Methods Used to Compile South Atlantic Shrimp Effort Used in the Estimation of King Mackerel Bycatch in the South Atlantic Shrimp Fishery

David Gloeckner

SEDAR38-RW-02

5 August 2014



This information is distributed solely for the purpose of pre-dissemination peer review. It does not represent and should not be construed to represent any agency determination or policy.

Please cite this document as:

Gloeckner, D. 2014. Methods Used to Compile South Atlantic Shrimp Effort Used in the Estimation of King Mackerel Bycatch in the South Atlantic Shrimp Fishery. SEDAR38-RW-02. SEDAR, North Charleston, SC. 22 pp.

Methods Used to Compile South Atlantic Shrimp Effort Used in the Estimation of King Mackerel Bycatch in the South Atlantic Shrimp Fishery

Dave Gloeckner

April 25, 2014

Southeast Fisheries Science Center Sustainable Fisheries Division 75 Virginia Beach Drive Miami, FL 33149-1099 Sustainable Fisheries Division Contribution No. SFD-2014-013 Trip ticket data exist in ACCSP for FL from 1986-present, NC from 1994 to the present, SC from 2004 to the present, and GA from 2001 to the present. Data for years from 1978 to the period covered by trip tickets are available from the South Atlantic Shrimp (SAS) database at the SEFSC. The SAS system covers 1978-1991 for NC, 1978-2000 for GA, 1978-2003 for SC and 1981-1992 for FL (Table 1). A description of the SAS database is presented in Appendix A and a copy of the ACCSP commercial data collection standards is located at: http://www.accsp.org/documents/programdesign/2012/ACCSPStandards_Commercial.pdf. An entity relation diagram for the tables used in this extraction from ACCSP is presented in appendix B.

Trip ticket for NC-FL where extracted from the ACCSP consolidated reports and consolidated landings table for the years were trip ticket data are available for NC-FL and imported into Statistical Analysis Software. Where information was available in the additional effort tables (trips, efforts, catches), that information was linked with the trip ticket data during the extraction. The fields extracted from ACCSP included: report identifier, trip identifier, data supplier, unload year, unload month, unload day, state code, county code, dealer license number, state dealer id, vessel coast guard number, vessel state registration number, gear code, gear name, area code, sub area code, distance from shore, species code, common name, disposition code, market code, grade code, live pounds, value, start of trip year, start of trip month, start of trip day, trip number, was trip split, days at sea, hours fishing, soak time, county code from effort tables, state code from effort tables , area code from effort tables. The trips extracted from ACCSP where limited to those that had shrimp landings.

After the data were imported into the Statistical Analysis Software, trips landing in FL west coast counties were removed and bait records were removed. The data were then sorted by trip identifier and pounds to identify the target species. The record with highest pounds landed was then retained for each trip. Trips with non-shrimp targets were then removed. Each trip record was counted as 1 trip, unless identified as a split trip, in which case it was counted as ¹/₂ trip. These records where then inserted into a table into which the SAS data would be added to complete the years before trip tickets are available.

Shrimp effort data were extracted from the South Atlantic Shrimp System for years before trip ticket data are available. The fields extracted included: schedule number, trip identifier, unload year, unload month, unload day, state code, county code, state dealer id, vessel id, gear code, gear name, area code, sub area code, species code, common name, disposition, landed pounds, value, calendar days fished, boat trips and vessel trips. SAS system codes were converted to FIN codes and boat and vessel trips added together and then the SAS data was inserted into the table housing the trip ticket data. Trips were then summarized by year, state and month and exported into a CSV file for use by analysts. NC data are incomplete for 1992 and missing for 1993, so these years must be interpolated to complete the dataset. The code used for this data pull is presented in appendix C.

| | | S | TATE | |
|------|-------|-------|-------|-------|
| YEAR | FL | GA | NC | SC |
| 1978 | | SAS | SAS | |
| 1979 | | SAS | SAS | SAS |
| 1980 | | SAS | SAS | SAS |
| 1981 | SAS | SAS | SAS | SAS |
| 1982 | SAS | SAS | SAS | SAS |
| 1983 | SAS | SAS | SAS | SAS |
| 1984 | SAS | SAS | SAS | SAS |
| 1985 | SAS | SAS | SAS | SAS |
| 1986 | SAS | SAS | SAS | SAS |
| 1987 | SAS | SAS | SAS | SAS |
| 1988 | SAS | SAS | SAS | SAS |
| 1989 | SAS | SAS | SAS | SAS |
| 1990 | SAS | SAS | SAS | SAS |
| 1991 | SAS | SAS | SAS | SAS |
| 1992 | SAS | SAS | | SAS |
| 1993 | ACCSP | SAS | | SAS |
| 1994 | ACCSP | SAS | ACCSP | SAS |
| 1995 | ACCSP | SAS | ACCSP | SAS |
| 1996 | ACCSP | SAS | ACCSP | SAS |
| 1997 | ACCSP | SAS | ACCSP | SAS |
| 1998 | ACCSP | SAS | ACCSP | SAS |
| 1999 | ACCSP | SAS | ACCSP | SAS |
| 2000 | ACCSP | SAS | ACCSP | SAS |
| 2001 | ACCSP | ACCSP | ACCSP | SAS |
| 2002 | ACCSP | ACCSP | ACCSP | SAS |
| 2003 | ACCSP | ACCSP | ACCSP | SAS |
| 2004 | ACCSP | ACCSP | ACCSP | ACCSP |
| 2005 | ACCSP | ACCSP | ACCSP | ACCSP |
| 2006 | ACCSP | ACCSP | ACCSP | ACCSP |
| 2007 | ACCSP | ACCSP | ACCSP | ACCSP |
| 2008 | ACCSP | ACCSP | ACCSP | ACCSP |
| 2009 | ACCSP | ACCSP | ACCSP | ACCSP |
| 2010 | ACCSP | ACCSP | ACCSP | ACCSP |
| 2011 | ACCSP | ACCSP | ACCSP | ACCSP |
| 2012 | ACCSP | ACCSP | ACCSP | ACCSP |
| 2013 | ACCSP | ACCSP | ACCSP | ACCSP |

Table 1. Source of shrimp effort data by year and state.

