	OC-14	OC-6	OC-6	
MARGARET & NANCY	486	P-2	W-1 P-15	P-27	P-9	W-16	W-33	W-96	W-7			P-4	
MARGARET P HANKS	487									OC-5 Oys.2			
MARJORIE SNOW	488	P-11	W-1 P-35	P-21		W-13 P-13	W-25	W-64	W-5				

VESSELS	No.	64	65	66	67	68	69	70	71	72	73	74	75
MARTHA RUTH	489	P-8	W-12 P-6	W-22	W-23	W-14	W-42	W-103	W-6				
MARY A NEWCOMB	490	P-4	W-6 P-34	P-16	W-2	P-3 W-11		OC-24	OC-8	OC-21	OC-9	OC-19	OC-17
MARY ANN	491										CC-3		
MARY JANE	492										CC-5		CC-10
MERLE C. SOFFRON	493							W-16 P-2					
MISS DOYSEE	494							W-11	W-6				K-1
MISTY DAWN	495									CC-15	K-7	K-14	K-
MYRTLE VIRGINIA	496				W-8	W-6							
MURIEL EILEEN	497				W-7	W-13	W-11						
MARY S. LEWIS	498									Cys-1			
NEL ANTONE	499												CC-1
NEIGHBOR	521	P-1	P-31	P-8	W-1 P-5	W-10							
NETTIE MAUPIN	522											CC-9	CC-3
NORMA ANN	523					W-7	LD-3 W-46	W-45	W-13	W-1	Cys-2 K-3	K-8	
NORMA ANN II	524										CC-7	CC-7	

VESSELS	No.	64	65	66	67	68	69	70	71	72	73	74	75
NORTHERN	525							OC-13	Chin-3 OC-19	OC-34	OC-13	OC-13	
NORMAN D	526											CC-2	CC-4
OCEAN VIEW	561							CC-6					
OLLIE I OLLIE	562										Oys-1 OC-9	Chin-2	Chin-1
OCEAN BIRD	563											CC-1	CC-3
PAT	601		W-1 B-4		P-10	P-29	P-21						
PRESCOTT	602						W-6	W-77	W-3	CC-8	CC-7	CC-8	CC-7
PAMLICO	603	P-1	W-4 P-22	P-10									
QUEEN MARY	641	P-11	P-39	P-33	W-7	W-16	W-50	W-22					
QUEST	642	P-8	W-9 P-7	W-23	W-17	W-71	W=1	W-10					
REBECCA SNOW	681	P-15	P-35	P-37	W-6 P-9	W-2 P-7	W-1	W-5	W-9				
REBECCA SNOW II	682					W-13	W-42	W-73	W-1				
RESOLUTE	683				W-1	W-2							
RICK-BILL	684						CC-2	CC-26	CC-6				
ROBERT IE LORE	685												

ROCKAWAY BELLE	686		W-1 P-5	P-30	P-18	P-35	P-22	W-20	W-2			P-12	
RUTH M (DONNA)	687									Oys-2			
RUTH C CHOW	689		P-12	P-25	P-16	P-14							
SALTESEA II	721			P-5	W-1		W-3	W-11	Chin-4 OC-8	OC-18 CC-1			
SARAH C CONWAY	722								OC-11	OYS-1 OC-25	OC-13	Oys-3 Chin-1 OC-8	OC-18
SCOOP	723												
SEWANAKA	724	P-9	W-5 P-40	P-43	P-11	P-24	W-20 P-37	W-7					
SKIMMER I	725	P-10	W-3 P-34	P-20	P-13	P-14	P-1						
SKIMMER II	726	P-8	P-29	W-25 P-5	W-13	W-14	W-34	W-33	W-5				
SKIMMER III	727		P-12	W-12	W-7	W-4							
STARLIGHT	728				W-9	W-13	W-39	W-97	W-10				Oys-8
STELLA MARIS	729												
STELLA S.	730	P-5	P-38	P-12	W-8	P-3 W-1	CC-1	OC-2 W-27	CHIN-2 Oys-2	OC-8			
SUSAN SNOW	731	P-6	P-17	P-6	W-4	W-5	P-7	W-1					
SUSAN SNOW II	732				W-2	W-7 P-2	W-9 P-10	W-55					

