COMMON EIDER

MANAGEMENT SYSTEM

AND DATA BASE

September 3, 2003

MAINE DEPARTMENT OF INLAND FISHERIES AND WILDLIFE

WILDLIFE RESOURCE ASSESSMENT SECTION

BIRD GROUP

TABLE OF CONTENTS

Page

PART I: COMMON EIDER MANAGEMENT SYSTEM

INTRODUCTION

The purpose of this common eider management system is to describe the system used by the Maine Department of Inland Fisheries and Wildlife (MDIFW) biologists to make common eider management decisions. Included are the process to translate data into management decisions (Part I) and techniques to estimate various common eider population parameters (Part II). A goal of the current management system was outlined in the 2001 Common Eider Assessment. This management system does not address social, political, or economic questions related to common eider management.

REGULATORY AUTHORITY

The Migratory Bird Treaty Act of 1918 and subsequent amendments, authoring the implementation of the various Conventions, provide regulatory authority for the protection and management of the common eider resource in the United States. Current management of common eiders in Maine is the joint responsibility of the U.S. Fish and Wildlife Service (FWS) and MDIFW.

MANAGEMENT GOAL AND OBJECTIVES

A goal and objectives for common eider management were established in 2001 to guide the management of common eiders through 2016. The goal and objectives were defined through recommendations made to MDIFW by a working group comprised of several representatives of the public and was approved by the Commissioner and the Advisory Council.

Goal: **Increase the number of common eiders nesting in Maine and the public's knowledge and appreciation of eiders and their habitats**

Population Objective: By 2016, increase the number of nesting common eiders by 20%.

Habitat Objective 1: Increase the number of common eider nesting islands in conservation ownership by 1 per year until 2016.

Habitat Objective 2: Working with partners, develop investigations to understand issues associated with (1) recreational use of common eider nesting islands and (2) commercial harvesting of resources (i.e. rockweed) in common eider feeding habitats.

Outreach Objective: By 2003, develop and implement, in conjunction with partners, an outreach program to promote an understanding and appreciation of common eiders and their habitat requirements in Maine.

ASSUMPTIONS

The common eider goal and objectives are based on the following assumptions:

(1) Common eiders are currently nesting on 320 islands and many if not all of these islands can support a higher density of nesting birds if adult survival is adequate and limiting factors are identified (sample record, Appendix I).

(2) The principle study area includes Green Island, Petit Manan Island, Metinic Island and Flag Island.

(3) Population viability for eiders in Maine is maintained and improved by high rates of adult survival and improvements in recruitment. Improved eider numbers would be desirable to most consumptive and non-consumptive users of the eider resource.

(4) Increasing Maine's eider population to 34,800 nesting pairs may be feasible through a program designed to control avian and mammalian predators on nesting islands, regulate against over-hunting, and protect important nesting, brood-rearing, and feeding habitats from deleterious activities.

(5) While protecting seabird nesting islands is a high priority of federal (FWS), state (MDIFW), and several non-governmental organizations (NGOs), it is feasible to assume that MDIFW will work with landowners to acquire a fee title, a conservation easement, or a landowner agreement to 1 additional island per year over the planning period.

(6) Working with partners, strategies can be employed to minimize disturbance on nesting islands from recreational use including: distributing brochures, posting signs, volunteer policing, notices in public documents, information to recreational boaters via the Maine Island Trail Association, and more (Appendix II). Further, all Department-owned islands in the Coast of Maine

Wildlife Management Area should be posted with signs with indication of “no trespass” dates: April 15 to July 31 (Appendix II).

(7) An outreach program will be developed in 2003 in conjunction with partners. This program is both desirable and feasible but will require personnel time and additional financial resources, both currently in short supply.

(8) Investigations of the affects of commercial harvesting of marine resources in eider brood-rearing and feeding habitats will require coordination with Universities, the Department of Marine Resources, FWS, and others.

(9) Working with appropriate agencies, MDIFW will maintain an Oil Spill Contingency Plan, with updated information on the size and distribution of the common eider resource. Trained personnel will respond to oil spills, rescue oiled wildlife, and evaluate the impact of spill incidents on marine wildlife communities.

(10) Avian cholera is a highly contagious bacterial disease. This disease is easily spread through an eider colony and can devastate susceptible birds, particularly when the nesting densities are high. As the eider population increases towards the goal (34,800 pairs), the number of outbreaks of cholera may increase, thus compromising our ability to attain the goal. During disease outbreaks, carcass collection and incineration are recommended.

MANAGEMENT DECISION PROCESS

Management decisions primarily address the goal of increasing the common eider population through monitoring (surveys and censuses) and management. Decision-making is a brief series of yes or no answers to questions related to common eider population status, island acquisition, disturbance affects, and outreach (Figures 1-4). Responses to questions are based on evaluation of all input criteria and the flow chart guides the manager to the appropriate management option.

CRITERIA FOR COMMON EIDER DECISION-MAKING

The following criteria currently are used to monitor common eider population, distribution, size, and stability; land acquisition efforts; disturbance affects; and outreach activities. At present, MDIFW maintains one island-nesting bird population databases (that includes two tables) called “ISLAND SEABIRD CENSUS” (ICDATA table) and “SEABIRD NESTING ISLAND” (SNI table) that contain, among other things, island-specific nesting records of common eiders between 1976 and the present (Appendix III). Common eider nesting data are an amalgamation of nesting records collected over several years. Since 1977, there has never been a complete census of all eider colonies in one field season, because visiting all nesting islands within the appropriate census window is cost-prohibitive. To determine if the population goal to increase the nesting population by 20% is on target, one principal criterion with two independent survey and census measures will be used to estimate the nesting population on a subset of Maine islands (Appendix IV). Annual results from banding efforts will determine if adult female eider survival rates on study area islands are sufficient,

(approximately 87% or greater), to maintain or support a general population increase towards the goal.

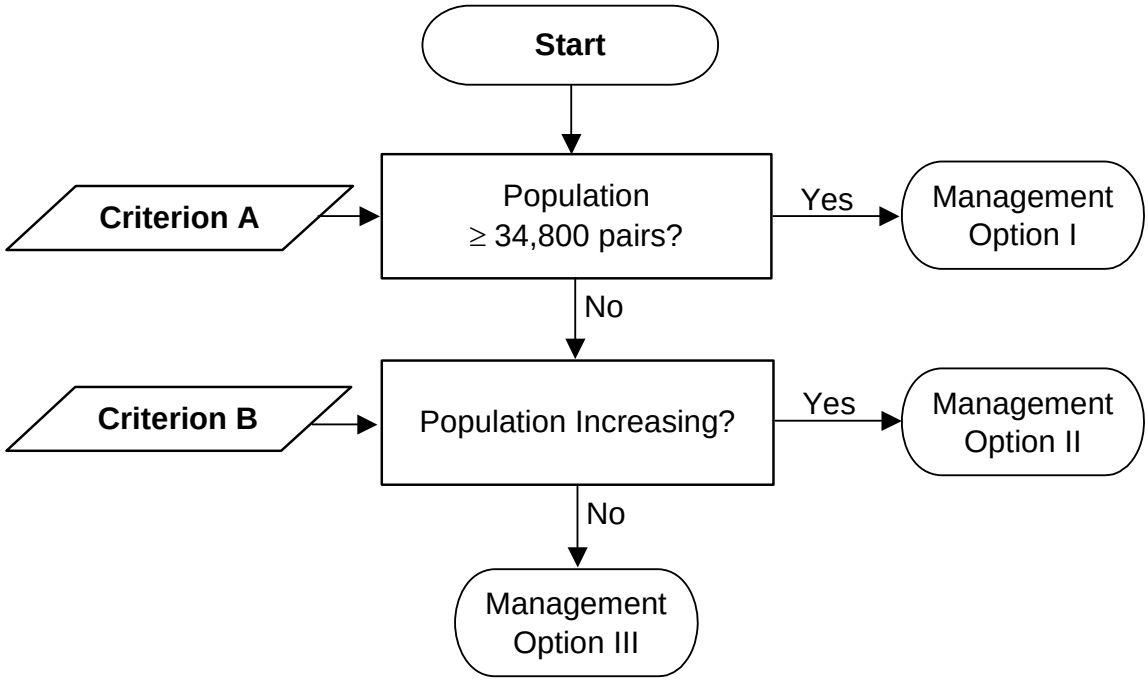


Figure 1. Common eider population decision-making process.

POPULATION MANAGEMENT SYSTEM

The following criteria are used to estimate the current size of the coastwide eider nesting population and whether it is increasing towards the goal.

Criterion A: ***Is the common eider nesting population currently estimated to be greater than or equal to 34,800 pairs?***

This criterion addresses the Working Group's population objective of a nesting eider population that is 20% greater than the 2001 estimate. All eider nesting data collected

since 1976 are in a WRAS database referred to as ICENSUS. The database is queried annually to generate a population estimate of the all nesting eiders on Maine islands. The most precise data for nesting eiders are from properly timed nest censuses that are less than 5 years old. Other more cost effective techniques are being investigated.

Criterion B: This criterion answers the question: *"Is the eider population increasing?"* Reliable estimates of common eider nest pairs collected by IFW staff and various seabird research partners are annually added to the ICENSUS database at WRAS. These records and data collected specifically for eider research address the question of Maine's eider population trend.

One aerial survey, the Adult Male Eider Survey (AMES) and one companion ground census, the Complete Nest Count (CNC), will be used to estimate the number of nesting eiders on islands in the study area. Beginning in 2003, and continuing each year for 5 years, the AMES will be conducted over all study area islands to estimate the number of adult male eiders around each study area island. From this collective total of adult males, the nesting population will be estimated using the ratio of 1.0 adult male: 1.0 adult female. Beginning in 2004, an adult male estimate change of greater +/- 10% will be required to annually determine if the population is increasing or not. To serve as a test of the adult male:female relationship, 1/5 of the study islands will be censused each year using CNC methodology and will serve as the basis for more precise population estimates. After 5 years, in 2008, the aerial survey results will be evaluated and compared to nest count data to determine if this technique should be continued as an

adequate measure of the population and population change. If the adult male survey is adequate to track nesting eider populations and sufficient funds can be raised, a coast-wide survey will be flown in 2009.

POPULATION MANAGEMENT OPTIONS

Management Option I *(population at or above goal)*

- Continue to monitor nesting population via annual surveys, censuses, and estimates of survival.

Management Option II (population increasing)

- Continue to monitor nesting population via annual surveys, censuses, and estimates of survival.
- Expand surveys where warranted if AMES proves to be a usable survey tool.
- Identify eider population limiting factors. If adult female eider survival is greater than 87%, then management activities should focus on improvements in recruitment. To accelerate population growth, a gull control program may be warranted.

Management Option III (population stable or decreasing)

- Continue to monitor nesting population via annual surveys, censuses, and estimates of survival.
- Identify eider population limiting factors. With declining population, estimates of survival of hens are likely less than 87%. If so, management posture should initially address improvements in adult survival rates. Consider adjustments in harvest strategy for Maine eiders to restrict the legal harvest of hen eiders (i.e. daily bag limit of 5 eiders; but only one may be a female or a reduction in the daily bag limit). In

order to reverse a population decline, consider a range of gull control activities to improve recruitment. Further, consider artificial nest structures on COMWMA islands where nesting habitat conditions are less than optimal.

HABITAT MANAGEMENT SYSTEM

Decision Criteria

The following criteria are used to address the two objectives that involve habitat conservation through island acquisition (Figure 2) and investigations to understand the issues associated with recreational use of common eider nesting islands and the affects of commercial harvesting of marine resources in eider feeding habitats (Figure 3).