Appendix A

SOUTH ATLANTIC SHRIMP SYSTEM

OVERVIEW

DATE THIS DOCUMENT WAS LAST UPDATED:

January 31, 1995 November 29, 1995 by Linda Hardy December 5, 1995 by Susan Gold May 8, 2012 by David Gloeckner April 24, 2014 by David Gloeckner

PURPOSE:

This document is an adaptation of a document originally written in June of 1990. It is intended as an overview of the data collection program.

INTRODUCTION:

The Southeast Fisheries Science Center SEFSC, in cooperation with the South Atlantic states, collects South Atlantic shrimp data from dealers and fishermen and archives these data on the SECPR server. These data are collected to provide catch, value, area caught, and effort data for individual commercial fishing trips. It should be noted that some states are not providing effort data. Although this objective is never totally achieved, the SEFSC's data do provide a near-census of the commercial catches, the majority of which are for consolidated trips. This documentation has been prepared to describe the structure of the computer files in which these data are stored.

HISTORY

The historical South Atlantic shrimp data collection dates back to 1956 when hard copy reports were published reporting commercial catches by state, port, month, species, size, pounds (heads-on), and value of shrimp landed. These reports are published and available through 1978. Starting with 1962, these reports were computerized; however, the computerized reports do not contain species or size compositions. Beginning in 1978 for the states of North Carolina and Georgia, 1979 for South Carolina, and the Florida East Coast in 1981, the detailed shrimp statistics data collection system became operative. This system was designed by the Shrimp Technical Committee of the South Atlantic States Marine Fisheries Commission and was oriented towards individual trip data collection. Beginning in 1982, the SEFSC and the four coastal states in the South Atlantic established a cooperative program for the collection and processing of shrimp statistics. Although the data collection and processing were shared by the SEFSC and the State Cooperators, it was agreed that the data would be maintained on a mainframe computer owned by the NMFS, but accessible by

all partners. Currently, these data are stored on the NMFS SECPR Oracle server in Miami, Florida.

After 1992, North Carolina and Florida quit collecting detailed shrimp information. The Florida data does not include Monroe County or bait shrimp. South Carolina data includes mariculture shrimp and Georgia includes bait shrimp.

Data Base Description and Record Format

As established by the Shrimp Technical Committee, data for this data base are collected for individual trips. A trip is defined as the time when a vessel (or boat) departs to conduct fishing activities until the vessel (or boat) returns and unloads its catch. Port samplers that collect the data from seafood processors and dealers are instructed to prepare a separate data entry form or schedule for each trip that the dealer has sales information for.

The organization of the data in the data base also follows the trip concept. However, because the data base uses a fixed-record format, it is likely that more than one record exists for a single trip. The reason for multiple records per trip is that a single record is used for each species, size and area/subarea where the shrimp were reportedly caught. Thus, if both pink and brown shrimp were caught in two separate areas, then there would be four records associated with this fishing trip. The user must be aware of this organization when using the data base. It is recommended that when users need information about individual fishing trips, the data be sorted by schedule number, port, date and dealer number. Sorting the data with these parameters (fields) will assure that all of the records associated with a single trip will be physically located together in the (sorted) data file. For trip effort information, the file needs to be indexed on state, year, month, day, county, dealer, schedule unique.

It should also be noted that the number of trips is recorded in one of two fields. If the trip was made by a vessel (i.e., a craft that is five net tons or greater), the number of trips is recorded in the Vessel Trip field, i.e., the 10th field in the record (note, the record format and field names are provided in the Appendix). If the trip (or trips) was (were) made by a boat, then the number of trips is recorded in the Boat Trip field, i.e., 11th field in the record. Thus, if the user wants the total number of trips, then the values in both of these fields must be summed. For the majority of the records, the value in either of these two fields is 1; however, port samplers do combine information from more than one trip on a single schedule in some situations. For example, if the identification numbers for several vessels are not known, then the port agents are instructed to consolidate the data from these trips into one schedule for the same date of return. Trip consolidation is also used when the trips are made by boats because they do not have a registration number that has been issued by the U.S. Coast Guard, and the data collection policy is not to record data by state registration number. Ιn addition, port agents in Georgia have been instructed not to record vessel identification number, either Coast Guard or State registration numbers.

Beginning in 1991 for South Carolina, the number in the vessel field is total trips of vessels and boats - not total trips for vessels.

The U.S. Coast Guard registration number is provided in the 14th field, Vessel ID Number. If the trip is for a single vessel and the U.S. Coast Guard number is unknown, a value of 999999 is entered in the ID Number field. For consolidated schedules and the records for fishing that occurred in Georgia, this field is filled with zeroes.

Calendar Days Fished is a record of the trip duration, described as the number of days spent fishing on a particular trip. Days, in this case, are defined as any part of a day (12:01 A.M. to midnight) in which a craft actually catches or tries to catch shrimp. When more than one area or subarea is fished during a trip, the calendar days are prorated according to the percentage of time spent fishing in each area for that trip. In this case the calendar days fished may include decimals and would give the total trip duration only when added to calendar days of other listings with the same schedule number, port number, date, and dealer number.

South Carolina has two sources of Calendar Days Fished data. Forty percent of the data is reported by shrimp dealers, with the remaining data calculated by port agents. Prior to 1986, Calendar Days Fished was assigned by the agent based only on the amount of the catch and size of the vessel. Since 1986, all data not supplied by dealers is assigned by comparing trip tickets with the last date of unloading, along with the amount of the catch and the agent's fishery knowledge. Beginning in 1991, South Carolina stopped collecting effort data.

The Tenths of Days Fished field is a number obtained by dividing the actual number of hours that the net was in the water while fishing in a particular area by 24. This result is given in decimal form. (For example 090 would be 9 days fished and 003 would be .3 days fished.) In South Carolina this field shows the actual tenths of days fished only for those trips in which an interview was conducted - about five percent. For all other trips, a value of 7.5 is assigned to this field.

The point of landing is listed by state and county in the first two fields. In South Carolina, however, the state and county listed are for the first point of purchase, rather than the point of landing.