VESSELS	NO.	84	85	86	87	88	89	90	91	92	93		
SYLVIA S.	733	P-5	P-51	P-10	P-4	W-4 P-2	W-4						
TELKA	761	P-5	P-12	W-4	W-13	W-3							
TEMPO II	762			W-4	P-14 W-2	P-27	W-3 P-37	W-83		CYS-11	CC-1	CC-7	CC-2
TERESA DAWN	763						CC-1	CC-21	CC-21 CHIN-2	CC-23 Cys-2	CC-12	CC-18	CC-11
THEODORA S.	764	P-3	P-22	P-12	W-8	P-1 W-3	W-2	W-14	CHIN-6	CYS-4 CHIN-6			
THOMAS HENDERSON, Jr.	765		W-5 P-12	P-14	W-4	W-1	CC-1	CC-11	CC-17 CHIN-3	CC-20	CC-6	CC-16	CC-10
THREE SISTERS	766	P-6	W-4 P-28	P-33	P-20	P-35	P-31	P-25 W-1	W-3		Cys-1		
TINA MARIE	767												CC-4 CC-2
TONY & JAN	768												
TRINITY	769	P-9	P-29	P-18	P-11	P-27	P-29	P-32					
TROYDON	770										CC-2	CYS-2 CC-12	CC-3
TYPHOON	771				P-15	P-22							
VALERIE E.	841					W-5	LD-3 W-44	W-152	W-12	CC-16	CC-9	CC-11	CC-2 X-1
VENTURE	842				W-13	W-8							
VICTORIA	843	P-10	W-9 P-5	W-22	W-21	W-10	W-51	W-102	W-7				

VESSELS	No.	64	65	66	67	68	69	70	71	72	73	74	75
VICTORY	844		W-1										
V VICTORY	845		P-6	W-24	W-12	W-9							
.IRGINIA S.	846	P-3	P-37	P-14	W-2 P-2	W-1 P-1	W-6	OC-3 W-32	CHIN-1 OC-1	CHIN-6 CYS-3	OC-11	OC-9	OC-11
VIVIAN POWELL	847												
W A BALLARD	881		W-2 P-38	P-32	P-15	P-38	P-23	P-11 W-3	W-2				
WALSHES	882		W-2 P-2	W-20	W-7	W-2	OC-1	OC-1					
WESTERN STAR	883										K-5		
WILLIAM C LORE	884					W-12	W-48	W-39					
WILLIAM E SNOW	885						P-20	P-42	P-4			P-11	
WILLIAM VEALE	886	P-3	P-38	P-14	W-4	W-9	W-2	OC-17 W-4	OC-25 CHIN-4	OC-19	OC-9	OC-17	OC-14
YATES	931				P-3					OC-1			

Port Codes Used for the Project

0-Freeport, N. Y.

1-Brooklyn, N. Y.

10-Point Pleasant, N. J.

11-Barnegat, N. J.

12-Atlantic City, N. J.

13-Cape May/Wildwood, N. J.

14-Ottons Harbor, N. J.

15-Cold Springs, N. J.

16-Port Norris, N. J.

17-Lakewood, N. J.

18-Gardners, N. J.

26-Lewes, Del.

31-Ocean City, Md.

36-Chincoteague, Va.

37-Oyster, Va.

38-Kiptopeke, Va.

39-Cape Charles, Va.

40-Little Creek, Va.

Vessel Codes Used for the Project

(Registration Number given if known)

Code Number	Vessel Name	Registration Number
1	Ada Adelia	1324
2	Ada C. Lore	222897
3	Adele	266401
4	Advance	512439
5	Althea	249004
6	American Clammer	223668
7	Ann C.	254961
8	Anna S.	275485
9	Arline Snow	257860
10	Aspen	235219
11	Azaelea	215341
12	Almah D. Robbins	222890
13	Airline Snow II	573720
14	Absecon	258419
15	Aima D. Robbins	
42	Beverly Snow	269548
43	Beverly Snow II	516634
44	Big Star	283645
45	Blue Run	508937
46	Bluepoints	231139
47	Brigantine (became Nil S. (527))	256216
48	Bright Eye IV	506746
49	Britt-Ann Marcher	208411
50	Billy Joe	