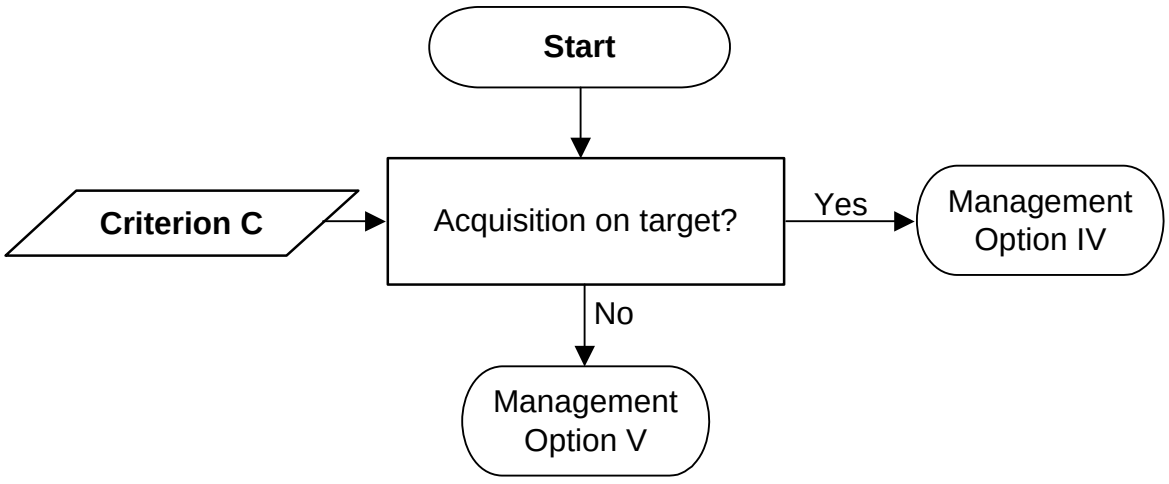


Figure 2. Common eider habitat acquisition decision-making process.

Criterion C: This criterion answers the question: "Is the acquisition objective of 1 additional eider nesting island per year brought into conservation ownership and added to MDIFW's Coast of Maine Wildlife Management Area on target?"

Presently there are numerous state and federal agencies and NGOs working in partnership to protect and conserve Maine's seabird nesting islands, many of which contain nesting eiders. The Department opportunistically acquires seabird nesting islands by either partnering with other agencies or through its own Land Acquisition efforts, utilizing a wide range of conservation options. Island ownership records for 320 coastal islands with recent records of eider nesting are on file at the Wildlife Resource Assessment Section in Bangor. In 2000, 132 islands with nesting eiders were privately owned and are potentially available for acquisition from willing sellers. An affirmative response will have been achieved when MDIFW acquires a fee title, a conservation easement, or a landowner agreement to at least 1 eider nesting island per year, on average, as the planning period progresses.

HABITAT MANAGEMENT OPTIONS

Management Option IV *(acquisition on target)*

- Update island ownership records and prioritize eider nesting islands for acquisition within the context of the Department's Coast of Maine Wildlife Management Area Plan.

Management Option V (*acquisition below target*)

- Work with partners, landowners, and MDIFW's Land Acquisition Committee and administrators (as liaisons to the Land For Maine's Future Board and Outdoor Heritage Fund) to actively acquire a fee title, a conservation easement, or a landowner agreement to 1 privately owned eider nesting island. Update island ownership records when appropriate.

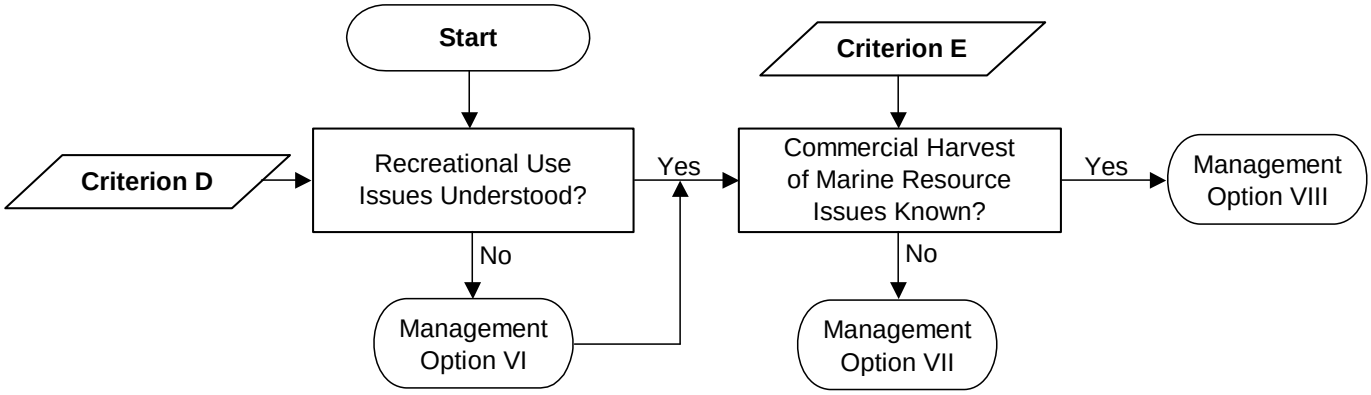


Figure 3. Habitat issues associated with recreational use and commercial harvesting of marine resources decision-making process.

<u>Criterion D</u>: Are issues associated with recreational use of common eider nesting islands understood?

This criterion addresses whether the issue of recreational use and associated disturbance on nesting islands during the critical nesting period (April 15 to July 15) are known. A review of the ornithological literature and collaboration with partners will serve as the source of data to address this criterion.
An affirmative response will be achieved when a summary report reviewing pertinent literature has been prepared and reviewed.

<u>Criterion E</u>: Are issues associated with commercial harvesting of resources in common eider feeding habitats known?

This criterion addresses whether issues associated with commercial harvesting of resources (e.g. rockweed harvesting) in common eider feeding {and brood-rearing} habitats are known.

An affirmative response will be achieved when a summary document of pertinent literature has been prepared and reviewed.

Management Option VI (recreational use issues not understood)

- Working with partners, acquire pertinent literature on disturbance issues associated with recreational use of seabird and waterfowl nesting islands.

- Working with partners, develop investigations to understand issues associated with (1) recreational use of common eider nesting islands

- Draft summary report on this issue

Management Option VII (rec. use issues complete; harvesting not complete)

- Working with partners, acquire pertinent literature on the affects of commercial harvesting in eider feeding habitats.

- Working with partners, develop investigations to understand issues associated with commercial harvesting of resources in common eider feeding habitats.

- Draft summary document on this issue.

Management Option VIII (recreational issues and harvesting issues understood)

- Distribute results of literature and investigations to pertinent audiences.

OUTREACH MANAGEMENT SYSTEM

Decision Criteria

The following criteria determine the sequence of procedures to be used to develop and implement, in conjunction with partners, an outreach program to promote an understanding and appreciation of common eiders and their habitat requirements in Maine.

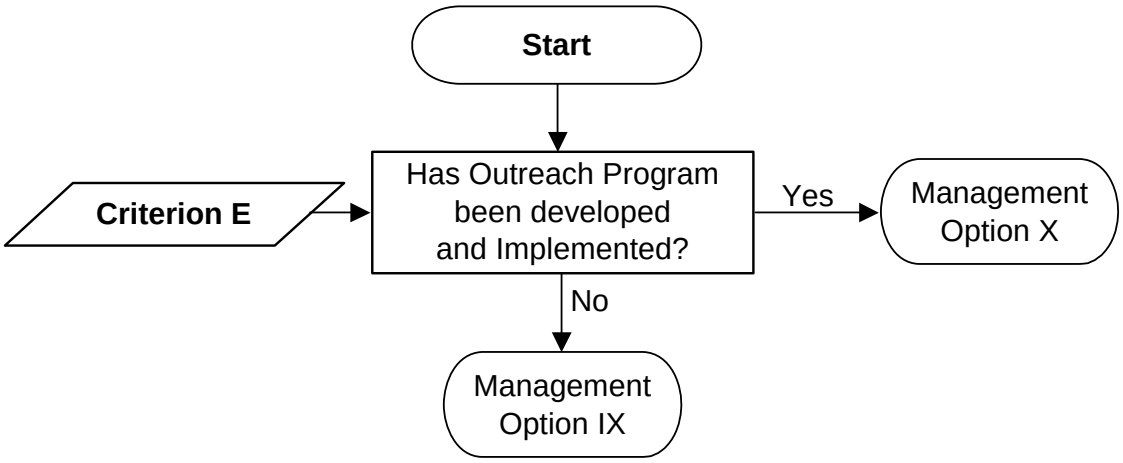


Figure 4. Flow diagram depicting decision criteria for Common Eider Outreach Management System.

Criterion F: This criterion answers the question: "Has an outreach plan been developed and implemented?

This criterion addresses whether a plan for promoting an understanding and appreciation of common eiders and their habitats in Maine has been developed and implemented.

An affirmative response will be met when a brief document describing outreach materials to improve understanding and appreciation of the common eider resource and their habitats has been developed and distributed to appropriate audiences.

OUTREACH MANAGEMENT OPTIONS

Management Option IX

- Outreach: Secure adequate funding and qualified personnel to work with partners to develop and implement a Common Eider Outreach Program. The Common Eider Outreach Program should promote an understanding and appreciation of common eiders and their habitat requirements in Maine. This program should include strategies to inform public groups, landowners, and boaters to minimize disturbance on nesting islands during the critical nesting period (April 15 to July 31).

- Identify target audiences.

- Determine method of delivery (e.g. pamphlets, articles, public speaking engagements, radio, etc.) and sites for implementation.

- Monitor the effectivenss of the program and modify where appropriate.

Management Option X

- Monitor the effectiveness of the program and update and modify where appropriate.

MANAGEMENT RECOMMENDATIONS

Recommendations from the current management system can result in one or more of the following:

- Annually monitor the eider population on study area islands via AMES and CNC to determine population trend and progress towards the species goal. In 2008, compare and evaluate the two survey and census methods. Continue banding program to investigate adult survival, recruitment and harvest recovery rates. These data will lead to the development of a population model for Maine eiders.

- If necessary, recommend changes in hunting regulations to improve adult female eider survival.

- If necessary, recommend gull control program to improve eider recruitment within the Coast of Maine Wildlife Management Area.

- Work with partners to develop investigations to understand issues associated with (1) recreational use of common eider nesting islands and (2) commercial harvesting of resources in common eider feeding habitats.

- Work with partners, landowners, and MDIFW's Land Acquisition Committee and administrators to acquire a fee title, a conservation easement, or a landowner agreement to 1 privately owned eider nesting island per year through the planning period.

- Develop and implement an Outreach Program.

CHRONOLOGY OF COMMON EIDER MANAGEMENT ACTIVITIES

Common eider management activities include a rather short field season when all nest-related surveys, censuses, and banding occur. The AMES is a one-day aerial survey timed during the first half of incubation, generally around the end of the first week of May. Complete Nest Counts are more labor-intensive and are timed to occur during the second half of the incubation period, generally the last two weeks of May or the first week of June. This census will require coordination with the Petit Manan National Wildlife Refuge staff. Flightless male and female eiders and pre-fledged ducklings can all be captured in July and August, depending on the timing of the hatch and the molt. Gull control activities are timed during the peak gull nesting period from mid-May to mid-June. Hunting season recommendations from the Bird Group (WRAS) generally receive Wildlife Division review in July. Further, the Department receives input on these recommendations in early August at three annual meetings, the Waterfowl Advisory Council Meeting, the Waterfowl Public Hearing, and the August Advisory Council Meeting.