The shrimp data includes a grading code which gives information about whether the shrimp size listed is based on the actual size after sorting (code 2) or on an average catch size (code 1). Georgia and South Carolina do not follow this coding system. Instead, Georgia codes all shrimp as 1 whether they have been sorted and graded or not. For South Carolina, a coding of 1 means that either no grading occurred or that only one grade was recorded for the trip. Code 2 signifies that the catch was graded and that more than one grade was landed.

The distance from shore a catch was taken is given in the Subarea field for all offshore areas. An offshore area is generally described as being a geographic location extending from any point of land on the coast line out to the open ocean excluding sounds, inlets, rivers, bays, intercoastal waterways, etc. These offshore areas are further divided by subareas which are in three distinct groups according to distance from the shore line; i.e. 0-3 miles, 3-12 miles, and 12-200 miles. Inshore areas are generally described as bodies of saltwater other than offshore areas including sounds, inlets, bays, tidal portions of rivers, estuaries and other salt or brackish water.

Area and subarea fields may show the following irregularities. The subarea code 00 is given by Georgia port agents when the subarea is unknown. In South Carolina, the county code 64 is used for both Jasper and Beaufort counties.

Pounds: The quantity for each species and size. The quantity is the actual weight of the shrimp in pounds, heads-off.

Unit Cost is the average ex-vessel price per pound paid to the fisherman for heads-off shrimp for each species and size reported. The ex-vessel price does not include charges for unloading, grading, icing, packing, cartage, etc. The unit cost is obtained from dealers' records, personal observation, and from information acquired through interviews. For landings in South Carolina, ex-vessel price data have been assigned by computer algorithm based on monthly dealer prices and known packing and heading costs.

Identification of commonly co-occurring shrimp species in South Carolina is carried out by applying the results of independent state surveys to all commercial catches. These surveys are conducted in the following way: Prior to 1985, species composition was determined by counting the proportion of each species in a sample of fifty shrimp and applying that result to the entire catch. The current procedure uses samples weighing two to three pounds that contain at least 50 shrimp each. These samples are sorted by species and are then weighed, giving an estimate of the species make-up for that trip and grade.

The Date of Landing field gives the unloading date for a trip by month, date and year. South Carolina gives the exact unloading date only for those landings which are recorded by trip specific weigh-outs; about 70 percent. Information for the remaining landing dates is reported via monthly dealer reports which give the landing date as the 15th of the month, unless the trawling season was not open for the entire month for that area fished. In this case the date is coded with the modal day. In 1991 South Carolina started coding the date of landings as 7, 14, 21 and 28 (first week, second week etc.) Day 29 would represent days 29, 30 and 31, and Day 15 would represent a monthly report. North Carolina dates most of its consolidated schedules on the Friday of each week because nearly all buyers calculate weekly catch totals and settle accounts with the fishermen on Friday.

SOUTH ATLANTIC SHRIMP FORMAT of the Flat files as they were stored on the A10

| COLUMN | FIELD |
|---------|-----------------------------|
| | |
| 1 - 2 | State Landed |
| 3 - 4 | County Landed |
| 5 - 8 | Area Caught |
| 9 - 10 | Distance From Shore |
| 11 - 13 | Dealer Number |
| 14 - 19 | Date Landed(mmddyy) |
| 20 - 22 | Schedule Number |
| 23 | Grading |
| 24 | Gear Code |
| 25 - 30 | Vessel Trip |
| 31 - 36 | Boat Trips |
| 37 - 39 | Calendar Days Fished |
| 40 - 44 | Tenth Of Days Fished |
| 45 - 50 | Vessel ID Number |
| 51 | Species Code |
| 52 - 53 | Size |
| 54 - 58 | Pounds Caught (heads off) |
| 59 - 62 | Unit Cost (price per pound) |
| 63 - 65 | Filler |
| | |

STATE CODES

| _ | _ | _ | _ | _ | _ | _ | _ | _ |
|-------|---|---|---|---|---|---|---|---|
| _ | _ | _ | _ | _ | _ | _ | _ | _ |

| STATE CODE | STATE | | |
|------------|---|--|--|
| ======== | ======================================= | | |
| 36 | North Carolina | | |
| 43 | South Carolina | | |
| 13 | Georgia | | |
| 10 | Florida (east coast) | | |
| | | | |

COUNTY CODES

| NORTH CAROLINA | SOUTH CAROLINA | GEORGIA | FLORIDA |
|--|--|---|--|
| ============== | | | ============= |
| Dare (90) Hyde (91) Beaufort (92) Pamlico (93) Carteret (94) | Horry (60) Georgetown (61) Charleston (62) Colleton (63) Beaufort (64) | Chatham (33) Bryan (34) Liberty (35) McIntosh (36) Glynn (37) | Nassau (22) Duval (23) St.Johns (24) Volusia (25) Brevard (26) |
| Onslow (95) | | Camden (38) | St.Lucia (27) |
| New Hanover (96) Brunswick (97) Pender (98) Craven (99) | | | |

AREA AND SUBAREA CODE FORMATS

| AREA | SUBAREA CODE | DESCRIPTION |
|------|--------------|-------------------------------------|
| ==== | | ========= |
| XXX0 | X1 | Offshore location of 0 to 3 miles |
| XXX0 | X2 | Offshore location of 3+ to 12 miles |
| XXX0 | ХЗ | Offshore location of 12+ miles |
| XXXZ | XX | Inshore location |

(X is any digit 0 to 9, Z is any digit 1 to 9

GEAR TYPE

Shrimp Trawl (A) Channel Net (B) Butterfly Net (C) Other [prior to 6/84] (D) Pound Net [after 6/84] (D) Crab Trawl (E) Fish Trawl (F) Cast Net (G) Seine (H) Skimmer Trawl (I) Other (Z)

GRADING CODE

1 - Average Size Caught
2 - Actual Size

SPECIES

| <pre>1 - Brown 2 - Pink 3 - White 4 - Sea Bobs 5 - Royal Red 6, 7, & 9 - Aquaculture 8 - Rock B - Bait</pre> |
|--|
| SIZE - NUMBER OF SHRIMP PER POUND |
| 11 - Under 15 21 - 15 - 20 31 - 21 to 25 41 - 26 to 30 51 - 31 to 35 52 - 36 to 40 61 - 41 to 45 62 - 46 to 50 71 - 51 to 55 72 - 56 to 60 81 - 61 to 70 91 - Over 70 |

