

Seabird population trends and breeding success manual

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1. Introduction

The Circumpolar Seabird Expert Group (CBird) promotes, facilitates, and coordinates conservation, management and research activities among circumpolar countries and improves communication between seabird scientists and managers inside and outside the Arctic. CBird is part of the Conservation of Arctic Flora and Fauna (CAFF) Arctic Council working Group and is comprised of members from national representatives, Permanent Participants, observer countries and organizations. This manual provides instructions on how to access, manage and add data to the **Seabird population trends and breeding database**. Appendix 1 contains the database structure and explanation for each table and its attributes.

2. Access levels

The database is user based, meaning that each user has their own login. There are several levels of access provided to users:

- Administrator: Full permission to access all database components
- CBird: Full permission to most tables, not all administrators tables
- Assistant: Permission to add and edit their own data but can only view other data
- Visitor: Permission to view the database but not to add or edit any information

CAFF Data Manager is in the **Administrator** group. CBird member are members of **CBird** group and if they have an assistant that will add data to the database, they receive **Assistant** user access. A **visitor** can just view data and has no permissions to edit.

3. Accessing the database

Access the database here: <https://abds.is/cbird> (Figure 1) Each CBird member is provided with a user name and password (contact hoddi@caff.is) with any questions regarding user access. Upon opening the database you will be presented with the main database table containing the primary information on Seabird population trends and breeding (Figure 2). On the left-hand side, you will see the list of tables which contain the supporting information

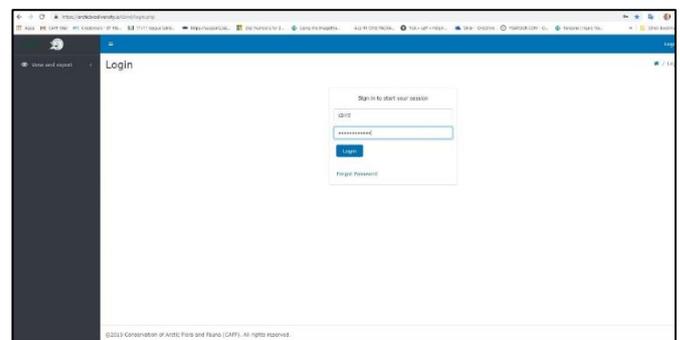
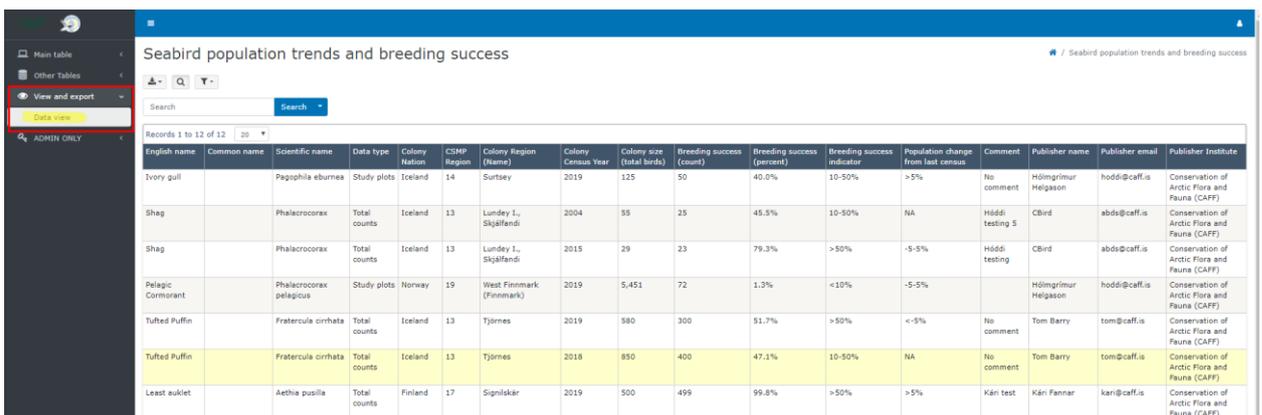