Code Number	Vessel Name	Registration Number
51	Big Stem	552407
52	Big A	
53	Beach Haven	
81	C and B Campbell	115439
82	C. D. Parmelee	110802
83	C. M. Riggin	222817
84	Captain Henry	272998
85	Carey	200737
86	Carolelle	210957
87	Casco	260268
88	Casey and Brown	267339
89	Charlie B.	229343
90	Chris Bob (became Patricia M (605))	266085
91	Christine Ann	273724
92	Christopher Snow	266700
93	City of Southport	212877
94	Clyde A. Phillips	227932
95	Condor II	259770
96	Cora Jean Snow	266920
97	Cora May Snow	519952
98	Captain Rick	
99	Cora Jean Snow II	547820
100	Christopher Snow II	572230
101	Christy	
102	Crispete	
103	Calcaseo	
121	Dale Riggin	14299

Code Number	Vessel Name	Registration Number
122	Dawn	293313
123	Dee C	240740
124	Desire	274698
125	Don	175114
126	Donna (Ruth M (687))	518181
127	Doxsee I	227623
128	Doxsee Girls	430135
129	Diane Marie	
130	Dana Ann	
161	Edith Marcy	136497
162	Edna	233546
163	Eleanor Marcher (became Mabel Kim (495))	225488
164	Eleanor Warner	217969
165	Elizabeth C.	203651
166	Ellen W.	239295
167	Emily Margarette	215514
168	Empress Mary	260500
169	Endeavor	518364
170	Enoch Snow	520048
171	Enterprize (Ingrid S. (321))	512612
172	Evelyn K. II	264531
173	Evelyn K. III	296302
175	Enterprise E.	
176	Enterprise S.	
177	East Hampton	260038

Code Number	Vessel Name	Registration Number
201	F. W. Schepper	244016
202	F. Nelson Blount	286467
203	First Lady	249859
204	Flora Kirwan	120918
205	Francis E. Soffron	523588
206	Fred H. Snow	264133
207	Francis E. Snow	558695
208	Funny Face	
241	Gail Borden	286385
242	Gail Snow	517507
243	Grace Ann	257915
244	Gulf Hustler	515036
245	Green Acres	521305
246	Gulf Rambler	298916
281	H. C. Hayes	276082
282	Harold F. Snow	520047
283	Helen L.	226514
284	Helen and Lois	228277
285	Hermaline	
321	Ingrid S. (Enterprise (171))	258354
322	Irma C.	265949
323	Indian River	261429
361	Jack and Doris	229413
362	Jenny	220106
363	Joan Evelyn	207999
364	Joan R. Jefferies	225488
401	Kathleen Riggin	228197

Code Number	Vessel Name	Registration Number
402	Katie E. Sharp	223729
403	Kelso	227040
404	Kim Bay	509491
405	Kristin Leigh	
441	L. E. Yates	206028
442	Landshy	243314
443	Lil Robin	511435
444	Linda Snow	272868
445	Linda Snow II	288879
446	Linnea	248414
447	Little Harold (Pattie May)	217823
448	Lloyd Shaw	207767
449	Lovella	278731
450	Laita	507626
451	Lady Cheryl	
452	Land W	
481	M. S. Roe	127732
482	Mabel Susan	229622
483	Madeline B.	257161
484	Maka	250113
485	Marcella	247532
486	Margaret and Nancy	271386
487	Margaret P. Hanks	535929
488	Marjorie Snow	263942
489	Martha Ruth	252744
490	Mary A. Newcombe	224478