Appendix B

CUDDUED TOD ID . MADOUADO/22 DVTC

Entity Relation Diagram for trip ticket data housed at ACCSP in the ACCSPREC schema



Appendix C

Statistical Analysis Software code used to extract and summarize shrimp effort

```
/*****Data for shrimp effort*******/
libname SASDATA V8 "O:\dqloeckner\SEFSC\SHRIMP\STANDARD EXTRACT";
/***** output directory and year requested *********/
PROC SQL ;
     connect to oracle (user=xxxxxx orapw="xxxxxx" path="SECPR")
     ;
     create table sasdata.ACCSP TRIPS SHRIMP TEMP as
     select * from connection to oracle
 (SELECT A.CONS RPT ID, A.TRIP ID, A.DATA SUPPLIER, 'ACCSP' as FORM VERSION,
A.UNLOAD YEAR, A.UNLOAD MONTH, A.UNLOAD DAY, A.STATE CODE, A.COUNTY CODE,
C.IDENT, C.SUPPLIER_PA_ID, D.COAST_GUARD NBR, D.STATE REG NBR,
A.GEAR CODE, E.GEAR NAME, A.AREA CODE, A.SUB AREA CODE, A.DISTANCE CODE,
B.SPECIES ITIS, G.COMMON NAME, B.DISPOSITION CODE, B.MARKET CODE, B.GRADE CODE,
B.LIVE POUNDS, B.DOLLARS, F.START YEAR, F.START MONTH, F.START DAY,
F.TRIP NBR, F.SPLIT TRIP, F.DAYS AT SEA, F.FISHING HOURS, F.SOAK TIME,
F.COUNTY CODE AS COUNTY CODE2,
F.STATE CODE AS STATE CODE2, F.AREA CODE AS AREA CODE2, F.SUB AREA CODE AS
SUB AREA CODE2, F.DISTANCE CODE AS DISTANCE CODE2, F.GEAR CODE AS GEAR CODE2
FROM ACCSPREC.CONSOLIDATED REPORTS@ACCSP DBLK A
LEFT JOIN ACCSPREC.CONSOLIDATED LANDINGS@ACCSP DBLK B ON (A.CONS RPT ID =
B.CONS RPT ID)
LEFT JOIN ACCSPREC.PARTICIPANTS@ACCSP DBLK C ON (A.DEALER ID =
C.PARTICIPANT ID)
LEFT JOIN ACCSPREC.VESSELS@ACCSP DBLK D ON (A.VESSEL ID = D.VESSEL ID)
LEFT JOIN ACCSPREC.GEARS@ACCSP DBLK E ON (A.GEAR CODE = E.GEAR CODE)
LEFT JOIN ACCSPREC.SPECIES@ACCSP DBLK G ON (B.SPECIES ITIS = G.SPECIES ITIS)
LEFT JOIN (SELECT *
FROM (SELECT A.CONS RPT ID, A.DATA SUPPLIER, B.START YEAR, B.START MONTH,
B.START DAY, B.TRIP NBR, B.SPLIT TRIP,
B.DAYS AT SEA, C.FISHING HOURS, C.SOAK TIME, B.COUNTY CODE, B.STATE CODE,
C.AREA CODE, C.SUB AREA CODE,
C.DISTANCE CODE, C.GEAR CODE, ROW NUMBER() OVER (PARTITION BY A.TRIP ID,
A.DATA SUPPLIER ORDER BY A.TRIP ID, A.DATA SUPPLIER,
B.TRIP NBR DESC NULLS LAST, B.DAYS AT SEA DESC NULLS LAST, C.FISHING HOURS DESC
NULLS LAST, D.LIVE POUNDS DESC NULLS LAST ) AS COUNTS
FROM ACCSPREC.CONSOLIDATED REPORTS@ACCSP DBLK A
LEFT JOIN ACCSPREC.TRIPS@ACCSP DBLK B ON (A.TRIP ID = B.TRIP ID)
LEFT JOIN ACCSPREC.EFFORTS@ACCSP DBLK C ON (A.TRIP ID = C.TRIP ID)
LEFT JOIN ACCSPREC.CATCHES@ACCSP DBLK D ON (A.TRIP ID = D.TRIP ID AND
C.EFFORT SEQ = D.EFFORT SEQ)) E WHERE E.COUNTS = 1) F ON (A.CONS RPT ID =
F.CONS RPT ID)
WHERE (A.DATA SUPPLIER = '0013' and a.unload year >= 2004 or A.DATA SUPPLIER =
'0014' and a.unload year >= 2001 or A.DATA SUPPLIER = '0015' and a.unload year
> 1992)
AND B.CONS RPT ID IN (SELECT CONS RPT ID FROM
ACCSPREC.CONSOLIDATED LANDINGS@ACCSP DBLK WHERE SPECIES ITIS IN
                  (SELECT SPECIES ITIS
```

```
FROM ACCSPREC.SPECIES@ACCSP DBLK
                   WHERE COMMON NAME LIKE '%SHRIMP%')));
disconnect from oracle
                                                             ;
QUIT ;
/*ACCSP reloading NC data, so have to use view for NC*/
PROC SQL ;
     connect to oracle (user=xxxxxx orapw="xxxxxx" path="SECPR")
     ;
     create table sasdata.ACCSP TRIPS SHRIMP TEMP NC as
     select * from connection to oracle
                    SELECT A.CONS RPT ID, A.CONS RPT ID AS TRIP ID,
 (
A.DATA SUPPLIER ID AS DATA SUPPLIER, 'ACCSP' as FORM VERSION,
A.YEAR AS UNLOAD YEAR, A.MONTH IN YEAR AS UNLOAD MONTH, A.DAY IN MONTH AS
UNLOAD DAY, A.STATE CODE, A.COUNTY CODE,
(A.DATA SOURCE | A.DEALER ID) AS IDENT, A.CF LICENSE NBR AS
SUPPLIER PA ID, A.VESSEL CG OR ST REG AS COAST GUARD NBR, A.VESSEL CG OR ST REG
AS STATE REG NBR,
A.GEAR CODE, E.GEAR NAME, A.AREA CODE, A.SUB AREA CODE, A.DISTANCE CODE,
A.SPECIES ITIS, G.COMMON NAME, A.DISPOSITION CODE, A.MARKET CODE, A.GRADE CODE,
A.LIVE POUNDS, A.DOLLARS
FROM accsp inf2.mv landings@accsp dblk A
LEFT JOIN ACCSPREC.GEARS@ACCSP DBLK E ON (A.GEAR CODE = E.GEAR CODE)
LEFT JOIN ACCSPREC.SPECIES@ACCSP DBLK G ON (A.SPECIES ITIS = G.SPECIES ITIS)
WHERE A.DATA SUPPLIER ID = '0012' and a.year > 1993 AND A.CONS RPT ID IN
(SELECT CONS RPT ID FROM accsp inf2.mv landings@accsp dblk WHERE SPECIES ITIS
ΙN
                  (SELECT SPECIES ITIS
                   FROM ACCSPREC.SPECIES@ACCSP DBLK
                   WHERE COMMON NAME LIKE '%SHRIMP%')));
disconnect from oracle
                                                             ;
QUIT ;
PROC APPEND BASE = sasdata.ACCSP TRIPS SHRIMP TEMP DATA =
sasdata.ACCSP TRIPS SHRIMP TEMP NC FORCE;
RUN;
proc sql;
delete
from sasdata.ACCSP TRIPS SHRIMP TEMP
where STATE CODE = '12' and county code not in ('107',
'127',
'035',
'069',
'097',
'007',
'111',
'109',
'095',
'085',
'031',
'011',
'009',
'061',
'099',
'089',
'003',
'093',
```

```
'125',
'117',
'025',
'019');
quit;
/* Extract look-up tables used to translate codes and identify bait species
libname SASDATA V8 "O:\dqloeckner\SEFSC\SHRIMP\STANDARD EXTRACT";
PROC SQL;
connect to oracle (user=XXXXX orapw="XXXXXX" path="SECPR")
                                                                             ;
     create table sasdata.ACCSP SPECIES TEMP AS
select * from connection to oracle
(SELECT * FROM ACCSPREC.SPECIES@ACCSP DBLK);
disconnect from oracle;
OUIT;
PROC SQL;
connect to oracle (user=dgloeckn orapw="gadus6674" path="SECPR")
     ;
     create table sasdata.ACCSP GEARS TEMP AS
select * from connection to oracle
(SELECT * FROM ACCSPREC.GEARS@ACCSP DBLK);
disconnect from oracle