Figure 1: Login page - <https://abds.is/cbird>



English name	Common name	Scientific name	Data type	Colony Nation	CSMP Region	Colony Region (Name)	Colony Census Year	Colony size (total birds)	Breeding success (count)	Breeding success (percent)	Breeding success indicator	Population change from last census	Comment	Publisher name	Publisher email	Publisher Institute
Ivory gull		<i>Pagophila eburnea</i>	Study plots	Iceland	14	Surtsey	2019	125	50	40.0%	10-50%	>5%	No comment	Hólmgrímur Helgason	hoddi@caff.is	Conservation of Arctic Flora and Fauna (CAFF)
Shag		<i>Phalacrocorax</i>	Total counts	Iceland	13	Lundey I., Skjálfandi	2004	55	25	45.5%	10-50%	NA	Hóddi testing 5	CBird	abds@caff.is	Conservation of Arctic Flora and Fauna (CAFF)
Shag		<i>Phalacrocorax</i>	Total counts	Iceland	13	Lundey I., Skjálfandi	2015	29	23	79.3%	>50%	-5-5%	Hóddi testing	CBird	abds@caff.is	Conservation of Arctic Flora and Fauna (CAFF)
Pelagic Cormorant		<i>Phalacrocorax pelagicus</i>	Study plots	Norway	19	West Finnmark (Finnmark)	2019	5,451	72	1.3%	<-10%	-5-5%		Hólmgrímur Helgason	hoddi@caff.is	Conservation of Arctic Flora and Fauna (CAFF)
Tufted Puffin		<i>Fratercula cirrhata</i>	Total counts	Iceland	13	Tjörnes	2019	580	300	51.7%	>50%	<-5%	No comment	Tom Barry	tom@caff.is	Conservation of Arctic Flora and Fauna (CAFF)
Tufted Puffin		<i>Fratercula cirrhata</i>	Total counts	Iceland	13	Tjörnes	2018	850	400	47.1%	10-50%	NA	No comment	Tom Barry	tom@caff.is	Conservation of Arctic Flora and Fauna (CAFF)
Least auklet		<i>Aethia pusilla</i>	Total counts	Finland	17	Signälskar	2019	500	499	99.8%	>50%	>5%	Kán test	Kán Pannar	kan@caff.is	Conservation of Arctic Flora and Fauna (CAFF)

Figure 2: Database view

4. Database structure

The database is comprised of 1 main table which contains the primary information on Seabird population trends and breeding. This table is supported by 9 tables containing details defining list of species in the database, list of colonies, countries, Circumpolar Seabird Monitoring Plan (CSMP) regions (Circumpolar Seabird Monitoring Plan), data types, options to record population change and breeding success and institutes to which CBird members belong.

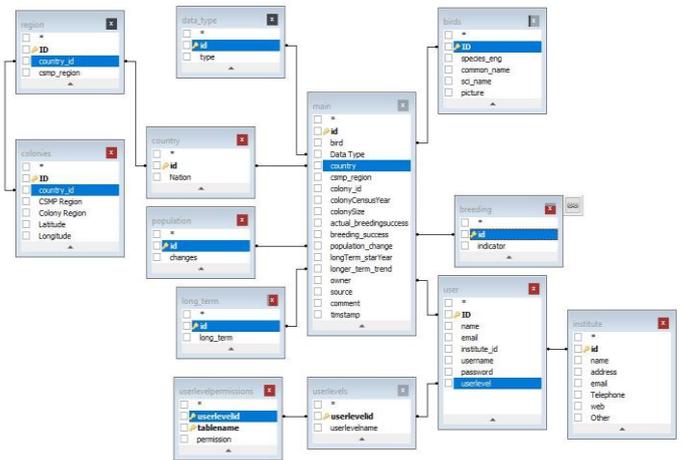


Figure 3: Database ER-Diagram

5. Using the database

When you have logged in and want to add new data you choose the “My Seabird data” under “Main table” section on the left side. Here you can see the data that the logged-in user has added (Figure 4).



id	Bird	Data type	Country	CSMP Region	Colony name	Colony Census Year	Colony Size	Breeding success (count)	Breeding Success Indicator	Population change from last census	Long Term start Year	Long Term Trend	Data Publisher Name	Data Provider Institute	Comment	Date added
2	Shag	Total counts	Iceland	13	Lundey I., Skjálafandi	2004	55	25	10-50%	NA	1988	NA	CBird	Conservation of Arctic Flora and Fauna (CAFF)	Hóddi testing 5	12/03/2019
3	Shag	Total counts	Iceland	13	Lundey I., Skjálafandi	2015	29	23	>50%	-5-5%	2004	-2-2%	CBird	Conservation of Arctic Flora and Fauna (CAFF)	Hóddi testing	12/03/2019

Figure 4: Main database table (My data)

- To add a new row to the table, click on the + sign (highlighted in red in Figure 4)
- A form opens with dropdown lists and options to populate the new row (Figure 5)
- The drop-down lists contain values based upon what has been selected previously – change as needed
- If a bird name is not on the dropdown list is it easy to add a new species. Click the plus sign (red box Figure 5) to the right to the Bird list and a new popup window appears where you can add a new bird species. The picture field can be left empty as pictures are not used (Figure 6).

- When all values have been filled click the **Add** button at the end of the form and the data is then added to the main table