Code Number	Vessel Name	Registration Number
491	Mary Ann	505300
492	Mary Jane	256198
493	Merle C. Soffron	523587
494	Miss Doxie	527931
495	Misty Dawn	534115
496	Myrtle Virginia	223296
497	Muriel Eileen	228078
498	Mary S. Lewis	
499	Mel Antone	507628
500	Madison I	
501	Mae-Doris	514099
502	Miss Valarie	510247
503	Manasquan	257192
504	Miss Francois	
505	Misty Blue	
506	Mabel Kim (Eleanor Marcher (163))	225488
521	Neighbor	239317
522	Nettie Maupin (Mary Ann (491))	505300
523	Norma Ann	512964
524	Norma Ann II	289566
525	Northern	265824
526	Norman D.	559787
527	Nil S. (Brigantine (47))	256216
561	Ocean View	257685
562	Ollie I. Collie	229018
563	Ocean Bird	508937

Code Number	Vessel Name	Registration Number
564	Ocean Gull	509852
601	Pat	233539
602	Prescott	292555
603	Pamlico	
604	Pari Passu	268664
605	Patricia M. (Chris Bob (90))	266085
641	Queen Mary	261129
642	Quest	220426
681	Rebecca Snow	250156
682	Rebecca Snow II	512188
683	Resolute	222687
684	Rick-Bill	238581
685	Robert T. Lore	110500
686	Rockaway Belle	251479
687	Ruth M. (Donna (126))	518181
689	Ruth C. Chow	
690	Rehoboth	261897
721	Saltsea II	260540
722	Sarah C. Conway	105403
723	Scoop	264132
724	Sewanaka	207463
725	Skimmer I	248760
726	Skimmer II	248554
727	Skimmer III	248598
728	Starlight	294992
729	Stella Maris	249951
730	Stella S.	273364

Code Number	Vessel Name	Registration Number
731	Susan Snow	259471
732	Susan Snow II	287581
733	Sylvia S.	273427
734	Sea Harvest I	
735	Sea Raven	
736	Stephanie D.	
761	Telka	224625
762	Tempo II	504693
763	Teresa Dawn	276229
764	Theodora S.	272998
765	Thomas Henderson, Jr. (became Thelma C. (772))	227345
766	Three Sisters	276213
767	Tina Marie	534716
768	Tony and Jan	285402
769	Trinity	240740
770	Troydon	550972
771	Typhoon	287196
772	Thelma C (Thomas Henderson, Jr. (765))	227345
841	Valerie E.	516934
842	Venture	224265
843	Victoria	203642
844	Victory	203140
845	V. Victory	218672
846	Virginia S.	272855
847	Vivian Powell	223781
881	W. A. Ballard	214041

Code Number	Vessel Name	Registration Number
882	Walshes	223530
883	Western Star	239180
884	William C. Lore	80566
885	William E. Snow	520049
886	William Veale	202672
887	Wiley Fox	

Temporary Coding used on New Jersey Landings
December, 1976-August, 1977

Vessel	Temporary Code	Regular Code
Patricia M.	604	605
Mabel Kim	500	506
Arlene II	012	013
Mae-Doris	501	No Change
Aima D. Robbins	013	015
Lady Cheryl	451	No Change
Chrispete	100	102
Big A	50	52
Wiley Fox	887	No Change
Green Acres	245	No Change
Calcaseo	101	103
Absecon	014	No Change
Funny Face	208	No Change
Beach Haven	051	053

Data Format for Interview Sheets

The data supplied gives fishing location and catch data, and in addition, supplies length data for a sample of the catch. The length data were recorded in two distinct forms, which changed with time, however, the change was not at the same time at all landing ports. As a result two formats have been used in entering the data on cards. The formats are identical, however, for the first 41 columns and are as follows:

cc 1-2 Port Code
cc 3-5 Vessel Code
cc 6-11 Date (mmddyy)
cc12-15 Loran Reading 1
cc16-19 Loran Reading 2
cc20-26 Depth Range (xxx-xxx)
cc27-29 Hours Fishing (decimal implied between columns 28 and 29)
cc30-31 Number of Tows
cc32-34 Average Tows per Hour (decimal implied between columns 33 and 34)
cc35-37 Depth Mostly Fished (in feet)
cc38-40 Catch in Bushels
cc41 Area Fished

The area fished cc41 are coded into four regions (1) Long Island, N. Y.; (2) New Jersey; (3) Delmarva Peninsula; and (4) Virginia-North Carolina. The delineations are on lines defined by the following coordinates:

A) 74°00' and 40°30' to 73°00' and 39°47'

B) 75°00' and 38°51' to 74°00' and 38°17'

C) 76°00' and 37°02' to 75°00' and 36°33'

The loran readings are all loran A. The particular rate identification was 3H4 for the first and 3H5 for the second. Many interview forms did not supply this information, or appeared to often supply it incorrectly. Thus, little processing was performed based on this information.