                                                             ;
OUIT;
PROC SQL;
connect to oracle (user= XXXXXX orapw="XXXXXX" path="SECPR")
                                                                             ;
CREATE TABLE sasdata.ACCSP PARTICIPANTS TEMP AS
select * from connection to oracle
(SELECT * FROM ACCSPREC.PARTICIPANTS@ACCSP DBLK);
disconnect from oracle
                                                             ;
QUIT;
PROC SOL;
connect to oracle (user=XXXXXX orapw="XXXXX" path="SECPR")
                                                                              ;
     create table sasdata.ACCSP VESSELS TEMP AS
select * from connection to oracle
(SELECT * FROM ACCSPREC.VESSELS@ACCSP DBLK);
disconnect from oracle
                                                             ;
OUIT;
PROC SQL;
connect to oracle (user= XXXXXX orapw="XXXXXX" path="SECPR")
                                                                              ;
     create table sasdata.ACCSP SHRIMP DROP SPECIES XREF AS
select * from connection to oracle
(SELECT * FROM
DGLOECKN.ACCSP SHRIMP DROP SPECIES XREF);
disconnect from oracle
                                                             ;
QUIT;*/
proc sql;
DELETE FROM sasdata.ACCSP TRIPS SHRIMP TEMP
WHERE SPECIES ITIS IN (SELECT SPECIES ITIS FROM
sasdata.ACCSP SHRIMP DROP SPECIES XREF);
quit;
```

```
data sasdata.ACCSP TRIPS SHRIMP TEMP;
set sasdata.ACCSP TRIPS SHRIMP TEMP;
format disposition $20.0;
run;
proc sql;
UPDATE sasdata.ACCSP TRIPS SHRIMP TEMP
SET disposition = 'BAIT'
WHERE DISPOSITION CODE = '008' OR MARKET CODE = 'BT' OR GRADE CODE = '02' or
species itis = '095603';
UPDATE sasdata.ACCSP TRIPS SHRIMP TEMP
SET DISPOSITION = 'FOOD'
WHERE disposition IS NULL;
UPDATE sasdata.ACCSP TRIPS SHRIMP TEMP
SET TRIP ID = CONS RPT ID WHERE TRIP ID IS NULL;
quit;
DATA ACCSP TRIPS SHRIMP TEMP1;
SET sasdata.ACCSP TRIPS SHRIMP TEMP;
RUN;
PROC SORT DATA = ACCSP TRIPS SHRIMP TEMP1;
BY CONS RPT ID IDENT SUPPLIER PA ID TRIP ID UNLOAD YEAR UNLOAD DAY UNLOAD MONTH
STATE CODE COUNTY CODE DATA SUPPLIER DESCENDING LIVE POUNDS;
RUN:
PROC SORT IN=ACCSP TRIPS SHRIMP TEMP1 OUT=ACCSP TRIPS SHRIMP TEMP2 NODUPKEY ;
BY UNLOAD YEAR UNLOAD DAY UNLOAD MONTH SUPPLIER PA ID IDENT TRIP ID CONS RPT ID
STATE CODE COUNTY CODE DATA SUPPLIER;
RUN ;
PROC SQL;
DELETE FROM ACCSP TRIPS SHRIMP TEMP2
WHERE SPECIES ITIS NOT IN (SELECT SPECIES ITIS FROM sasdata.ACCSP SPECIES TEMP
WHERE COMMON NAME LIKE '%SHRIMP%');
QUIT;
DATA ACCSP TRIPS SHRIMP TEMP3;
SET ACCSP TRIPS SHRIMP TEMP2;
FORMAT TRIPS 10.0;
FORMAT TIME FISHED 10.0;
FORMAT TIME UNITS $1.0;
FORMAT DAYS FISHED 10.2;
IF STATE CODE = '12' AND GEAR CODE = '110' THEN GEAR NAME = 'SHRIMP TRAWL';
IF STATE CODE = '12' AND GEAR CODE = '000' THEN GEAR NAME = 'SHRIMP TRAWL';
IF START DAY = '00' THEN START DAY = '01';
IF UNLOAD DAY = '00' THEN UNLOAD DAY = '01';
IF UNLOAD MONTH = '00' THEN UNLOAD MONTH= '01';
IF START MONTH = '00' AND UNLOAD MONTH > '00' THEN START MONTH = UNLOAD MONTH;
FORMAT START DATE MMDDYY10.;
FORMAT UNLOAD DATE MMDDYY10.;
START DATE = mdy(START month,START DAY,START year);
UNLOAD DATE = mdy(UNLOAD month, UNLOAD DAY, UNLOAD year);
TRIPS = 1;
IF SPLIT TRIP = 'Y' THEN TRIPS = TRIPS/2;
IF SOAK TIME NE . THEN TIME UNITS = 'H';
IF SOAK_TIME NE . THEN TIME FISHED = SOAK TIME;
```

```
IF FISHING HOURS > 0 AND TIME FISHED = . THEN TIME UNITS = 'H';
IF FISHING HOURS > 0 AND TIME FISHED = . OR FISHING HOURS > 0 AND TIME FISHED =
0 THEN TIME FISHED = FISHING HOURS;
IF DAYS AT SEA = . AND LIVE POUNDS > 0 AND unload date-start date > 0 THEN
DAYS AT SEA = unload date-start date;
IF DAYS AT SEA = . AND LIVE POUNDS > 0 AND unload date-start date =< 0 THEN
DAYS AT SEA = 1;
IF DAYS AT SEA = 0 AND LIVE POUNDS > 0 AND unload date-start date =< 0 THEN
DAYS AT SEA = 1;
IF DAYS AT SEA = 0 AND LIVE POUNDS > 0 AND TRIPS > 0 THEN DAYS AT SEA = 1;
IF DAYS AT SEA > 0 AND TIME FISHED = . THEN TIME UNITS = 'D';
IF DAYS AT SEA > 0 AND TIME FISHED = . THEN TIME FISHED = DAYS AT SEA;
IF DAYS AT SEA > 0 AND TIME FISHED = 0 THEN TIME UNITS = 'D';
IF DAYS AT SEA > 0 AND TIME FISHED = 0 THEN TIME FISHED = DAYS AT SEA;
IF DAYS AT SEA > 0 AND DAYS FISHED = . THEN TIME UNITS = 'D';
IF DAYS_AT_SEA > 0 AND DAYS_FISHED = . THEN DAYS FISHED = DAYS AT SEA;
IF DAYS AT SEA > 0 AND DAYS FISHED = 0 THEN TIME UNITS = 'D';
IF DAYS AT SEA > 0 AND DAYS FISHED = 0 THEN DAYS FISHED = DAYS AT SEA;
IF gear code = '000' AND GEAR CODE2 > '000' THEN gear code = GEAR CODE2;
IF area code = '000' AND AREA CODE2 > '000' THEN area code = AREA CODE2;
IF SUB area code ='0000' AND SUB AREA CODE2 > '0000' THEN SUB area code =
SUB AREA CODE2;
IF TIME UNITS = 'D' THEN DAYS FISHED = TIME_FISHED;
IF TIME UNITS = 'H' THEN DAYS FISHED = TIME FISHED/24;
IF DAYS FISHED = . AND TIME FISHED = . AND TRIPS > 0 THEN DAYS FISHED = TRIPS
and TIME UNITS = 'D';
IF DISPOSITION = 'BAIT' THEN DELETE;
RUN;
```

```
proc sql;
CREATE TABLE ACCSP LANDINGS SHRIMP
(DEALER RPT ID NUM,
TRIP ID NUM,
DATA SUPPLIER
               CHAR(4),
FORM VERSION CHAR(10),
UNLOAD YEAR
               NUM,
UNLOAD MONTH CHAR(2),
UNLOAD DAY CHAR(2),
STATE CODE CHAR(2),
COUNTY_CODE
              CHAR(3),
IDENT CHAR (15),
SUPPLIER PA ID CHAR(30),
VESSEL ID CHAR(11),
STATE REG NBR
              CHAR(11),
GEAR CODE CHAR(3),
GEAR NAME CHAR(50),
AREA CODE CHAR(3),
SUB AREA CODE CHAR(4),
DISTANCE CODE CHAR(1),
SPECIES ITIS
              CHAR(11),
COMMON NAME
               CHAR (50),
LANDED LBS NUM,
DOLLARS NUM,
```