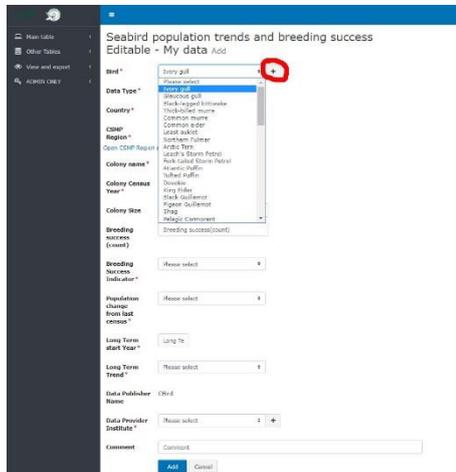


Figure 5: Add data

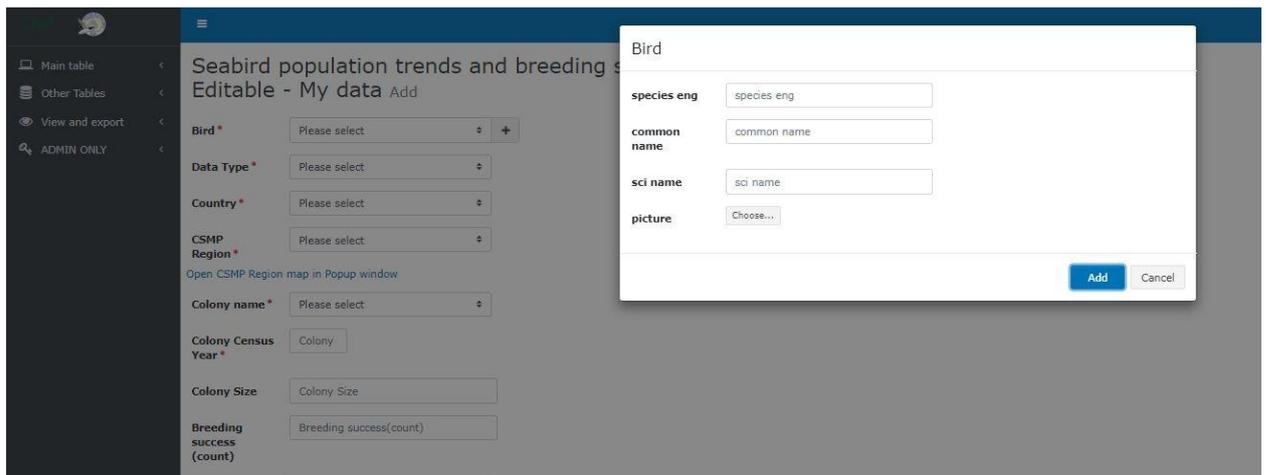


Figure 6: Add a new bird species

Another way to add a row is to:

- Select a row in the main table and choose “Copy” in the drop-down list (Figure 7)
- All the data is included from the copied row and you just need to update the values you wish to change.

- Click add and the new row appears in the main table along with the edited values.

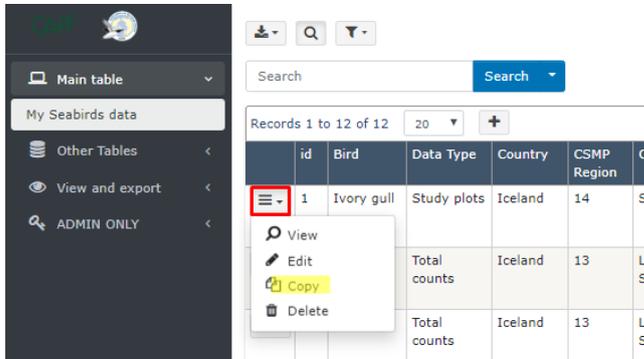


Figure 8

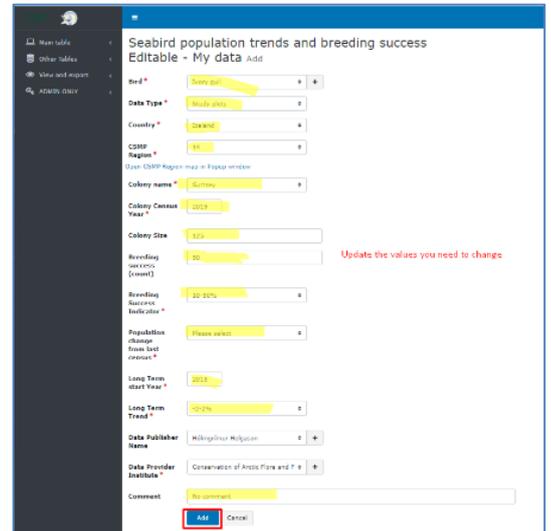


Figure 7

If you are not sure which CSMP Region to use, you can open a map that shows where the regions are. In next drop-down list, "Colony name", the colonies appear that are located inside the chosen CSMP Region (Figure 9).

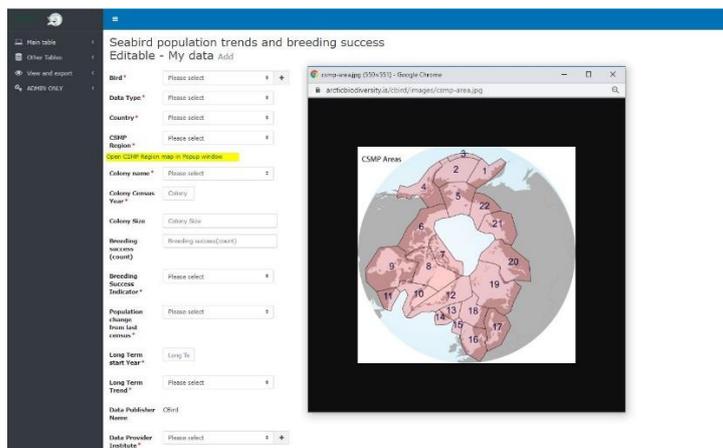


Figure 9: CSMP Regions

6. Other Tables

In addition to the main table the database contains 9 other tables which can be edited as needed:

- **Birds:** a list of seabird species (as listed in the Seabird monitoring plan)
- **Breeding:** contains the 4 different values used to indicate breeding success in the database
- **Colonies:** contains a list of seabird colonies (as listed in the Seabird monitoring plan) along with the colony name, the Seabird monitoring plan region within which the colonies is located and geographic coordinates
- **Country:** contains list of country names used in the database
- **CSMP Region:** contains CSMP Region number for each country
 - **CSMP - Circumpolar Seabird Monitoring Plan**
- **Data type:** to indicate if data are based on *study plots* or *total counts*
- **Population change:** contains the 4 different values used to indicate population change in the database
- **Longer-term trends:** contains the 4 different values used to indicate longer term trends in the database
- **Institutes:** contains the user institute

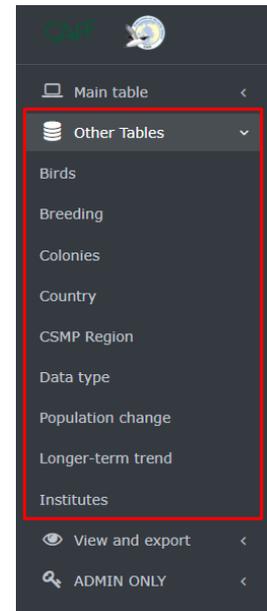
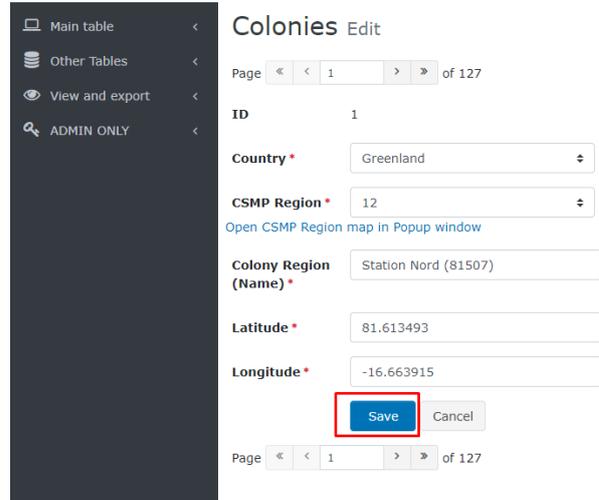


Figure 10

Colonies table

The Colonies table includes all colonies that can be selected in the main table (list comes from the Seabird monitoring plan).

- An Options button allows you to edit/copy a colony etc.
- The map shows colony locations (Lat + Long). The blue circle with a number inside illustrates how many colonies are at that location. You can click on a circle to zoom to that area.
- The table default setting shows 20 records and the map shows only those 20 colonies. If all colonies should be shown on the map you need to click on "ALL" records
- You can search after country, colony or use free text
- Add new colony click the plus (+) button



Main table < Other Tables < View and export < ADMIN ONLY <

Colonies Edit

Page << < 1 > >> of 127

ID 1

Country* Greenland ▾

CSMP Region* 12 ▾
[Open CSMP Region map in Popup window](#)

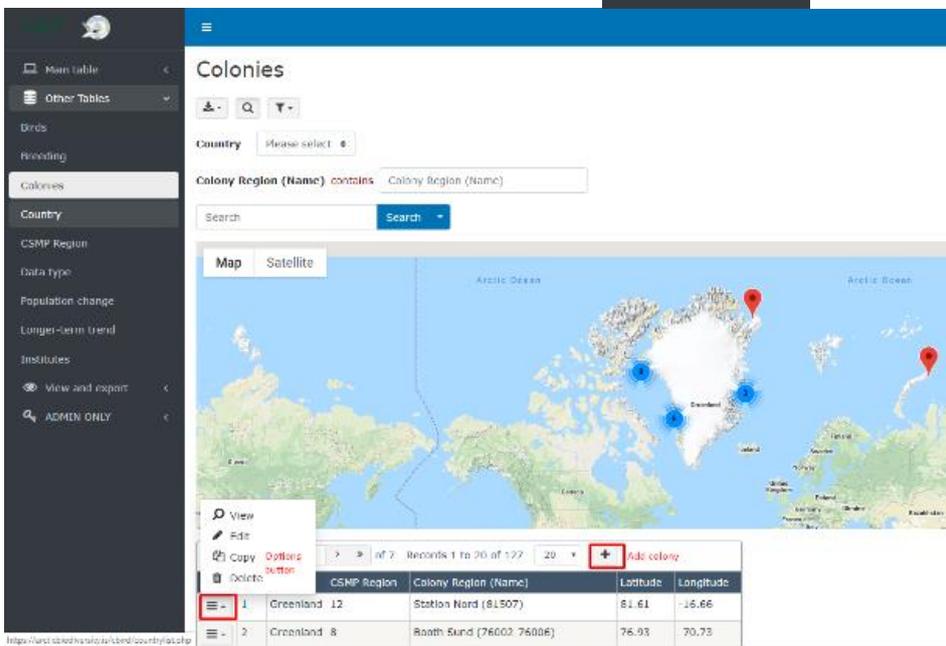
Colony Region (Name)* Station Nord (81507)