In cases where catch (cc38-40) overflowed its field, 999 was entered in this field and the actual catch is recorded in cc1-4 of the following card.

In the earlier data, length appears as a frequency count and an interval code number. The number is automatically converted to the midpoint of the samples by the basic processing programs. For these interview forms cc44-45 contains the number of clams in the sample for length. Columns 46-73 are then used for pairs of numbers, each number being two digits. The first number in the pair is the interval number, the second the frequency. If it is necessary to continue on to additional cards, a * appears in column 76 and the pairs are listed in columns 1-72 of the following cards as necessary.

In the later data, the number of samples and actual length are given. In this case cc42-43 give the number of clams in the sample and this is followed by ten three-column fields with the actual lengths (mm). If additional fields are required for length a * appears in cc76 and the lengths continue in cc1-75 of following cards as required.

The basic processing programs automatically switch from the old format to the new. If the old format reappears, the values are entered as an actual length using the midpoint of the interval. A card with port and vessel code followed by 999999 in cc6-11 indicates a change in format. A card with 99999 in cc1-5 indicates completion of records for a vessel at a port for the year.

It should be noted that many interview sheets did not contain complete information. Where possible information given has been entered with the missing fields left blank. Since port name, vessel

name, and date were critical to the ordering of the file, forms not containing this information were ignored.

The length interval code numbers utilized in the old format are as follows:

Code	Length Range (mm)	Code	Length Range (mm)
01	0-4.99	23	110-114.99
02	5-9.99	24	115-119.99
03	10-14.99	25	120-124.99
04	15-19.99	26	125-129.99
05	20-24.99	27	130-134.99
06	25-29.99	28	135-139.99
07	30-34.99	29	140-144.99
08	35-39.99	30	145-149.99
09	40-44.99	31	150-154.99
10	45-49.99	32	155-159.99
11	50-54.99	33	160-164.99
12	55-59.99	34	165-169.99
13	60-64.99	35	170-174.99
14	65-69.99	36	175-179.99
15	70-74.99	37	180-184.99
16	75-79.99	38	185-189.99
17	80-84.99	39	190-194.99
18	85-89.99	40	195-199.99
19	90-94.99	41	200-204.99
20	95-99.99	42	205-209.99
21	100-104.99	43	210-214.99
22	105-109.99	44	215-219.99
		45	220-224.99

Data Format for New Jersey Surf Clam Landings, December, 1976-August, 1977

cc 1-2 Port Code

cc 3-5 Vessel Code

cc 6-11 Date (mm dd yy)

cc 12-15 First Location Reading

cc 16-19 Second Location Reading

cc 27-29 Hours Fishing (decimal implied between cc 28 and 29)

cc 32-34 Tows per Hour (decimal implied between cc 33 and 34)

cc 35-37 Depth in Feet

cc 38-40 Catch in Bushels*

cc 46-50 Time at Sea in Hours (decimal implied between cc 49 and 50)

cc 51-55 License

*If catch overflows this field, 999 is entered and actual catch appears on cc 1-6 (right-justified) of the next card.

Vessel Information Format

Each record consists of four or five cards. If no overflow conditions exist on the first card it contains all the coded information, if an overflow condition exists (as indicated below), the information from that field appears on the next card. This information is followed by cards identifying vessel, owner, and owner location on respective cards.