PART II: COMMON EIDER DATA BASE

COMMON EIDER DATA COLLECTION SUMMARY

Population Monitoring

Eider populations in Maine have been monitored in a fairly systematic way since the low point in the population in 1907, when only two pairs were recorded nesting in Maine. For more information on the resurgence of coast-wide eider and seabird populations, the reader is referred to two MDIFW documents, the *Common Eider Assessment (2001)* and the *Island-nesting Seabird Assessment (1993).* A number of census techniques used to estimate nesting eider populations and their trends have been tested in Maine, with varying levels of success. Which technique, or combination of techniques are used depends on the objectives of the project, the desired reliability, and available money, personnel, and time. Large-scale monitoring programs are costly and time-consuming and can result in significant disturbance to the island-nesting birds, particularly if poorly timed. The methods recommended here are designed to minimize disturbance and provide the resource manager with worthwhile information.

Adult Male Eider Survey (AMES): Common eiders are monogamous. The method of surveying common eider breeding populations by aerial counts of highly visible adult males adjacent to nesting islands during the breeding season has been successfully employed in Maine, Scandinavia, Labrador and in the Maritimes (Lock 1986). In Labrador, careful colony censuses on two substantial stretches of coast were carried out to test the accuracy of aerial counts. The ratio of adult males to nests approximated 1.0:1.0. In one portion of their study area, a small discrepancy (1.1:1.0) from the expected 1:1 ratio existed and was ascribed to a dispersal of some males from the

census areas after breeding. We will assume the ratio is 1.0:1.0 unless the data show otherwise. Beginning in 2003, the number of adult male eiders immediately adjacent to a subset of eider nesting islands (Appendix IV) will provide an estimate (using the 1.0 male to 1.0 female) to the number of nesting hens on those islands. Results of the adult male survey will be compared to the nest counts to test for reliability and variability over the next 5 years. Unfortunately, because significant non-nesting (as high as 20% of the population) of adult female eiders may occur in any given year, several years of data will likely be required to determine a population trend. The aerial survey of study area islands will be conducted in early or mid-May (depending on year-specific nesting chronology) between Petit Manan Island in Milbridge and Upper Flag Island in Harpswell for 5 years. These data will be used to determine the population trend in the study area. Further, we will determine if the adult male survey is adequately tracking the nesting eider population and if the male:female ratio is appropriate for Maine's nesting conditions.

Complete Nest Counts (CNC). Often, documentation of nesting and accurate nest counts is required. The CNC is conducted by direct counts of nests made via a systematic search of the entire nesting area (usually the entire vegetated portion of an island). Here, crew members, spaced approximately 3 meters apart, move as a unit, and search a strip around the outside of an island. The edge of the strip is generally marked in some manner to allow complete coverage of the nesting habitat on subsequent searches. One individual follows the crew and records nests observed and called out by the searchers. The recorder also serves to ensure that all available habitat has been searched. This method works fairly well for eiders because they have

relatively large, conspicuous nests. Each searcher who encounters a nest calls out the nest to the recorder and covers the eggs with down before moving on. This latter effort serves to keep the eggs warm while the researchers are on the island (and the female is off her nest) and helps hide the eggs from predatory gulls that may be overhead. These searches are best conducted in the second half of the incubation period (less researcher influenced nest abandonment this way) and before the hatch. Timing is critical. In summary, the CNC provides the researcher with the best approximation of nesting numbers on an island. The major disadvantages to this technique are: (1) the high degree of disturbance and potential for high egg losses and young when predatory gulls are present; (2) nests can be missed in very dense vegetation, and (3) this method is labor-intensive and therefore costly (Hutchinson 1980).

Several of the islands in the study area are owned and managed by FWS. Their goal is to census all the seabirds on these islands over a 5-year schedule. MDIFW will provide technical assistance for this effort. Each year, these census results will be added to ICENSUS and used for population trend analyses. The combination of the adult male estimate and nest count sample data will be examined to determine if the population is increasing or not. If the data from the adult male survey provide a reliable indicator of the status of the nesting eider population after five years, this survey may be expanded to cover a greater area of the coast in future years, as it is by far the most cost effective method with the least disturbance to nesting eiders and seabirds.

Adult Female Survival Rates*:* Beginning in 2004, adult female eider survival rates will be generated to determine if survival is greater than or equal to 87%, the survival rate determined for the Atlantic coast eider population between 1976-86 (Krementz et

al. 1996). New data on survival and recovery rates will help document eider population limiting factors, particularly in light of present day sea duck hunter interests and eider harvests. New survival estimates generated from recent banding data will be used to determine if the population is stable or not, and assist us with the determination of what the population bottleneck might be: adult survival, recruitment, or a combination of both. These data will be used in the generation of a population model for eider ducks in Maine.

Databases

The **Seabird Island Database** (MS Access application), located in Bangor with WRAS on the Bangor GIS server (Brm-fgb1svgissv) is accessible in Bangor, Augusta, and in the Regions. This application enables the viewer to browse/edit/query data in four tables; Island Seabird Census, Seabird Nesting Island, Island Registry, and Seabird List (see examples in Appendix III).

Island Seabird Census (ICDATA table) contains census data for island-nesting seabirds, wading birds, and some waterfowl. The baseline for this database is Carl Korschgen's 1976-77 coast-wide inventory data. The database primarily contains annual surveys by MDIFW. However, it also includes inventory data and observations form a variety of reliable sources (e.g. National Audubon Society, Maine Audubon Society, U.S. fish and Wildlife Service, College of the Atlantic, and Gulf of Maine Seabird Working Group participants, etc. This database currently contains 8940 records. **Seabird Nesting Island** (SNI table) is a yearly summary of Island Census. For each island tracked in SNI, there is a record with the best estimate of nesting population for noted census year. This database includes 623 records. **Island**

Registry (ISLDREG table) contains descriptive information for islands in the coast of Maine. Individual island identifiers (island registry numbers) provide links to MEGIS layers. This table contains 5,638 records. Lastly, **Seabird List** contains alpha codes and common and scientific names for birds referenced in Island Seabird Census. This table contains 55 records.

REFERENCES

Hutchinson. A.E. 1980. A comparison of techniques used to estimate numbers of colonial seabirds. MS Thesis, Univ. of Maine, Orono. 28pp.

Krementz, D.G., J.E. Hines, and D.F. Caithamer. 1996. Survival and recovery rates of American eiders in eastern North America. J. Wildl. Manage. 60:855-862.

Lock, A. 1986. A census of common eiders breeding in Labrador and the Maritime Provinces. *In A. Reed,* editor. Eider Ducks in Canada. Canadian Wildlife Service, Report Series 47.

MDIFW, 2001. Common Eider Assessment –2001. Maine Department of Inland Fisheries and Wildlife, Wildlife Resource Assessment Section, Bangor, ME 57pp.

MDIFW, 1993. Island-nesting Seabird Assessment - 1993. Maine Department of Inland Fisheries and Wildlife, Wildlife Resource Assessment Section, Bangor, ME 60pp.

APPENDIX I

Example of Common Eider Nest Data

Observations in Seabird Island database — Common Eider

Island ID: 55-144 **Island Name:** Flash Island **Owner:** IFW*

Year:	Month:	Day:	Nest pairs:	Method-nest:	Total Population:	Method-population:	Specific location on island:
1976	5	26	1	BVE	1		

Island ID: 55-150 **Island Name:** Rogue Island **Owner:** PRI

Year:	Month:	Day:	Nest pairs:	Method-nest:	Total Population:	Method-population:	Specific location on island:
1976	5	25	19	CNC	19		
1977	6	10	5	TAC			
1998	5	30	10	NEB			

Island ID: 55-156 **Island Name:** Duck Rock **Owner:** IFW*

Year:	Month:	Day:	Nest pairs:	Method-nest:	Total Population:	Method-population:	Specific location on island:
1976	5	26	5	BVE	5		
1977	6	10	15	CNC			
1980	6	16	5	CNC			
1998	5	30	15	NCG			

Island ID: 55-159 **Island Name:** Jenny Island **Owner:** IFW*

Year:	Month:	Day:	Nest pairs:	Method-nest:	Total Population:	Method-population:	Specific location on island:
1976	5	26	25	CNC	25		
1977	6	10	20	TAC			
1980	6	16	10	CNC			
1992			10	CNC			
1995	5	23	15	NEG			

Island ID: 55-173 **Island Name:** Elm Islands (W)/Elm #1 **Owner:** MUN

Year:	Month:	Day:	Nest pairs:	Method-nest:	Total Population:	Method-population:	Specific location on island:
1980	6	16	1				
1998	5	27	64	NCG			

Island ID: 55-174 **Island Name:** Elm Islands (E)/Elm #2 **Owner:** MUN

Year:	Month:	Day:	Nest pairs:	Method-nest:	Total Population:	Method-population:	Specific location on island:
1976	5	26	55	BVE	55		
1977	5	28	20	CNC			
1980	6	16	2				
1998			88	NCG			

Island ID: 55-175 **Island Name:** Long Ledge (N) **Owner:** IFW*

Year:	Month:	Day:	Nest pairs:	Method-nest:	Total Population:	Method-population:	Specific location on island:
1998	5	30	3	NCG			

Appendix II

Examples of Information and Education Materials


LEAVE NO TRACE ON MAINE'S
Fragile Islands
A Guide to
Low-Impact Techniques
MORE AND MORE TR

General Guidelines

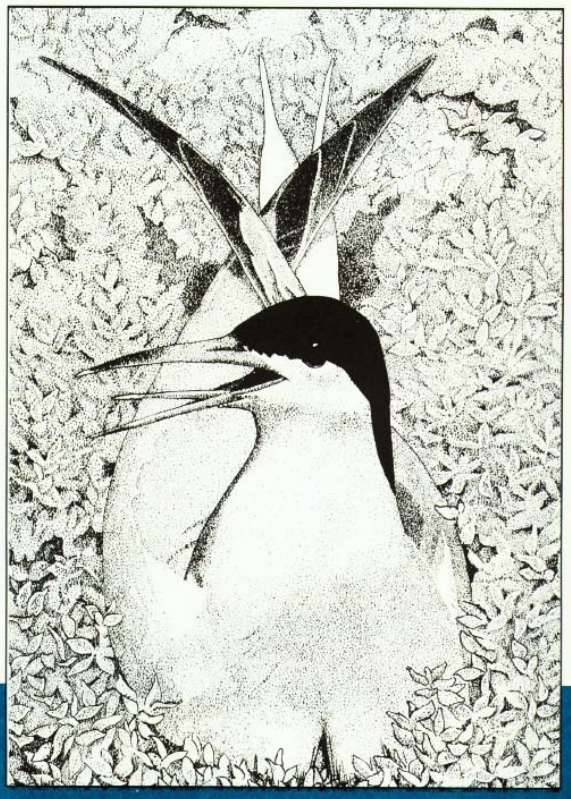
There are thousands of islands in the Gulf of Maine that are not used by colonial seabirds, waterbirds and waterfowl for nesting. Nevertheless, it is also important to minimize your effects on these islands and their wildlife. If you plan to visit islands, please remember to:

- Contact one of the organizations listed to see if the island is open to the public.
- Keep all pets off the island.
- Never dump oil or waste overboard. Even small amounts of oil can kill birds and other marine life, and their habitat can take years to recover.
- Take everything you bring back with you. Seabirds often are hurt by eating plastic particles from trash they mistake for food.
- Cut no live vegetation or standing dead trees.
- Bring a campstove for cooking. Open fires can harm wildlife and habitat.