Latitude* 81.613493

Longitude* -16.663915

Save Cancel

Page << < 1 > >> of 127



Main table < Other Tables < Birds < Breeding < Colonies < Country < CSMP Region < Data type < Population change < Longer-term trend < Institutes < View and export < ADMIN ONLY <

Colonies

Country Please select ▾

Colony Region (Name) contains Colony Region (Name)

Search Search ▾

Map Satellite

Arctic Ocean Arctic Ocean

View Edit Copy Options Delete

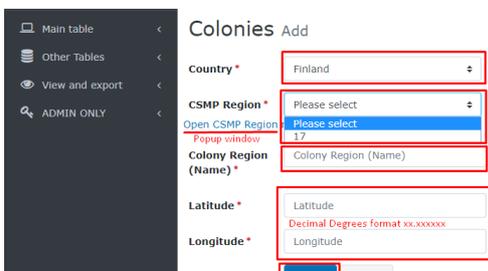
Records 1 to 20 of 127 + Add colony

	CSMP Region	Colony Region (Name)	Latitude	Longitude
1	Greenland 12	Station Nord (81507)	81.61	-16.66
2	Greenland 8	Roath Sund (76002 76006)	76.93	70.73

<https://arctic.seabirdgroup.org/colonylist.php>

Figure 11

Add or/and edit a colony



Main table < Other Tables < View and export < ADMIN ONLY <

Colonies Add

Country* Finland ▾

CSMP Region* Please select ▾
[Open CSMP Region Popup window](#)

Colony Region (Name)* Please select ▾

Latitude* Latitude
Decimal Degrees format xx.xxxxxx

Longitude* Longitude

Figure 12

and click save (Figure 13).

To add a new colony, you click on the plus sign (Figure 11) and a new window appears. Figure 12.

Fill out all information required and remember to use Decimal Degrees format xx.xxxxxx

If you need to edit colonies, click on the “Options button” (Figure 11) and choose edit. Make the changes needed

Figure 13: Edit colony

7. Exporting data

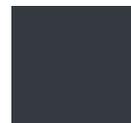
- Data can be exported to many different formats e.g. EXCEL or CSV.
- The export button is found on the top left corner which opens drop-down list where you can choose in which format you want to export to (Figure 14).



Figure 14: Export data

8. Upload excel file to CAFF

If needed, you can upload an excel-file that contain CBird data in right format to CAFF and they would add it to the database. When doing so you will be asked to enter a password which is: *cbird2020* (Figures 15 and 16). However, if doing so you need to use the excel template provided.



Common name	Scientific name	Data type	Colony Nation	CSMP Region	Colony Region (Name)	Colony Census Year	Colony size (total birds)	Breeds (count)
Shag	Phalacrocorax	total counts	Iceland	13	Lundey I., Skjálfandi	2015	29	23
Pedagic Cormorant	Phalacrocorax pelagicus	Study plots	Norway	19	West Finnmark (Finnmark)	2019	5,451	72
Tufted Puffin	Fraferculia cirrata	total counts	Iceland	13	Tjarnes	2019	580	300