Card 1 Vessel Information (coded) all numeric

cc 1-3	Vessel Code
cc 4-10	Registration Number
cc 11-13	Owner Code
cc 14-16	Vessel Length in Feet
cc 17-19	Gross Tons
cc 20-22	Net Tons
cc 23-26	Year Built
cc 27-29	Rated Horse Power*
cc 30-34	Maximum Load Capacity in Bushels
cc 35-36	Usual Crew including Captain: Winter
cc 37-38	Usual Crew including Captain: Summer
cc 39-41	Dredge Length in Inches
cc 42-43	Dredge Width in Inches **
cc 44-45	Dredge Height in Inches
cc 46	Blade; 1 = Straight, 2 = Vee
cc 47-49	Blade Width in Inches
cc 50	Manifold; 1 = Straight, 2 = Vee
cc 51	Manifold Hose Diameter in Inches
cc 52-53	Manifold Distance ahead of Blade in Inches

cc 54-57 Manifold Discharge in Gal./Min.

cc 58-60 Manifold Pounds Pressure

cc 61-63 Cage Length in Inches

cc 64-65 Cage Width in Inches

cc 66-67 Cage Height in Inches

cc 68 Ring Diameter in Bag in Inches

cc 69 Dredge operation: 1 = Side of Vessel, 2 = Stern of Vessel

cc 70-71 Year of This Information

cc 72 Vessel Power Class

cc 73-80 Blank

*On overflow in this field, 999 appears, and the correct value is given in cc 1-4 of the next card.

**On overflow in this field, -1 appears, and the correct value is given in cc 5-7 of the next card.

Card 2 Vessel Name

cc 1-77 Vessel Name, Left Justified

cc 78-80 Vessel Code (numeric)

Card 3 Owner Name

cc 1-80 Owner Name, Left Justified

Card 4 Owner Location

cc 1-80 Owner Location, Left Justified

Note - Cards 3 and 4 must always appear in the file. If the information is not available, blanks should be entered.

Vessel Owner Codes Used for the Project

Code Number	Vessel Owner
0	Unknown or not given
1	Advance Inc., Hampton, Va.
2	Allen, Kenneth, Atlantic City, N. J. (Phila.)
3	Althea Corp, Bricktown, N. J. (Phila.)
4	Andrews, Thomas, Cape Charles, Va.
5	Atlantic Processing, John Burlage, Virginia Beach, Va.
6	Atlantic Trawlers, Inc., Chicoteague, Va.
7	American Originals, Inc., Cannon, Del.
8	Atlantic Vessels, Inc., Norfolk, Va.
9	Atlantic Bait Corp., Bricktown, N. J.
41	Baker, James S., Cape Charles, Va.
42	Berry, George, Pt. Norris, N. J. (Phila.)
43	Bordon, Inc., Wildwood, N. J. (Phila.)
81	C and D Fish Co., Oyster, Va.
82	C and D Fish Co., Carlson, Curt, Phila, Pa.
83	Carlson, George, Phila., Pa.
84	Carlson, John, Phila, Pa.
85	Chapman, Loretta F., New York, N. Y.
86	Charles Fish, Crisfield, Md.
87	Charlie B. Corp., N. J., Phila., Pa.
88	Clark, Albert, Galveston, Texas
89	Clayton, Charles, New York, N. Y.
90	Consolidated Seafood Corp, N. J.
91	Crowson, James H., Cape Charles, Va.

Code Number	Vessel Owner
92	Captain Rick, Inc., Barnegat Light, N. J.
93	Carmines, George S., Poquoson, Va.
94	Clamco Corp., Port Norris, N. J.
121	D and S Seafood, Inc., Tampa, Fla.
122	D.T.K. Corp., Phila., Pa.
123	Davis and Lynch Fish Co., Crisfield, Md.
124	Deputter, George, Jr., Phila., Pa.
125	Drewer, Vernon H., Saxis, Va.
126	Dudley, Peter, Brick Township, N. J.
127	Doxie, Robert
128	Daniels, Herman, Lakewood, N. J.
161	East Coast Trawling and Dock Co., Phila., Pa.
162	Enterprize Inc., Wildwood, N. J. (Phila.)
163	Everett, Russell, Chincoteague, Va.
164	Ellen W. Corp., Barnegat Light, N. J.
201	Ferrante, A. A., Fishing Corp., New Bedford, Mass.
202	First Sussex Corp., Selbyville, Del.
203	Freeport Sea Clam Co., William Granau, New York, N. Y.
204	Funny Face, Inc., Cape May, N. J.
205	Farmer, Robert J., Wanamasea, N. J.
241	G H G Corp., Phila., Pa.
242	Gallagher, Bob, Long Island, N. Y.
243	Gallagher, Tom, Pt. Pleasant, N. J. (Phila.)
244	Goessel, Robert, Pt. Pleasant, N. J. (Phila.)