Illustrations by Josephine Ewing

ISLAND ETHICS

Recognizing and Protecting Colonial Nesting Seabird, Waterbird and Waterfowl Islands in the Gulf of Maine

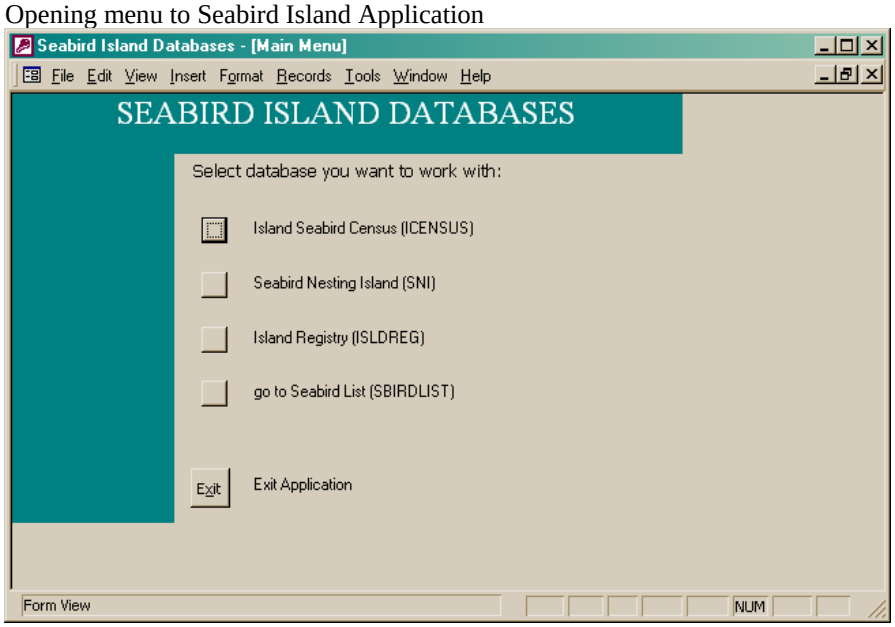


A Guide for the Public

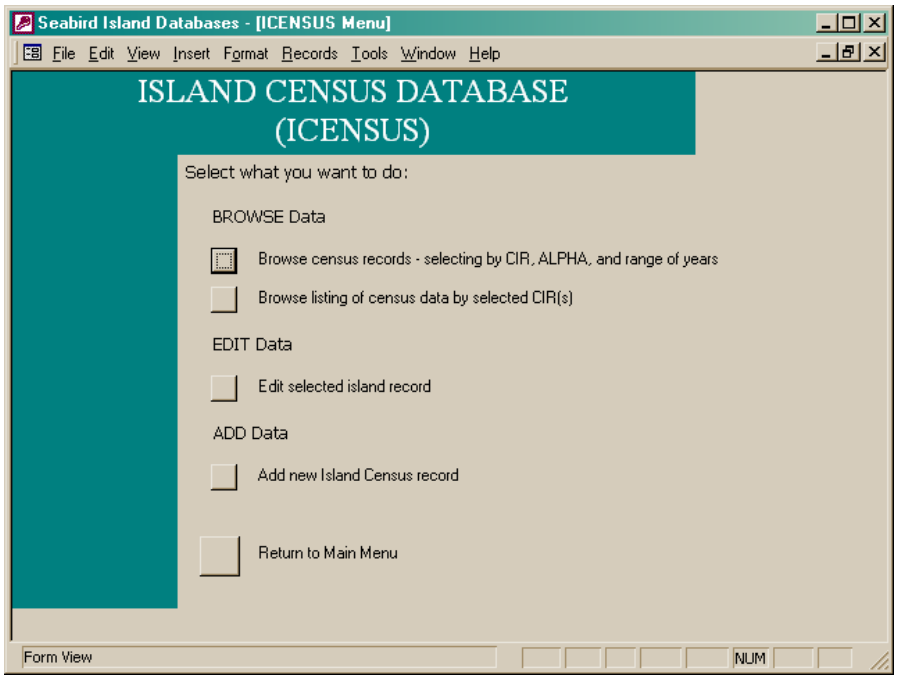
APPENDIX III

Seabird Island Database screens, menus, and data entry

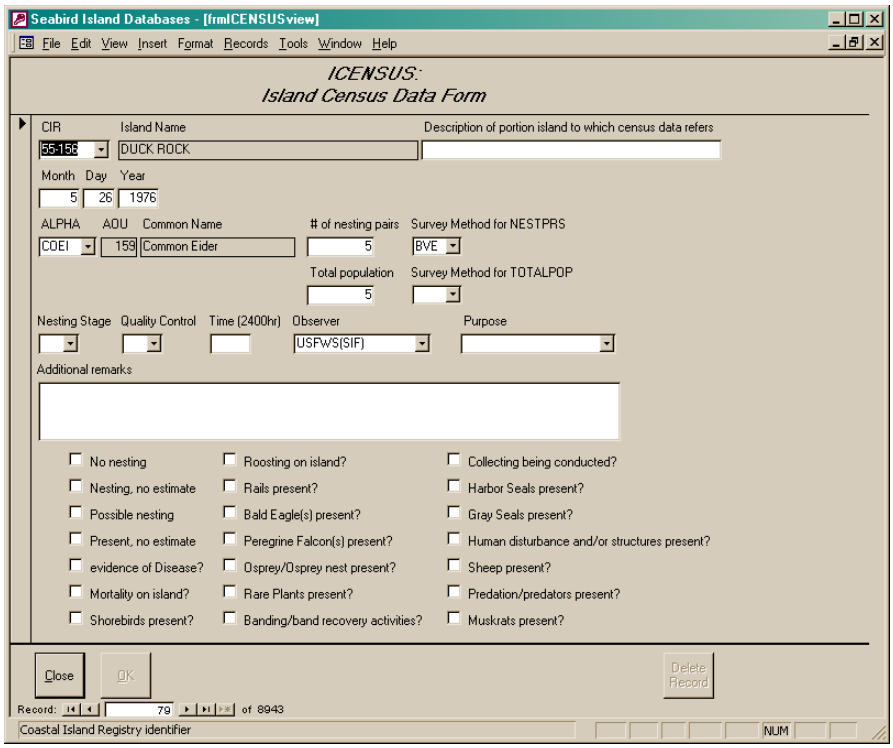
Opening menu to Seabird Island Application