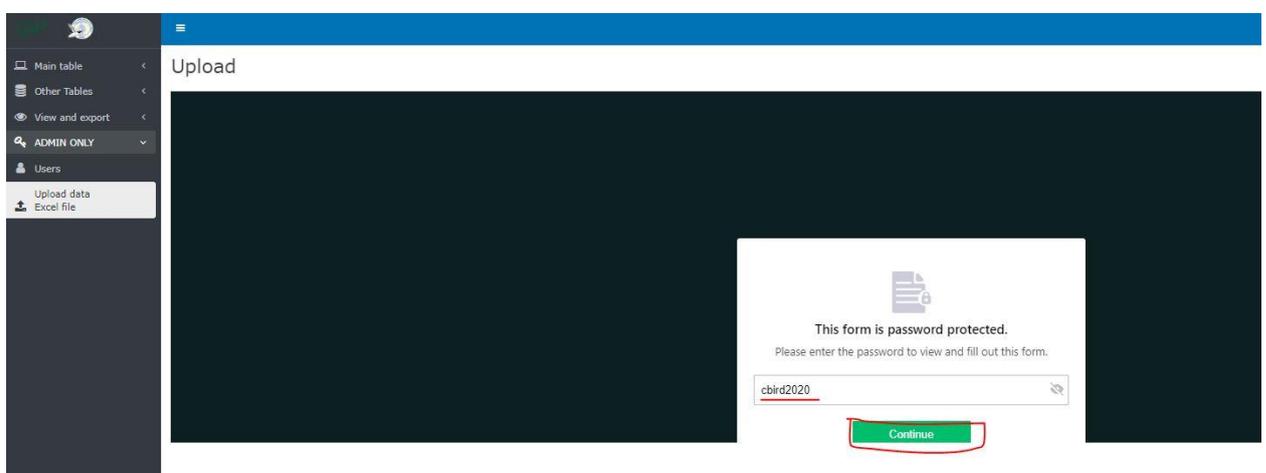
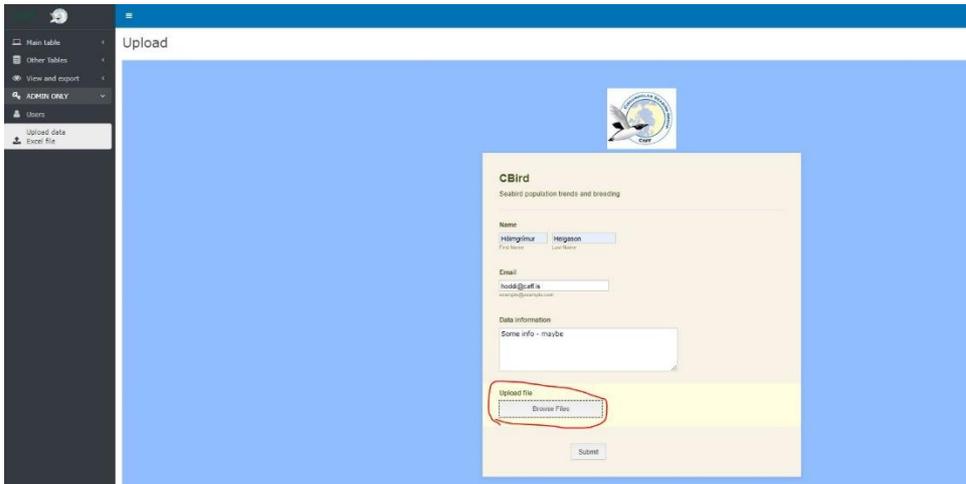
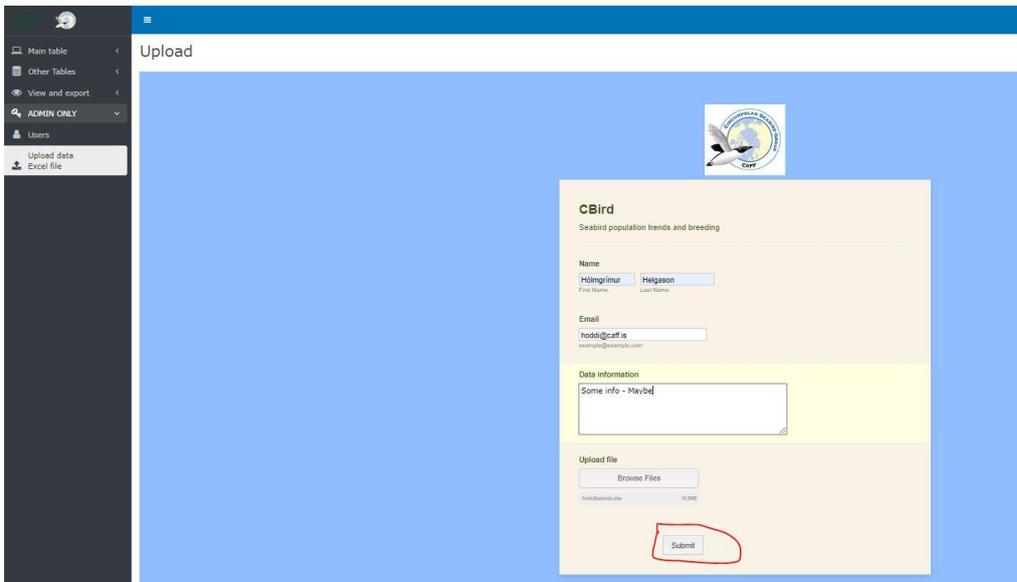


Figure 15: Upload login



The screenshot shows a web interface for uploading data. On the left is a dark sidebar with navigation options: 'Main table', 'Other tables', 'View and export', 'ADMIN ONLY', 'Users', 'Upload data', and 'Excel file'. The main content area is titled 'Upload' and contains a form for 'CBird' (Seabird population trends and breeding). The form has fields for 'Name' (First Name: 'Hölmgrímur', Last Name: 'Helgason'), 'Email' (hodd@caff.is), and 'Data information' (Some info - maybe). Below these is an 'Upload file' section with a 'Browse Files' button, which is circled in red. A 'Submit' button is at the bottom of the form.

Figure 16: Upload file



This screenshot is identical to Figure 16, showing the 'Upload' page. In this view, the 'Submit' button at the bottom of the form is circled in red, indicating the next step in the process.

Figure 17: Submit file

9. Appendix 1

The database has several tables, see ER-diagram Figure 18 and each table and its attributes are described on the following pages.