Code Number	Vessel Owner
245	Granau, William, Wildwood, N. J.
246	Gruneau, William, Freeport, Long Island, N. Y.
247	Gaskill, Richard, Willis Wharf, Va.
248	Gifford, William J., Absecon, N. J.
281	H.J.L., Inc., Toms River, N. J.
282	Hanks Seafood, Easton, Md.
283	Harbor Shellfish, Kingston, R. I.
284	Hesto, Helen, Phila., Pa.
285	Higbee, Harry, Phila., Pa.
286	High Seas Harvesters, Inc., Wilmington, Del.
321	Isle of York, Inc., Ocean City, Md.
361	Jefferies, Norman L., Phila., Pa.
362	Jenkins, Floyd, Phila., Pa.
363	Johnson, Howard Co., Cape May, N. J.
364	Jordan, Michael, North Cape May, N.J.
401	Kirkeberg, Eirik, Phila., Pa.
402	Kinsel, James
403	Kelleher, Robert, Rio Grande, N. J.
404	Kim Bay Co., Ocean City, Md.
441	Landshy, Inc.- Va., Crisfield, Md.
442	Larson, Gust, Wildwood, N. J. (Phila.)
443	Livingston, Harry, Inc., Toms River, N. J. (Phila.
444	Long Island Sea Clam Corp., New York
445	Lore, Charles, Newport, N. J. (Phila.)
446	Lougren, Costa, Pt. Pleasant, N. J. (Phila.)
447	Lubiejewski, Victor J., Phila., Pa.

Code Number	Vessel Owner
448	Lil Robin, Inc., Ocean City, Md.
481	Maddox, Wyle, Cape Charles, Va.
482	Marcher, Hans, Port Norris, N. J.
483	Marriner, Franklin, Phila., Pa.
484	Martin Fish Co., Inc., Crisfield, Md.
485	Matthews, Elmer, Cape Charles, Va., (Chincoteague)
486	Mathews, William, New York, N. Y.
487	Mears, Bertrand S., Phila., Pa.
488	Meyers, Dick, Barnegat, N. J. (Phila.)
489	Migliaccio, Gennaro, New York, N. Y.
490	Miles, J. H., Norfolk, Va.
491	Misty Dawn, Inc., N. J. (Phila.)
492	Mollenkopf, Phila., Pa.
493	Meyers Clam Co., Richard Myers, Phila., Pa.
494	Myklebust, Trygre, Atlantic Bait Corp., Bricktown, N. J.
495	Mabel Kim, Inc., Rio Grande, N. J.
496	Meyers Clam Co., Barnegat Light, N. J.
497	Matthews, Howard, Cape May, N. J.
498	Moore, William, Berlin, Md.
520	McDaniels, Donald, Port Norris, N. J.
521	Norma Ann, Inc., N. J. (Phila.)
522	Northern, Inc., Crisfield, Md.
523	Norman D., Inc. Leesburg, N. J.
561	O. P. Inc., N. J. (Phila.)
562	Ocean Scallop, Inc., Washington, D. C.
563	Osmundsen, Joseph, Phila., Pa.