NUM,

TIME FISHED

```
TIME UNITS CHAR(1),
TRIP START DATE DATE,
SEASON CHAR(10),
INSHORE OFFSHORE CHAR(10),
SHRIMP ZONE CHAR(2),
GEAR CATEGORY
                CHAR(50),
START YEAR NUM,
START MONTH
                CHAR(2),
START DAY CHAR(2),
START DATE DATE,
UNLOAD DATE DATE,
DAYS FISHED NUM,
DAYS FISHED CALC NUM,
TRIPS NUM,
ZONE CHAR(10),
INSHORE OFFSHORE2 CHAR(10),
DISPOSITION CHAR(10));
quit;
proc sql;
INSERT INTO ACCSP LANDINGS SHRIMP
select a.CONS RPT ID,
a.TRIP ID,
a.DATA SUPPLIER,
a.FORM VERSION,
a.UNLOAD YEAR
                ,
a.UNLOAD MONTH,
a.UNLOAD DAY,
a.STATE CODE,
a.COUNTY CODE,
a.IDENT
         ,
a.SUPPLIER PA ID,
a.COAST GUARD NBR ,
a.STATE REG NBR ,
a.GEAR CODE,
a.GEAR NAME
               ,
a.AREA CODE
a.SUB AREA CODE,
a.DISTANCE CODE ,
a.SPECIES ITIS,
a.COMMON NAME,
a.LIVE POUNDS ,
a.DOLLARS,
A.TIME FISHED,
A.TIME UNITS,
a.START DATE,
·· ,
'',
۰, יי
B.CATEGORY CODE ,
a.START YEAR,
a.START MONTH,
a.START DAY
               ,
a.START DATE,
a.UNLOAD DATE,
A.DAYS FISHED ,
• •
a.TRIPS,
```

```
'',
1.1
a.DISPOSITION
from ACCSP TRIPS SHRIMP TEMP3 a LEFT JOIN sasdata.ACCSP GEARS TEMP B ON
(A.GEAR CODE = B.GEAR CODE);
  quit;
PROC SQL;
     connect to oracle (user=xxxxxx orapw="xxxxxx" path="SECPR")
     CREATE TABLE SASDATA.SAS MAIN DATA EFFORT AS
     select * from connection to oracle
(SELECT TO NUMBER((A.DATE LANDED||A.DEALER NUMBER||A.SCHEDULE NUMBER)) AS
TEMPID1,
TO NUMBER((A.DATE LANDED||A.DEALER NUMBER||A.SCHEDULE NUMBER)) AS TEMPID2,
DECODE (A.STATE LANDED, 43, '0013', 13, '0014', 36, '0012', 10, '0015', 'NONE') AS
DATA SUPPLIER,
'SAS' AS FORM VERSION,
TO NUMBER (SUBSTR (A. DATE LANDED, 1, 4)) AS UNLOAD YEAR,
SUBSTR(A.DATE LANDED, 5, 2) AS UNLOAD MONTH,
SUBSTR(A.DATE LANDED, 7, 2) AS UNLOAD DAY,
LPAD(LTRIM(SUBSTR(TO CHAR(A.STATE LANDED, '99'), 2)), 2, '0') AS STATE LANDED,
LPAD(LTRIM(SUBSTR(TO CHAR(A.COUNTY LANDED, '99'), 2)), 2, '0') AS COUNTY LANDED,
LPAD(LTRIM(SUBSTR(TO CHAR(A.COUNTY LANDED, '999'), 2)), 3, '0') ||TRIM(dealer number
) AS IDENT,
A.SCHEDULE NUMBER,
TRIM(A.dealer number) AS DEALER NUMBER,
A.VESSEL ID NUMBER AS VESSEL ID,
A.VESSEL ID NUMBER AS BOAT ID,
A.GEAR CODE,
UPPER (B. DESCRIPTION) AS GEAR NAME,
A.AREA FISHED,
A.SUBAREA FISHED AS SUB AREA,
NULL AS DISTANCE CODE,
A.SPECIES CODE,
UPPER (C.COMMON NAME) AS SPECIES NAME,
A.POUNDS CAUGHT AS LANDED LBS,
TO NUMBER((A.UNIT COST/100)) AS DOLLARS,
NULL AS SEASON,
NULL AS INSHORE OFFSHORE,
NULL AS SHRIMP ZONE,
NULL AS GEAR CATEGORY,
TO NUMBER (SUBSTR (A. DATE LANDED, 1, 4)) AS START YEAR,
SUBSTR(A.DATE LANDED, 5, 2) AS START MONTH,
SUBSTR(A.DATE LANDED, 7, 2) AS START DAY,
A.CALENDAR DAYS FISHED AS DAYS FISHED,
O AS DAYS FISHED CALC,
((nvl(boat trips, 0) + nvl(vessel trips, 0))/10) AS SAS TRIPS,
DECODE (STATE LANDED, '36', '37', '43', '45', '13', '13', '10', '12', '00') AS
STATE LANDED2,
LPAD(LTRIM(E.FIPS COUNTY CODE, '0'), 3, '0') AS COUNTY LANDED2,
DECODE (A.GEAR CODE, 'A', '090', 'B', '075', 'C', '118', 'D', '110',
'E','110','F','110','G','750','H','020','I','116','J','143','Z','801','000') AS
GEAR CODE2,
```

```
LPAD(LTRIM(F.accsp area, '0'), 3, '0') AS AREA FISHED2,
LPAD(LTRIM(F.accsp_SUBarea, '0'), 4, '0') AS SUBAREA FISHED2,
C.SPECIES ITIS AS SPECIES CODE2,
DECODE (nvl (A.SPECIES CODE, '0'), '0', 'NONE', 'B', 'BAIT', 'FOOD') AS DISPOSITION
FROM SAS.SAS MAIN DATA A
LEFT JOIN SAS.SAS GEAR CODE B ON (A.GEAR CODE = B.GEAR CODE)