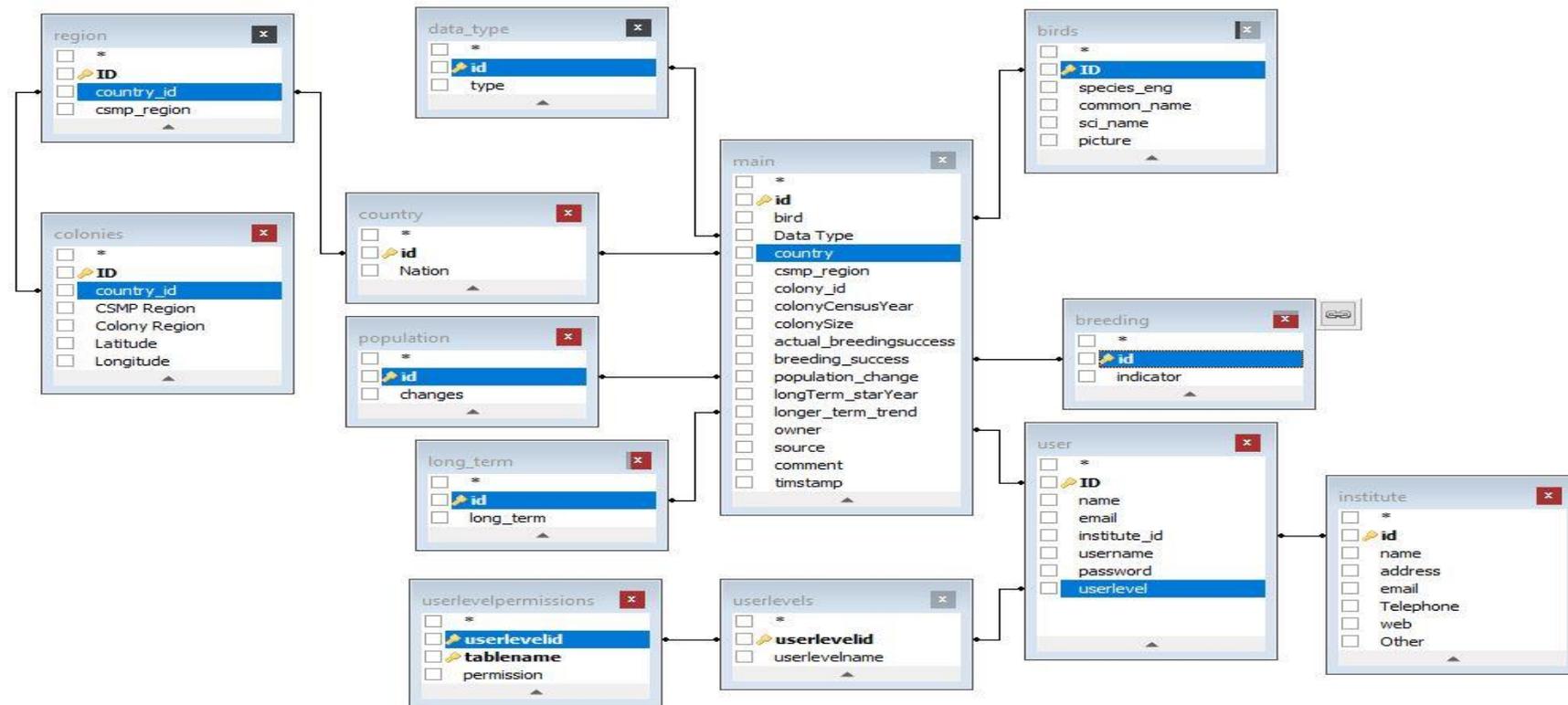


Figure 18: ER diagram



Main table storing status and trend data

Name	Data Type	Nullable	PK	FK	Default	Comment
id	INT(11)	Yes	Yes	No		This field is a unique alphanumeric identifier for table
country	INT(11)	Yes	No	No		id from country table - country.id
csmpr_region	INT(11)	Yes	No	No		Use csmpr_region from region table - region.csmpr_region
colony_id	INT(11)	Yes	No	No		Include the colonie id from colony table
bird	INT(11)	Yes	No	No		birds table ID - birds.ID
Data Type	INT(11)	Yes	No	No		Use id from data_type table - data_type.id
colonyCensusYear	INT(4)	No	No	No	NULL	The year when the census was made - 2020 e.g.
colonySize	INT(11)	No	No	No	NULL	The number of birds that was counted
actual_breedingsuccess	INT(4)	No	No	No	NULL	If relevant. How many breeding birds. Number
breeding_success	INT(11)	Yes	No	No		Use id from breeding table indicator - breeding.id
population_change	INT(11)	Yes	No	No		Use id from population table - population.id
longTerm_starYear	INT(4)	Yes	No	No		The year when the long term census started - 1950 e.g.
longer_term_trend	INT(11)	Yes	No	No		Use id from long_term_trend table - long_term.id
source	INT(3)	Yes	No	No		Use id from user table - user.id
comment	VARCHAR(100)	No	No	No	NULL	Include comment about the data
timestamp	TIMESTAMP	Yes	No	No	CURRENT_TIMESTAMP	This field is populated automatically by the database program. It is used to identify when a record was added.
owner	INT(4)	No	No	No	NULL	This field is populated automatically by the web interface with the user id. The id links to the login table so the user name can be displayed. This field is used to keep track of who enters the data.