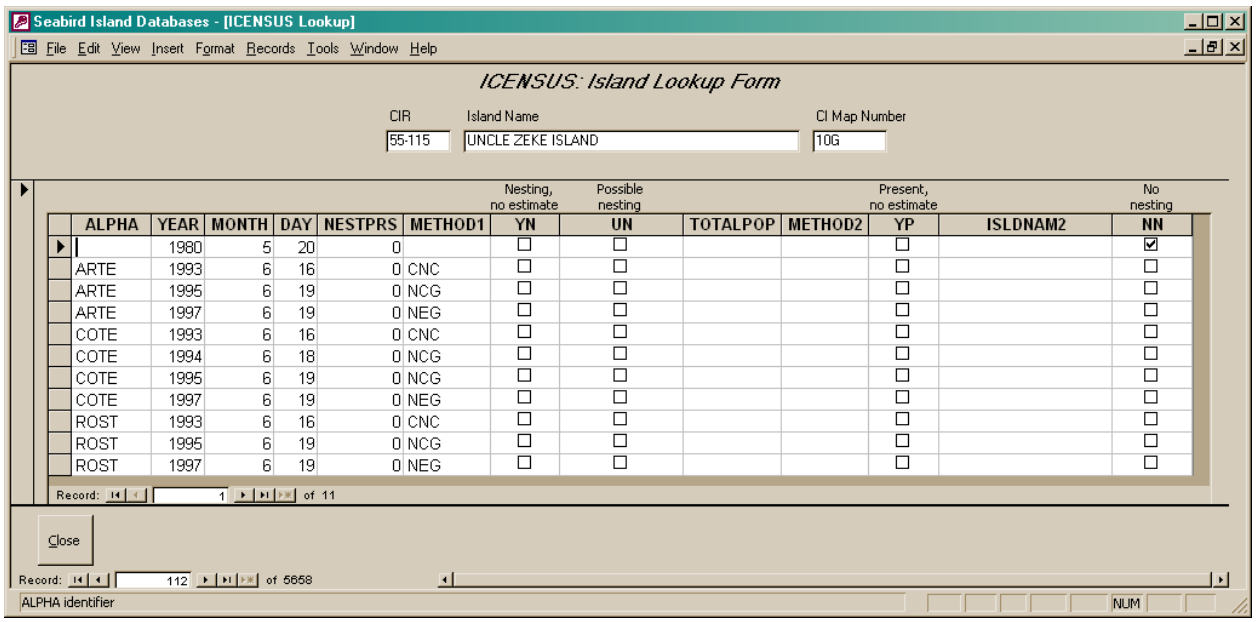


ICENSUS Menu

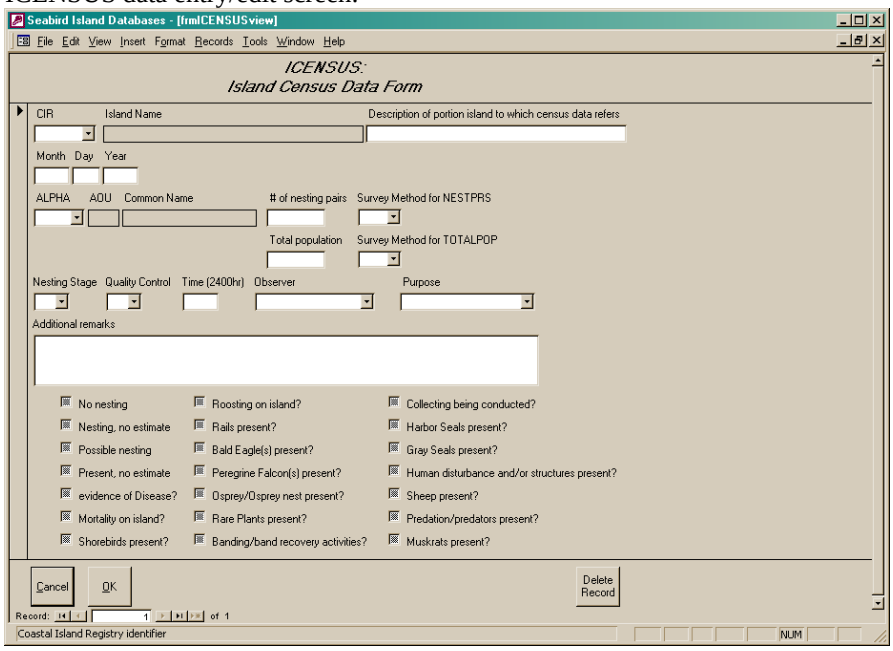


Browse ICENSUS

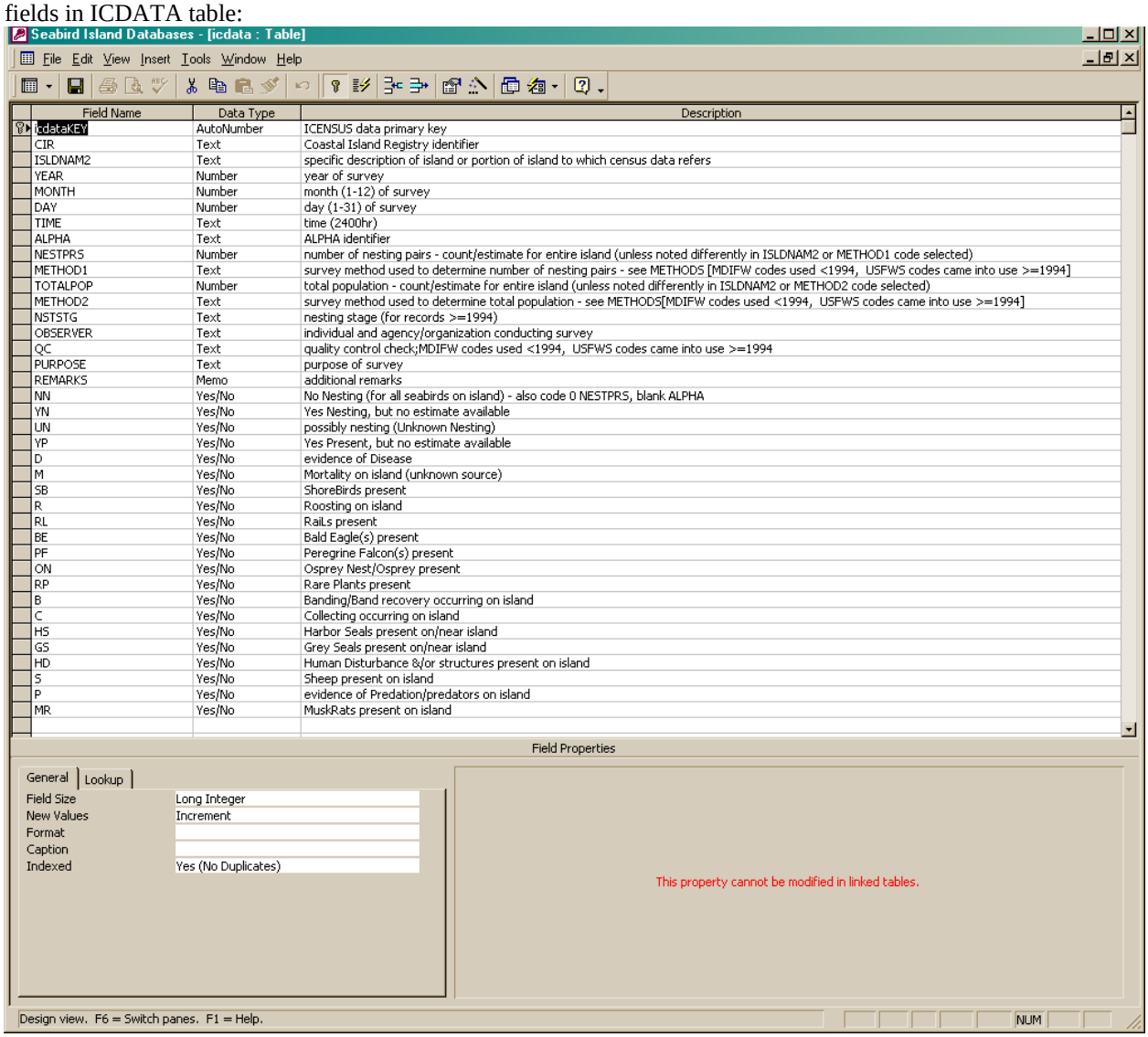




ICENSUS data entry/edit screen:

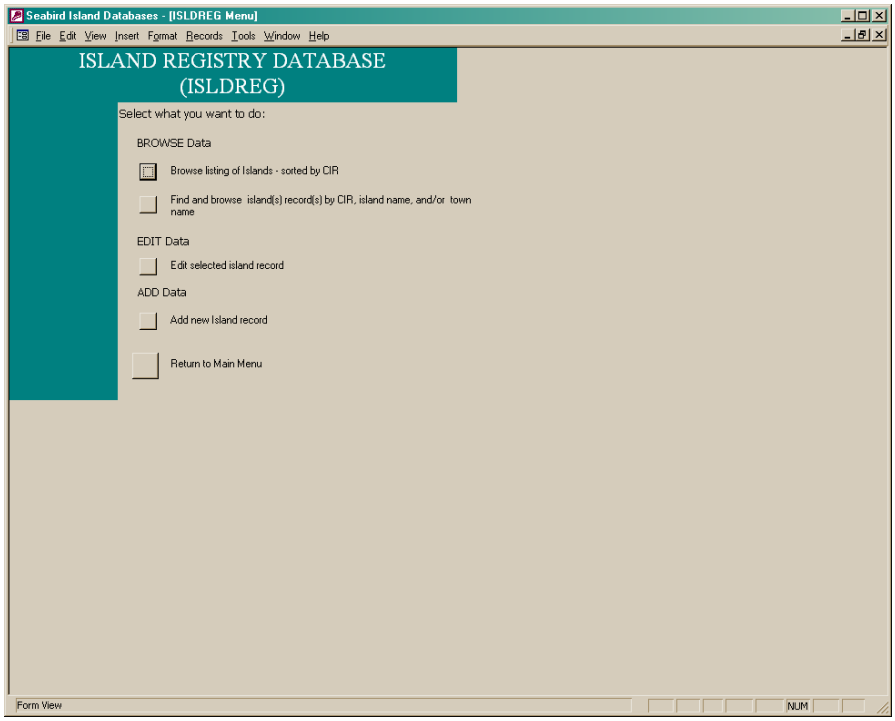


fields in ICDATA table:

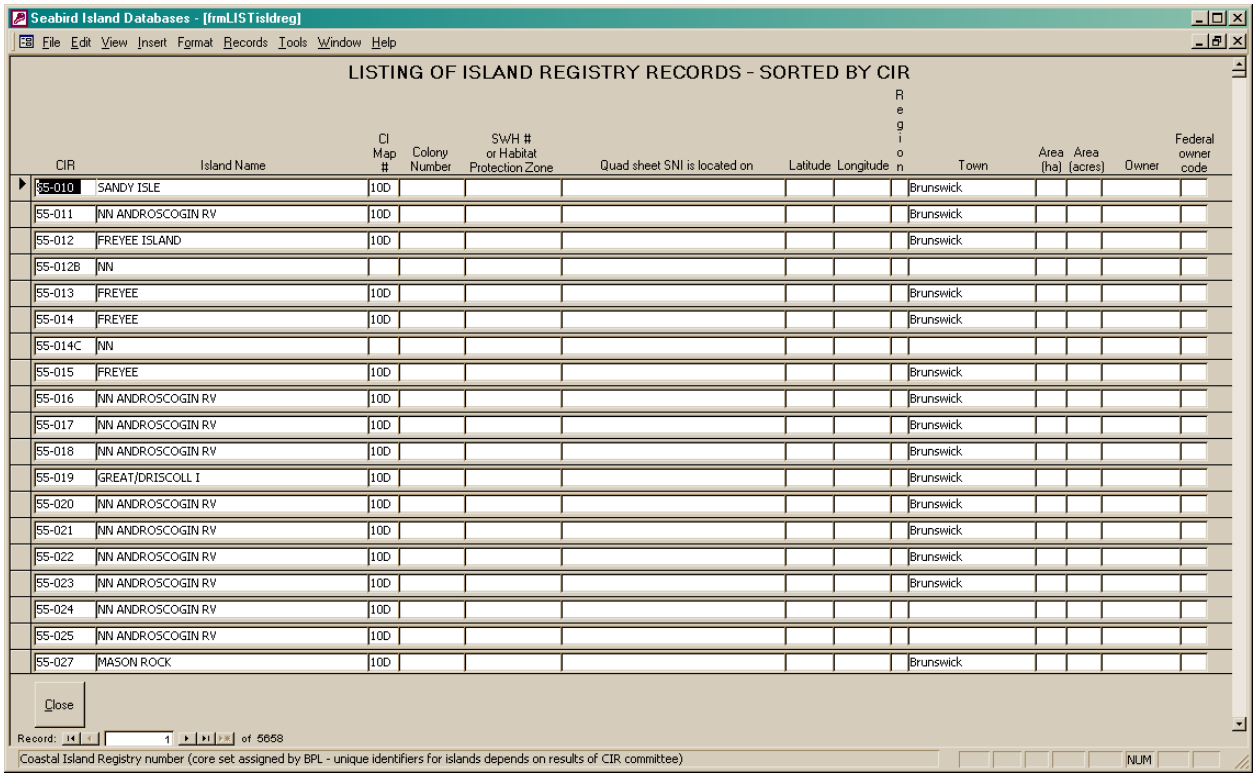


Field Name	Data Type	Description
icdataKEY	AutoNumber	ICENSUS data primary key
CIR	Text	Coastal Island Registry identifier
ISLDNAM2	Text	specific description of island or portion of island to which census data refers
YEAR	Number	year of survey
MONTH	Number	month (1-12) of survey
DAY	Number	day (1-31) of survey
TIME	Text	time (2400hr)
ALPHA	Text	ALPHA identifier
NESTPRS	Number	number of nesting pairs - count/estimate for entire island (unless noted differently in ISLDNAM2 or METHOD1 code selected)
METHOD1	Text	survey method used to determine number of nesting pairs - see METHODS [MDIFW codes used <1994, USFWS codes came into use >=1994]
TOTALPOP	Number	total population - count/estimate for entire island (unless noted differently in ISLDNAM2 or METHOD2 code selected)
METHOD2	Text	survey method used to determine total population - see METHODS[MDIFW codes used <1994, USFWS codes came into use >=1994]
NSTSTG	Text	nesting stage (for records >=1994)
OBSERVER	Text	individual and agency/organization conducting survey
QC	Text	quality control check;MDIFW codes used <1994, USFWS codes came into use >=1994
PURPOSE	Text	purpose of survey
REMARKS	Memo	additional remarks
NN	Yes/No	No Nesting (for all seabirds on island) - also code 0 NESTPRS, blank ALPHA
YN	Yes/No	Yes Nesting, but no estimate available
UN	Yes/No	possibly nesting (Unknown Nesting)
YP	Yes/No	Yes Present, but no estimate available
D	Yes/No	evidence of Disease
M	Yes/No	Mortality on island (unknown source)
SB	Yes/No	ShoreBirds present
R	Yes/No	Roosting on island
RL	Yes/No	RaiLs present
BE	Yes/No	Bald Eagle(s) present
PF	Yes/No	Peregrine Falcon(s) present
ON	Yes/No	Osprey Nest/Osprey present
RP	Yes/No	Rare Plants present
B	Yes/No	Banding/Band recovery occurring on island
C	Yes/No	Collecting occurring on island
HS	Yes/No	Harbor Seals present on/near island
GS	Yes/No	Grey Seals present on/near island
HD	Yes/No	Human Disturbance &/or structures present on island
S	Yes/No	Sheep present on island
P	Yes/No	evidence of Predation/predators on island
MR	Yes/No	MuskRats present on island