LEFT JOIN SAS.SPECIES CODE SAS C ON (A.SPECIES CODE = C.SAS CODE)
LEFT JOIN SAS.SAS ALS FIPS COUNTY XREF E ON (E.ALSSTATE= A.STATE LANDED
    AND LPAD(E.SASCOUNTY, 2, '0') = LPAD(A.COUNTY LANDED, 2, '0'))
LEFT JOIN SAS.SAS AREA code F ON (to number(F.area code) =
TO NUMBER(a.area fished)
and to number(F.subarea code) = TO NUMBER(a.SUBAREA FISHED)));
disconnect from oracle
                                                             ;
QUIT;
/* still need to estimate effort for NC from 1992-1993 using ALS data
PROC SQL;
     connect to oracle (user=xxxxxx orapw="xxxxxx" path="SECPR")
     ;
     create table sasdata.NC 92 93 as
     select * from connection to oracle
(select alsstate, nmfscounty, waterbody, distance, dealer,
monthland||'01'||yearland as date landed, '' as schedule number, '2' as
grading,
nmfsgear, 0 as vessel trip, 0 as boat trips, 0 as calendar days fished, 0 as
tenth of days fished, '' as vessid, nmfs code, '' as shrimp size, sum(pounds)
as pounds, sum(price) as price
from als.als landings
where alsotate = '36' and nmfs code between '7300' and '7400' and yearland =
'1993'
group by alsstate, nmfscounty, waterbody, distance, dealer,
monthland||'01'||yearland, '' , '2' ,
nmfsgear, 0 , 0 , 0 , 0 , '', nmfs code, '' );
disconnect from oracle
                                                             ;
QUIT; */
proc sql;
create table SAS sums trips as
select distinct state landed as state, county landed, dealer number,
unload year, unload month, unload day, unload year as year, schedule number,
sas trips as all trips
from sasdata.sas main data effort
/*WHERE GEAR CODE = 'A' and substr(area fished, 4, 1) = '0' or GEAR CODE = 'A'
and substr(area fished, 4, 1) = '9'*/;
quit;
proc sql;
select state, year, sum(all trips) as trips
from SAS sums trips
group by state, year;
quit;
DATA SAS MAIN DATA EFFORT;
SET SASDATA.SAS MAIN DATA EFFORT;
FORMAT START DATE MMDDYY10.;
FORMAT UNLOAD DATE MMDDYY10.;
START DATE = mdy(START month, START DAY, START year);
UNLOAD DATE = mdy(UNLOAD month, UNLOAD DAY, UNLOAD year);
IF SPECIES CODE = '6' THEN DELETE;
```

```
IF DISPOSITION = 'BAIT' THEN DELETE;
IF BOAT ID NE '000000' THEN BOAT ID = '';
IF BOAT ID NE '000000' THEN VESSEL ID = '';
IF STATE LANDED = '43' AND UNLOAD YEAR > 2003 THEN DELETE;
IF STATE LANDED = '13' AND UNLOAD YEAR > 2000 THEN DELETE;
RUN;
PROC SORT DATA = SAS MAIN DATA EFFORT;
BY TEMPID1 SAS TRIPS DESCENDING DAYS FISHED DESCENDING LANDED LBS DESCENDING
UNLOAD YEAR UNLOAD MONTH UNLOAD DAY IDENT DATA SUPPLIER SCHEDULE NUMBER;
RUN;
PROC SORT IN=SAS MAIN DATA EFFORT OUT=SAS MAIN DATA EFFORT2 NODUPKEY ;
BY TEMPID1 UNLOAD YEAR UNLOAD MONTH UNLOAD DAY IDENT DATA SUPPLIER
SCHEDULE NUMBER;
RUN ;
DATA ACCSP LANDINGS SHRIMP2;
SET ACCSP LANDINGS SHRIMP;
IF STATE CODE = '12' AND 1980 < UNLOAD YEAR < 1993 THEN DELETE;
IF STATE CODE = '37' AND 1977 < UNLOAD YEAR < 1993 THEN DELETE;
IF STATE CODE = '13' AND 1977 < UNLOAD YEAR < 2001 THEN DELETE;
IF STATE CODE = '45' AND 1977 < UNLOAD YEAR < 2003 THEN DELETE;
RUN;
```

```
PROC SQL;
INSERT INTO ACCSP LANDINGS SHRIMP2
SELECT
TEMPID1,
TEMPID2,
DATA SUPPLIER,
FORM VERSION,
UNLOAD YEAR,
UNLOAD MONTH,
UNLOAD DAY,
STATE LANDED2,
COUNTY LANDED2,
IDENT,
DEALER NUMBER,
VESSEL ID,
BOAT ID,
GEAR CODE2,
GEAR NAME,
AREA FISHED2,
SUBAREA FISHED2,
DISTANCE CODE,
SPECIES CODE2,
SPECIES NAME,
LANDED LBS,
DOLLARS,
··,
• 1
SEASON,
INSHORE OFFSHORE,
SHRIMP ZONE,
GEAR CATEGORY,
START YEAR,
```