Table – birds

Name	Data Type	Nullable	PK	FK	Default	Comment
id	INT(11)	Yes	Yes	No		This field links these records to the "main" table.
species_eng	VARCHAR(45)	No	No	No	NULL	Species name in english
common_name	VARCHAR(45)	No	No	No	NULL	Common species name in english
sci_name	VARCHAR(45)	No	No	No	NULL	Include the Scientific name
picture	VARCHAR(45)	No	No	No	NULL	include the picture file name

Table: breeding: contains the breeding success indicator value for last survey

Name	Data Type	Nullable	PK	FK	Default	Comment
id	INT(11)	Yes	Yes	No		This field links these records to the "main" table.
indicator	VARCHAR(45)	No	No	No	NULL	Breeding success indicator. Value are: >50% , 10-50% , <10% and NA (Not available)

Table: colonies: contains information about the name and location of the colonies

Name	Data Type	Nullable	PK	FK	Default	Comment
id	INT(11)	Yes	Yes	No		This field is a unique alphanumeric identifier for table
country_id	INT(11)	Yes	No	No		This field links these records to country.id
CSMP Region	INT(11)	Yes	No	No		This field links these records to region.csmc_region
Colony Region	VARCHAR(45)	Yes	No	No		The name of the colonies
Latitude	DOUBLE	Yes	No	No		The latitude of the site in decimal degrees 65.650000 e.g.
Longitude	DOUBLE	Yes	No	No		The Longitude of the site in decimal degrees -18.08333333 e.g.

Table: country: contains country names used

Name	Data Type	Nullable	PK	FK	Default	Comment
id	INT(11)	Yes	Yes	No		This field links these records to the "main" table.
Nation	VARCHAR(45)	Yes	No	No		Country / Nation name

Table: data_type: contains data types used

Name	Data Type	Nullable	PK	FK	Default	Comment
id	INT(11)	Yes	Yes	No		This field links these records to the "main" table.
type	VARCHAR(45)	No	No	No	NULL	Survey type. Values: Study plots and Total counts

Table: institute: contains names of the institutes that users belong to

Name	Data Type	Nullable	PK	FK	Default	Comment
id	INT(3)	Yes	Yes	No		This field links these records to the "user" table. user.ID
name	VARCHAR(200)	Yes	No	No		Institute name
email	VARCHAR(45)	Yes	No	No		Institute e-mail address
address	VARCHAR(200)	No	No	No	NULL	Institute address
Telephone	VARCHAR(45)	Yes	No	No		Institute telephone number
web	VARCHAR(100)	No	No	No	NULL	Institute web address
Other	VARCHAR(100)	No	No	No	NULL	Other informations



Table: long_term: contains breeding success long term indicator data

Name	Data Type	Nullable	PK	FK	Default	Comment
id	INT(11)	Yes	Yes	No		This field links these records to the "main" table.
long_term	VARCHAR(45)	No	No	No	NULL	Long term breeding success indicator. Value are: >2% , +-2% , <-2% and NA (Not available)

Table: population: contains the different indicator from last year – *short term indicators*

Name	Data Type	Nullable	PK	FK	Default	Comment
id	INT(11)	Yes	Yes	No		This field links these records to the "main" table.
changes	VARCHAR(45)	No	No	No	NULL	Population change from previous year indicator. Value are: >5% , +-5% , <-5% and NA (Not available)

Table: region: contains which CSMP number the countries has (includes the 22 Circumpolar Seabird Monitoring Plan regions)

Name	Data Type	Nullable	PK	FK	Default	Comment
ID	INT(11)	Yes	Yes	No		This field is a unique numeric identifier for table
country_id	INT(11)	Yes	No	No		This field links these records to the "country" table. country.id
csmp_region	INT(11)	Yes	No	No		CSMP number

The **user** table: contains information about user permissions

Name	Data Type	Nullable	PK	FK	Default	Comment
ID	INT(11)	Yes	Yes	No		This field is a unique numeric identifier for table
institute_id	INT(4)	Yes	No	No		This field links these records to the "institute" table. - institute.id
name	VARCHAR(45)	No	No	No	NULL	User name
email	VARCHAR(45)	No	No	No	NULL	User email address
username	VARCHAR(45)	No	No	No	NULL	User username
password	VARCHAR(45)	No	No	No	NULL	User password
userlevel	INT(11)	No	No	No	NULL	This field links these records to the "userlevels" table. - userlevels.userlevelid

Table: userlevelpermissions: contains the permission rules for use of the tables

Name	Data Type	Nullable	PK	FK	Default	Comment
userlevelid	INT(11)	Yes	Yes	No		This field links these records to the "userlevels" table. - userlevels.userlevelid
tablename	VARCHAR(255)	Yes	Yes	No		Tablename permission
permission	INT(11)	Yes	No	No		Type of permission

Table: userlevels: contains the names of permission rules

Name	Data Type	Nullable	PK	FK	Default	Comment
userlevelid	INT(11)	Yes	Yes	No		This field is a unique numeric identifier for table and is used by tables user and user level permissions
userlevelname	VARCHAR(80)	Yes	No	No		Name of the user levels. Administrator, Visitor and CBird