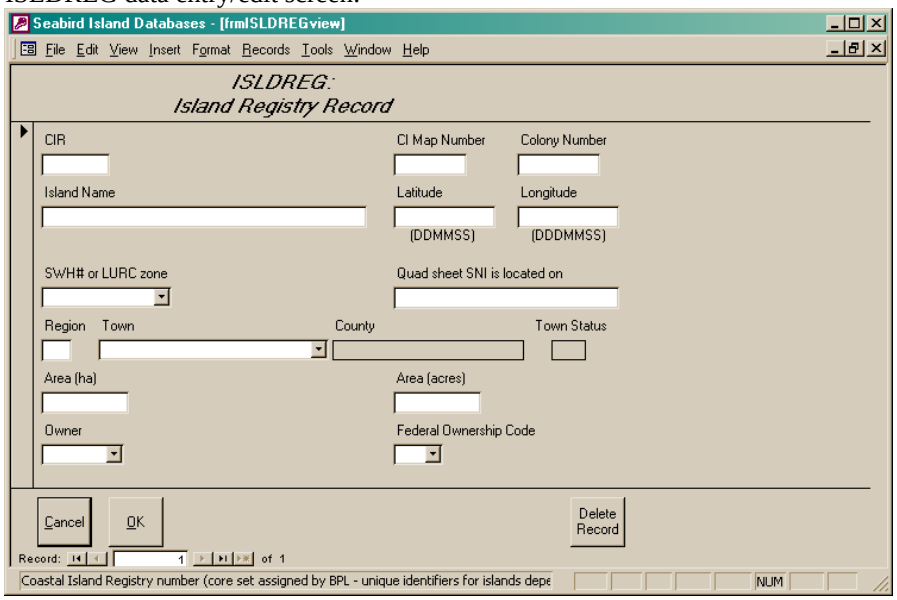
ISLDREG menu



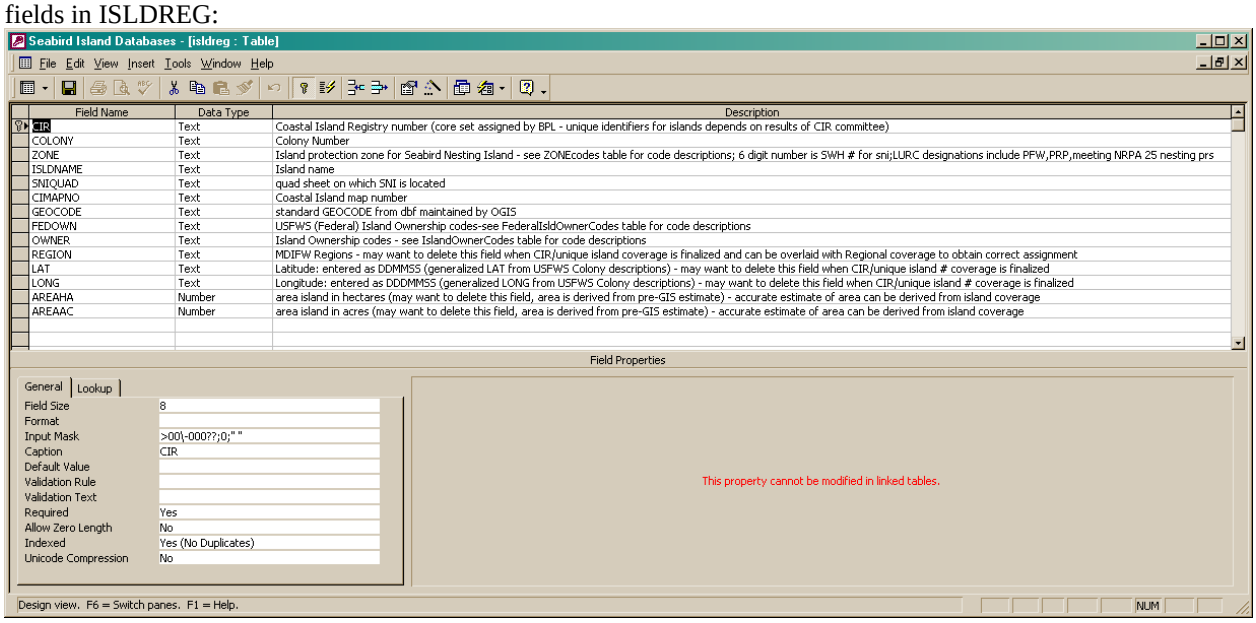
Browse ISLDREG:



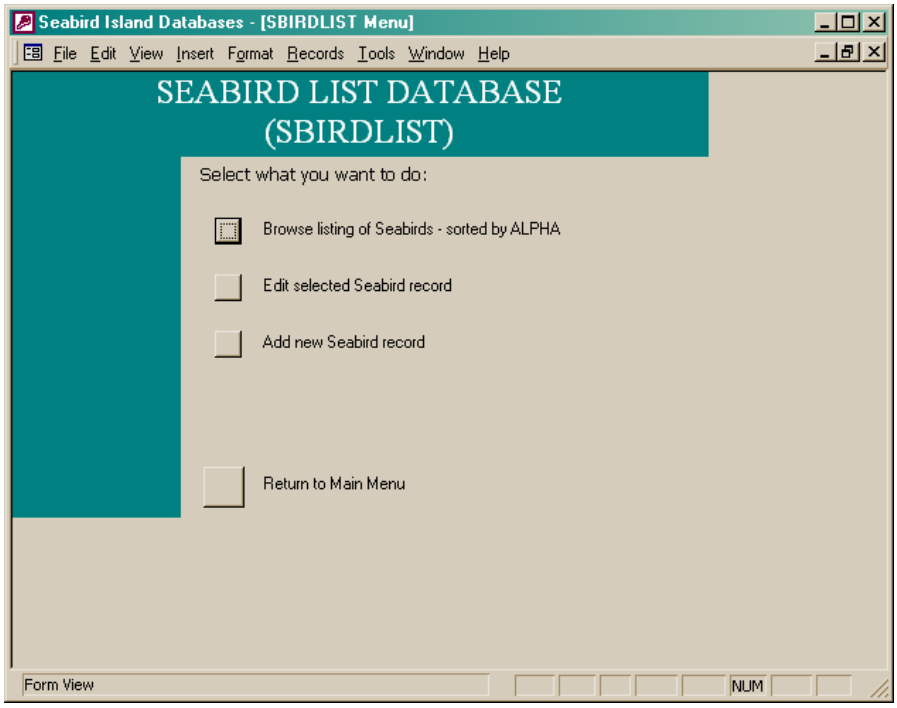
ISLDREG data entry/edit screen:



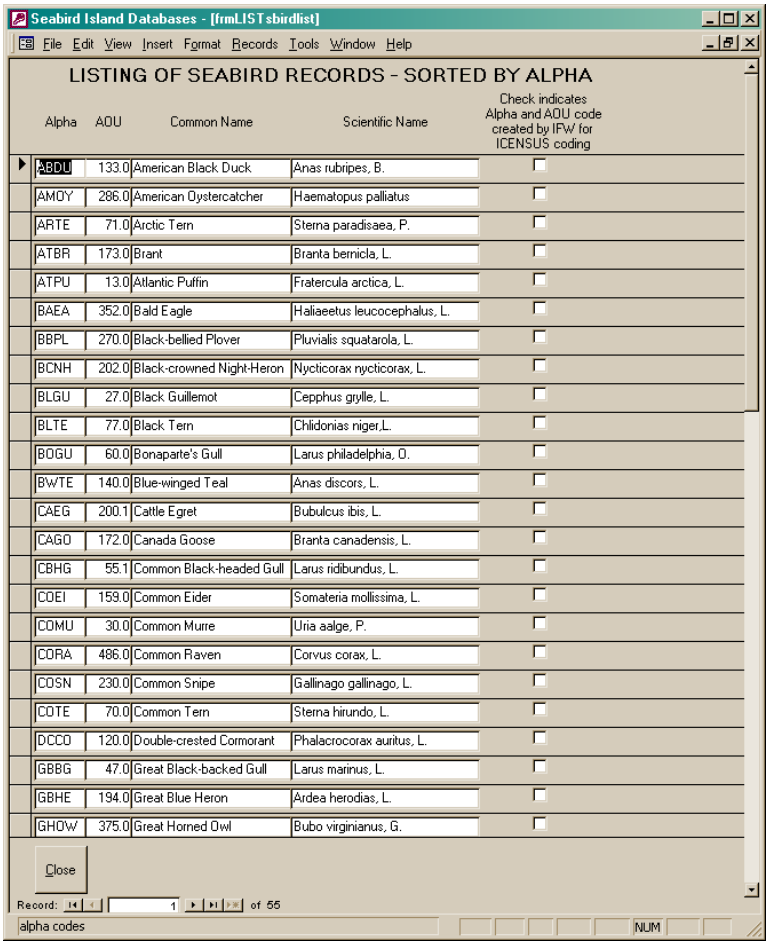
fields in ISLDREG:



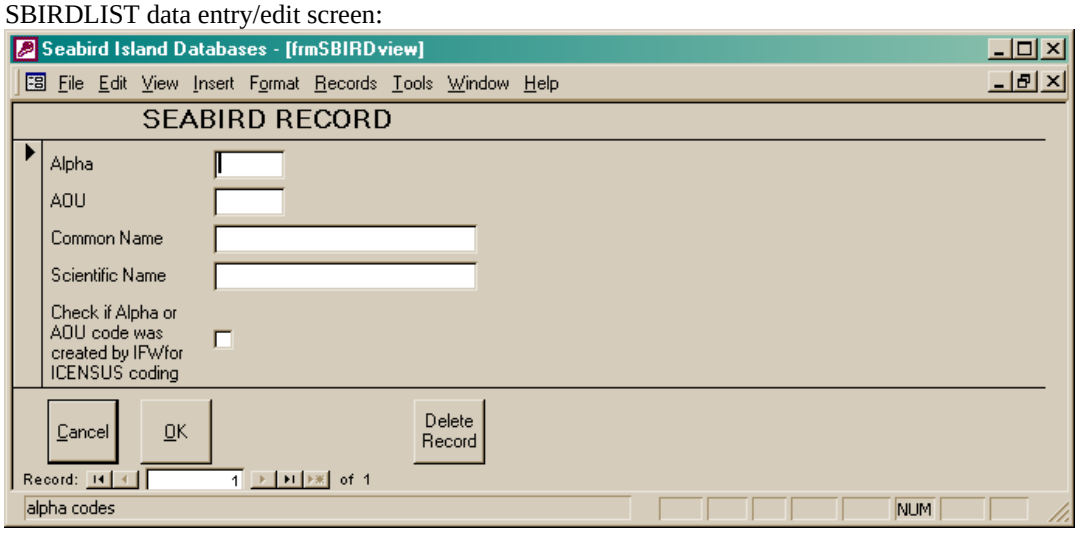
SBIRDLIST menu:



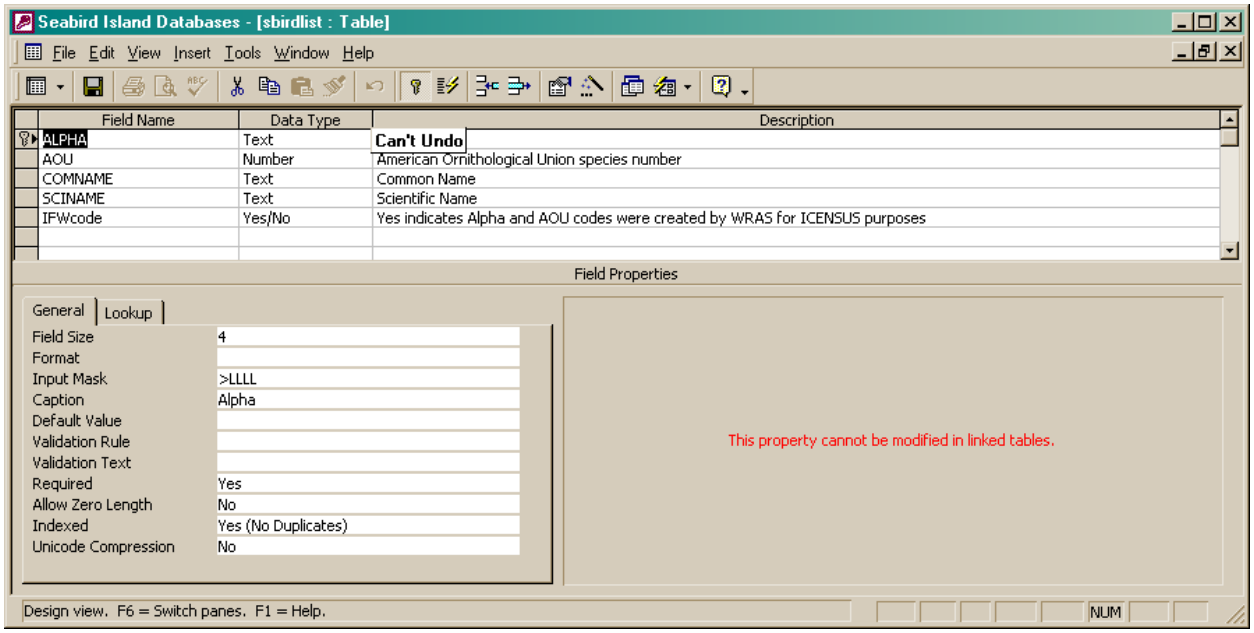
Browse SBIRDLIST:



SBIRDLIST data entry/edit screen:



fields in SBIRDLIST Table



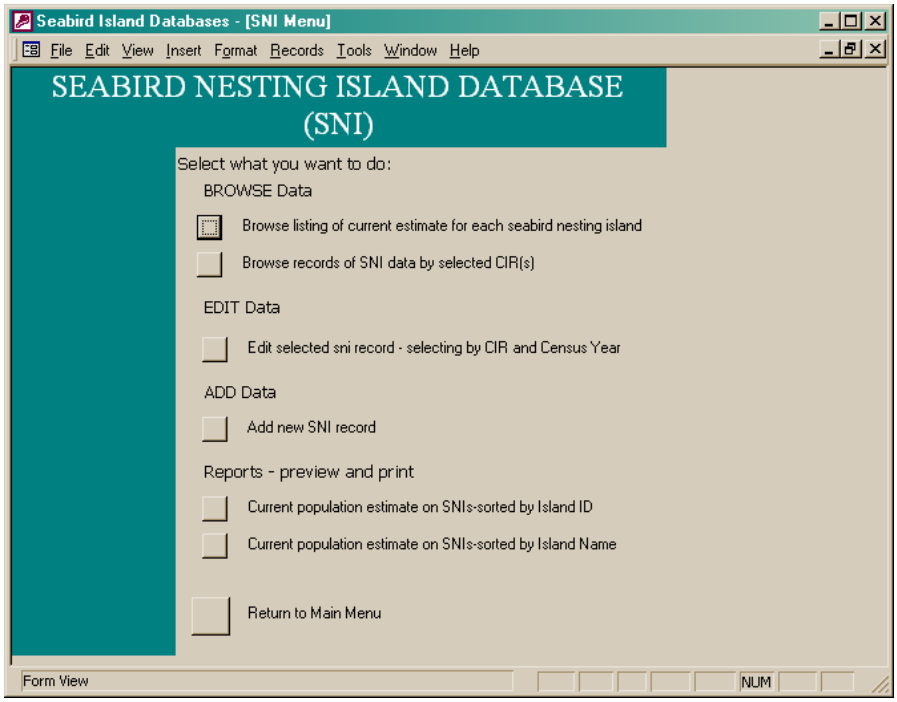
Data in SBIRDLIST Table:

Alpha	AOU	Common Name	Scientific Name	Yes=Alpha&AOU codes created for ICENSUS coding
ABDU	133.0	American Black Duck	Anas rubripes, B.	No
AMOY	286.0	American Oystercatcher	Haematopus palliatus	No
ARTE	71.0	Arctic Tern	Sterna paradisaea, P.	No
ATBR	173.0	Brant	Branta bernicla, L.	No
ATPU	13.0	Atlantic Puffin	Fratercula arctica, L.	No
BAEA	352.0	Bald Eagle	Haliaeetus leucocephalus, L.	No
BBPL	270.0	Black-bellied Plover	Pluvialis squatarola, L.	No
BCNH	202.0	Black-crowned Night-Heron	Nycticorax nycticorax, L.	No
BLGU	27.0	Black Guillemot	Cepphus grylle, L.	No
BLTE	77.0	Black Tern	Chlidonias niger,L.	No
BOGU	60.0	Bonaparte's Gull	Larus philadelphia, O.	No
BWTE	140.0	Blue-winged Teal	Anas discors, L.	No
CAEG	200.1	Cattle Egret	Bubulcus ibis, L.	No
CAGO	172.0	Canada Goose	Branta canadensis, L.	No
CBHG	55.1	Common Black-headed Gull	Larus ridibundus, L.	No
COEI	159.0	Common Eider	Somateria mollissima, L.	No
COMU	30.0	Common Murre	Uria aalge, P.	No
CORA	486.0	Common Raven	Corvus corax, L.	No
COSN	230.0	Common Snipe	Gallinago gallinago, L.	No
COTE	70.0	Common Tern	Sterna hirundo, L.	No
DCCO	120.0	Double-crested Cormorant	Phalacrocorax auritus, L.	No
GBBG	47.0	Great Black-backed Gull	Larus marinus, L.	No
GBHE	194.0	Great Blue Heron	Ardea herodias, L.	No
GHOW	375.0	Great Horned Owl	Bubo virginianus, G.	No
GLIB	186.0	Glossy Ibis	Plegadis falcinellus, L.	No
GRCO	119.0	Great Cormorant	Phalacrocorax carbo, L.	No

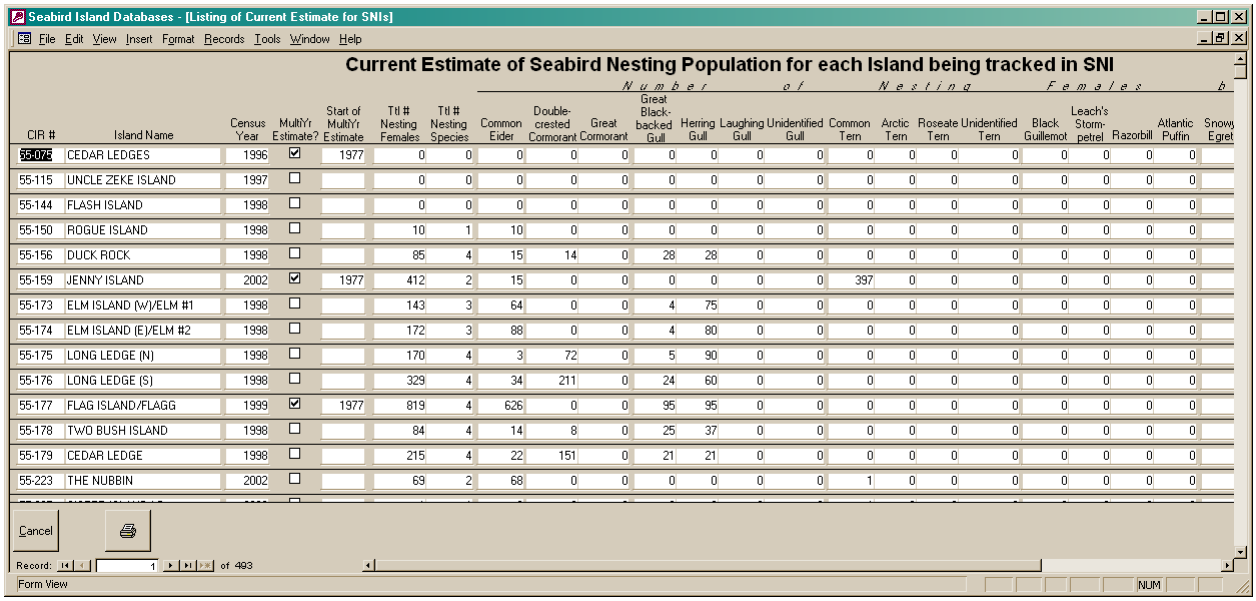
Alpha	AOU	Common Name	Scientific Name	Yes=Alpha&AOU codes created for ICENSUS coding
GREG	196.0	Great Egret	Casmerodius albus	No
GRYE	254.0	Greater Yellowlegs	Tringa melanoleuca, G.	No
HERG	51.0	Herring Gull	Larus argentatus, P.	No
LAGU	58.0	Laughing Gull	Larus atricilla, L.	No
LBHE	200.0	Little Blue Heron	Egretta caerulea, L.	No
LHSP	106.0	Leach's Storm-petrel	Oceanodroma leucorhoa, V.	No
MALL	132.0	Mallard	Anas platyrhynchos, L.	No
NOGA	117.0	Northern Gannet	Sula bassanus, L.	No
NOHA	331.0	Northern Harrier	Circus cyaneus, L.	No
OSPR	364.0	Osprey	Pandion haliaetus, L.	No
PEFA	356.0	Peregrine Falcon	Falco peregrinus,T.	No
PIPL	277.0	Piping Plover	Charadrius melodus, O.	No
PUSA	235.0	Purple Sandpiper	Calidris maritima, B.	No
RAZO	32.0	Razorbill	Alca torda, L.	No
RBGU	54.0	Ring-billed Gull	Larus delawarensis, O.	No
REKN	234.0	Red Knot	Calidris canutus, L.	No
ROST	72.0	Roseate Tern	Sterna dougallii, M.	No
RUTU	283.0	Ruddy Turnstone	Arenaria interpres, L.	No
SBDO	231.0	Short-billed Dowitcher	Limnodromus griseus,G.	No
SESA	246.0	Semipalmated Sandpiper	Calidris pusilla, L.	No
SNEG	197.0	Snowy Egret	Egretta thula, M.	No
SORA	214.0	Sora	Porzana carolina,L.	No
SOSA	256.0	Solitary Sandpiper	Tringa solitaria, W.	No
SPSA	263.0	Spotted Sandpiper	Actitis macularia, L.	No
TRHE	199.0	Tricolored Heron	Egretta tricolor, M.	No

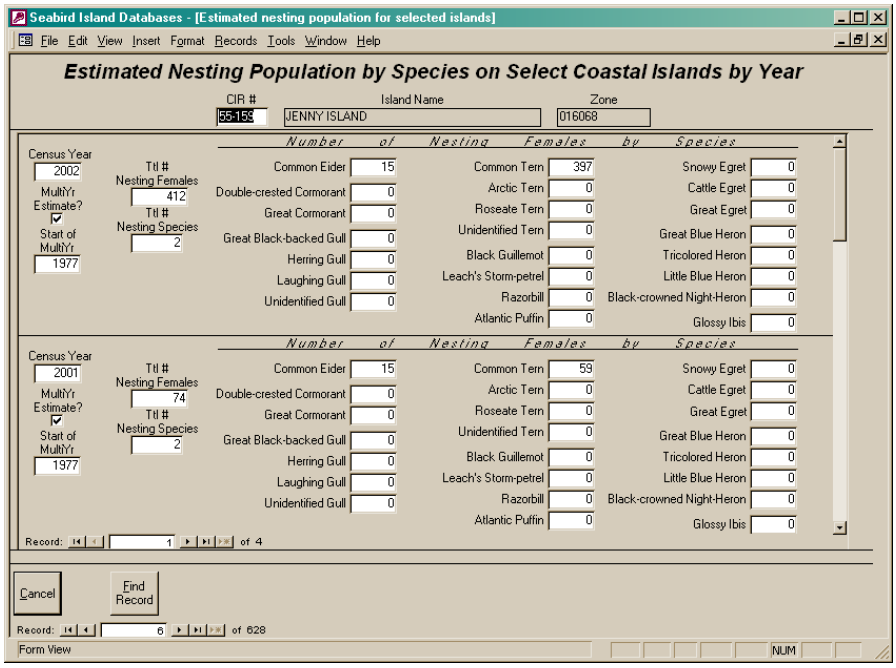
Alpha	AOU	Common Name	Scientific Name	Yes=Alpha&AOU codes created for ICENSUS coding
UNGU	53.4	Unidentified Gull		No
UNTR	70.4	Unidentified Tern		Yes
WILL	258.0	Willet	Catoptrophorus semipalmatus, G.	No
WWSC	165.0	White-winged Scoter	Melanitta fusca, L.	No

SNI menu:

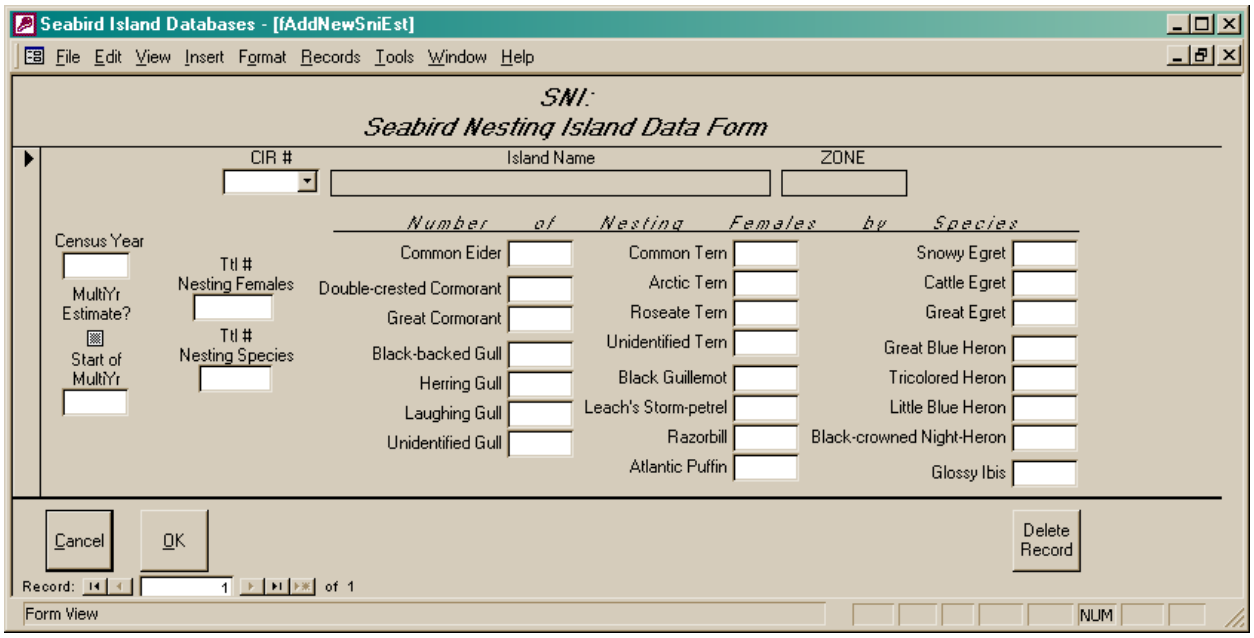

Seabird Island Databases - [SNI Menu]
File Edit View Insert Format Records Tools Window Help
SEABIRD NESTING ISLAND DATABASE (SNI)
Select what you want to do:
BROWSE Data
Browse listing of current estimate for each seabird nesting island
Browse records of SNI data by selected CIR(s)
EDIT Data
Edit selected sni record - selecting by CIR and Census Year
ADD Data
Add new SNI record
Reports - preview and print
Current population estimate on SNIs-sorted by Island ID
Current population estimate on SNIs-sorted by Island Name
Return to Main Menu
Form View
NUM

Browse SNI:

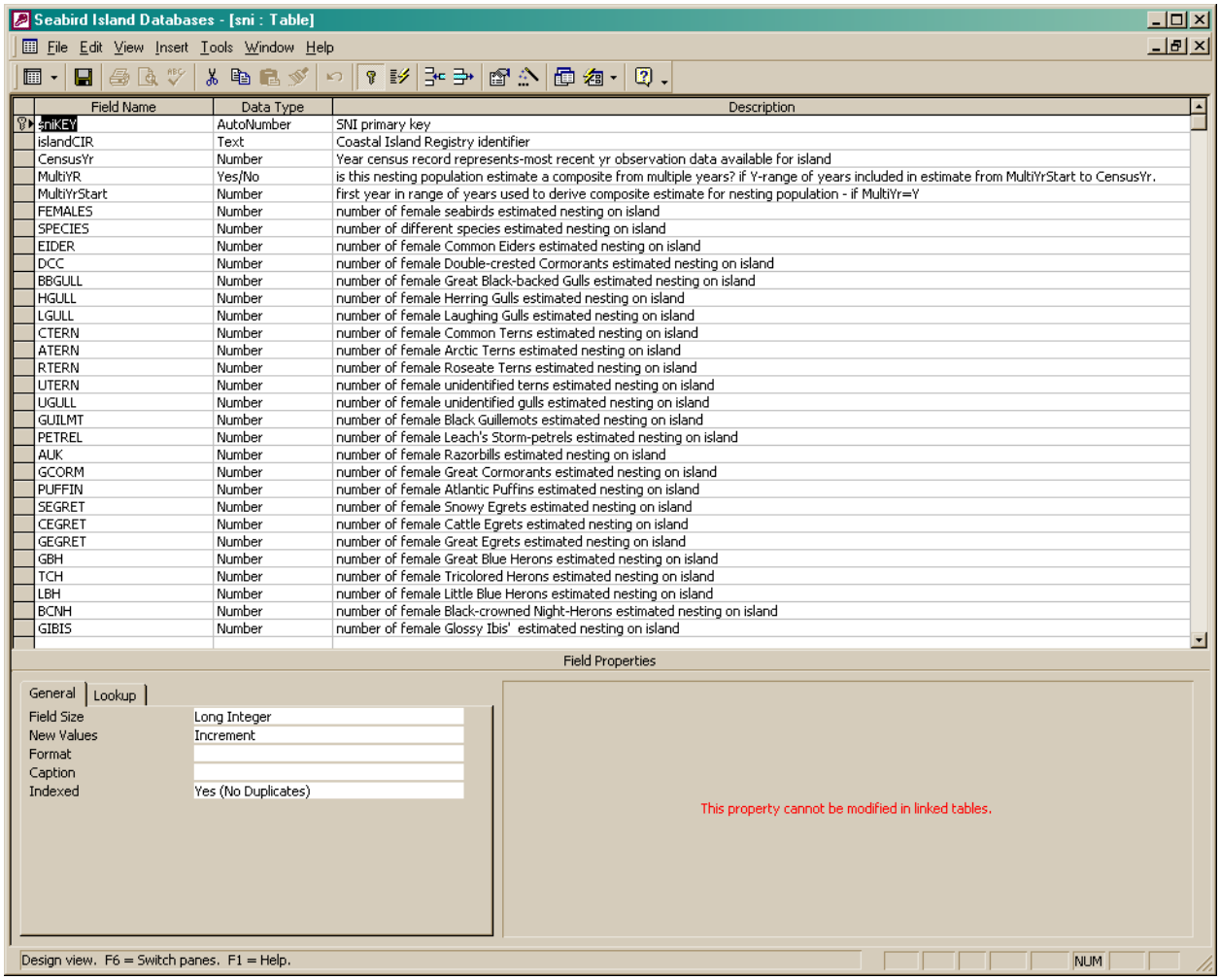

Seabird Island Databases - [Listing of Current Estimate for SNIs]
File Edit View Insert Format Records Tools Window Help
Current Estimate of Seabird Nesting Population for each Island being tracked in SNI
Number of Nesting Females b
CIR # Island Name Census Year MultiYr Estimate? Start of MultiYr Estimate Ttl # Nesting Females Ttl # Nesting Species Common Eider Double-crested Cormorant Great Cormorant Great Black-backed Gull Herring Gull Laughing Gull Unidentified Gull Common Tern Arctic Tern Roseate Tern Unidentified Tern Black Guillemot Leach's Storm-petrel Razorbill Atlantic Puffin Snowy Egret
55-075 CEDAR LEDGES 1996 1977 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
55-115 UNCLE ZEKE ISLAND 1997 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
55-144 FLASH ISLAND 1998 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
55-150 ROGUE ISLAND 1998 10 1 10 0 0 0 0 0 0 0 0 0 0 0 0 0
55-156 DUCK ROCK 1998 85 4 15 14 0 28 28 0 0 0 0 0 0 0 0 0
55-159 JENNY ISLAND 2002 1977 412 2 15 0 0 0 0 0 0 397 0 0 0 0 0 0
55-173 ELM ISLAND (W)/ELM #1 1998 143 3 64 0 0 4 75 0 0 0 0 0 0 0 0 0
55-174 ELM ISLAND (E)/ELM #2 1998 172 3 88 0 0 4 80 0 0 0 0 0 0 0 0 0
55-175 LONG LEDGE (N) 1998 170 4 3 72 0 5 90 0 0 0 0 0 0 0 0 0
55-176 LONG LEDGE (S) 1998 329 4 34 211 0 24 60 0 0 0 0 0 0 0 0 0
55-177 FLAG ISLAND/FLAGG 1999 1977 819 4 626 0 0 95 95 0 0 0 0 0 0 0 0 0
55-178 TWO BUSH ISLAND 1998 84 4 14 8 0 25 37 0 0 0 0 0 0 0 0 0
55-179 CEDAR LEDGE 1998 215 4 22 151 0 21 21 0 0 0 0 0 0 0 0 0
55-223 THE NUBBIN 2002 69 2 68 0 0 0 0 0 0 1 0 0 0 0 0 0
Cancel
Record: 1 of 493
Form View
NUM


Seabird Island Databases - [Estimated nesting population for selected islands]
File Edit View Insert Format Records Tools Window Help
Estimated Nesting Population by Species on Select Coastal Islands by Year
CIR # 55-159
Island Name JENNY ISLAND
Zone 016068
Number of Nesting Females by Species
Census Year 2002
MultiYr Estimate?
Start of MultiYr 1977
Ttl # Nesting Females 412
Ttl # Nesting Species 2
Common Eider 15
Double-crested Cormorant 0
Great Cormorant 0
Great Black-backed Gull 0
Herring Gull 0
Laughing Gull 0
Unidentified Gull 0
Common Tern 397
Arctic Tern 0
Roseate Tern 0
Unidentified Tern 0
Black Guillemot 0
Leach's Storm-petrel 0
Razorbill 0
Atlantic Puffin 0
Snowy Egret 0
Cattle Egret 0
Great Egret 0
Great Blue Heron 0
Tricolored Heron 0
Little Blue Heron 0
Black-crowned Night-Heron 0
Glossy Ibis 0
Number of Nesting Females by Species
Census Year 2001
MultiYr Estimate?
Start of MultiYr 1977
Ttl # Nesting Females 74
Ttl # Nesting Species 2
Common Eider 15
Double-crested Cormorant 0
Great Cormorant 0
Great Black-backed Gull 0
Herring Gull 0
Laughing Gull 0
Unidentified Gull 0
Common Tern 59
Arctic Tern 0
Roseate Tern 0
Unidentified Tern 0
Black Guillemot 0
Leach's Storm-petrel 0
Razorbill 0
Atlantic Puffin 0
Snowy Egret 0
Cattle Egret 0
Great Egret 0
Great Blue Heron 0
Tricolored Heron 0
Little Blue Heron 0
Black-crowned Night-Heron 0
Glossy Ibis 0
Record: 1 of 4
Cancel
Find Record
Record: 6 of 628
Form View
NUM

SNI data entry/edit screen:



fields in SNI table:



APPENDIX IV

Common Eider Survey and Census Schedule and base year data for comparisons

Island	CNC (# nests)	(YEAR)	*(5/14/03)* AMES
Petit Manan	113 (‘02)	_____ (‘03)	_____
Green Island	800 (‘02)	_____ (‘03)	_____
East Barge	2 (’95)	_____ (‘03)	_____
West Barge	1 (’95)	_____ (‘03)	_____
Trumpet	186 (’98)	_____ (’03)	_____
Compass Island	200 (‘02)	_____ (‘03)	_____
Western Island	15 (‘02)	_____ (‘03)	_____
Robert’s Island	272 (96)	_____ (‘03)	_____
Little Robert’s	100 (??)	_____ (‘03)	_____
Metinic Green	1000 (??)	_____ (??)	_____
Metinic (FWS)	246 (’01)	_____ (‘06)	_____
Hog Island	55 (??)	_____ (??)	_____
Franklin Island	1200 (‘95)	_____ (‘03)	_____
Outer Heron	35 (‘95)	_____ (‘03)	_____
Inner White	50 (‘95)	_____ (‘03)	_____
Outer White	50 (‘96)	_____ (‘03)	_____
Flag Island	626(‘99)	_____ (‘03)	_____
Upper Flag	110 (‘98)	_____ (‘04)	_____
Ram Island	117 (‘98)	_____ (‘04)	_____
Pond Island	300 (‘99)	_____ (‘04)	_____
Jenny Island	15 (??)	_____ (‘04)	_____