START MONTH,

```
START DAY,
START DATE,
UNLOAD DATE,
DAYS FISHED,
DAYS FISHED CALC,
SAS TRIPS,
·',
۰.,
DISPOSITION
FROM SAS MAIN DATA EFFORT2;
OUIT;
DATA ACCSP LANDINGS SHRIMP2;
SET ACCSP LANDINGS SHRIMP2;
FORMAT STATE POSTAL $2.0;
STATE POSTAL = 'UN';
IF STATE CODE = '37' THEN STATE POSTAL = 'NC';
IF STATE CODE = '45' THEN STATE POSTAL = 'SC';
IF STATE CODE = '13' THEN STATE POSTAL = 'GA';
IF STATE CODE = '12' THEN STATE POSTAL = 'FL';
RUN;
proc sql;
select form version, unload year, STATE POSTAL, sum(trips) as trips
from ACCSP LANDINGS SHRIMP2
group by form version, unload year, STATE POSTAL;
quit;
proc sql;
select unload year, STATE POSTAL, gear name, sum(trips) as trips
from ACCSP LANDINGS SHRIMP2
group by unload year, STATE POSTAL, gear name;
quit;
PROC SQL;
CREATE TABLE SA SHRIMP EFFORT MONTH AS
SELECT UNLOAD YEAR, UNLOAD MONTH, STATE POSTAL, GEAR NAME, SUM(TRIPS) AS TRIPS,
COUNT (DISTINCT SUPPLIER PA ID) AS DEALERS
FROM ACCSP LANDINGS SHRIMP2
GROUP BY UNLOAD YEAR, UNLOAD MONTH, STATE POSTAL, GEAR NAME;
QUIT;
PROC EXPORT DATA= SA SHRIMP EFFORT MONTH
     OUTFILE= "O:\dqloeckner\SEFSC\SHRIMP\STANDARD
EXTRACT\SA SHRIMP EFFORT MONTH.csv"
    DBMS=csv REPLACE;
run;
PROC SQL;
CREATE TABLE SA SHRIMP EFFORT ANNUAL AS
SELECT UNLOAD YEAR, STATE POSTAL, GEAR NAME, SUM(TRIPS) AS TRIPS,
COUNT (DISTINCT SUPPLIER PA ID) AS DEALERS
FROM ACCSP LANDINGS SHRIMP2
GROUP BY UNLOAD YEAR, UNLOAD MONTH, STATE POSTAL, GEAR NAME;
OUIT;
```

PROC EXPORT DATA= SA SHRIMP EFFORT ANNUAL

OUTFILE= "O:\dgloeckner\SEFSC\SHRIMP\STANDARD EXTRACT\SA_SHRIMP_EFFORT_ANNUAL.csv" DBMS=csv REPLACE;

run;