Code Number	Vessel Owner
564	Osmundsen, Mabel, Marine Resources, Inc., (Phila.)
565	Osmundsen, Sig, Phila., Pa.
566	Ottons Harbor Clam Co., Wildwood, N. J.
567	Off Shore Diving Corp., Freeport, N. Y.
601	Pearson, Ronald, Wildwood, N. J. (Phila.)
681	Ray, A. Randolph, Pt. Pleasant, N. J. (Phila.)
682	Riggin, Bill, Port Norris, N. J. (Phila.)
683	Robbins, Richard, Port Norris, N. J.
684	Roberts, John, Pt. Pleasant, N. J.
685	Robbins, Leon H., Jr., Port Norris, N. J.
686	Rummel, Alfred, Hammonton, N. J.
721	Savage, Rick E., Crisfield, Md.
722	Schneider, Henry, New York, N. Y.
723	Schoeffler, C., Phila., Pa.
724	Sea Harvest, Inc., Phila., Pa.
725	Shivers, Jesse and Ken, Phila., Pa.
726	Skilligolee, Inc., F. V., Newfield, N. J.
727	Smith, Stanley, Ocean City, Md.
728	Soffron, F. E., Inc., Port Norris, N. J. (Phila.)
729	Streit, George, New York, N. Y.
730	Sletter, Nels, Oyster, Va.
731	Sea Prize, Inc., North Wildwood, N. J.
732	Surf Clam, Inc., Brick Township, N. J.
733	Soffron, Inc., Port Norris, N. J.
761	Taylor, Harry--Edwin Nichols (74) (Phila.)
762	Taylor, Harry B., Cape May, N. J.
763	Taylor, Reba, Cape May, N. J.

Code Number	Vessel Owner
764	Trawler Resolute, Inc., Norfolk, Va.
765	Teresa and Dawn Fish and Clam Co., Ocean City, Md.
766	Troydon, Inc., Wildwood, N. J.
841	Valerie E. Inc., Wildwood, N. J.
842	Val Clam Corp., Ocean City, Md.
881	Walker, Charles, Cape May, N. J. (Phila.)
882	Wall, Pierce, Phila., Pa.
883	Walsh, Richard, Patterson,Jrs., Inc.
884	Watson, A. Wayne, Crisfield, Md.
885	Wildwood Clam Co., Wildwood, N. J. (Phila.)
886	Woodrow, Lawrence, Inc., Ocean City, Md.
887	Watson, Anthony, Ocean City, Md.
888	Walter Russell Fish, Chincoteague, Va.
889	Wildwood Two, Inc., Wildwood, N. J.
890	Wildwood Five, Inc., Wildwood, N. J.
891	Wildwood One, Inc., Wildwood, N. J.
892	W. A. Ballard, Corp.
931	Yearicks, J. Fenton, Phila., Pa.

File Names - Surf Clam Interview Form Tape

The interview data in its raw form is available on tape. The data are organized by Port, Year, and Vessel in that order. All data are included except that for the New Jersey Landings of December, 1976-August, 1977. Since this was an experimental project, and involves information not previously released, the material is excluded from the master tape at this time.

The tape consists of files for each port and each year. The file identifications are as follows:

BA65-Barnegat, 1965
PP64-Point Pleasant, 1964
PP65-Point Pleasant, 1965
PP66-Point Pleasant, 1966
PP67-Point Pleasant, 1967
PP68-Point Pleasant, 1968
PP69-Point Pleasant, 1969
PP70-Point Pleasant, 1970
PP71-Point Pleasant, 1971
PP74-Point Pleasant, 1974
WI65-Wildwood/Cape May, 1965
WI66-Wildwood/Cape May, 1966
WI67-Wildwood/Cape May, 1967
WI68-Wildwood/Cape May, 1968
WI69-Wildwood/Cape May, 1969
WI70-Wildwood/Cape May, 1970
WI71-Wildwood/Cape May, 1971
WI72-Wildwood/Cape May, 1972
WI73-Wildwood/Cape May, 1973
WI74-Wildwood/Cape May, 1974
LE69-Lewes, 1969
OC69-Ocean City, 1969
OC70-Ocean City, 1970
OC71-Ocean City, 1971
OC72-Ocean City, 1972
OC73-Ocean City, 1973
OC74-Ocean City, 1974
OC75-Ocean City, 1975
CC72-Cape Charles, 1972
CC73-Cape Charles, 1973
CC74-Cape Charles, 1974
CC75-Cape Charles, 1975
CH71-Chincoteague, 1971
CH72-Chincoteague, 1972

CH74-Chincoteague, 1974

CH75-Chincoteague, 1975

KI73-Kiptopeke, 1973

KI74-Kiptopeke, 1974

KI75-Kiptopeke, 1975

OY72-Oyster, 1972

OY73-Oyster, 1973

OY74-Oyster, 1974

OY75-Oyster, 1975

Ship-Vessel Information