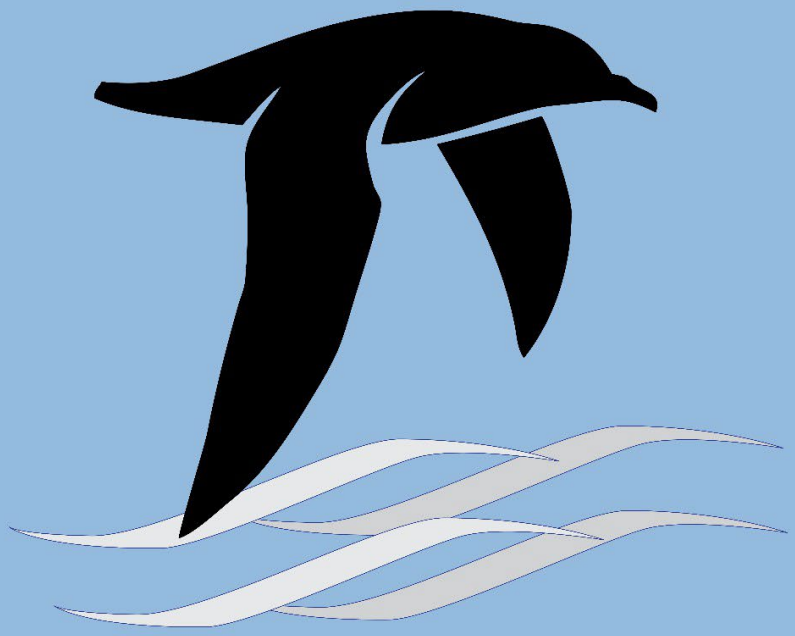
SeaScribe



User Manual

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BOEM

Bureau of Ocean Energy Management

Avian Survey Application (SeaScribe v.2.2)

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Purpose

The seabird survey application for Android and iOS devices, hereafter referred to as SeaScribe, was developed to fill a need for a modern data collection application for seabird survey efforts. The challenge was to create an intuitive, flexible application that would be cross-platform for Android and iOS environments and usable on both phones and tablets.

This application is freely available and is gaining wide acceptance and use. It is specifically designed to greatly increase data standardization and allow more thorough data recording, as well as increase the speed of post-survey processing while reducing data errors. We also expect that this program will make digital marine surveys collected by citizen-scientists more accessible.

System Requirements

SeaScribe v1.0 was originally built to run on Android version 6 and up, and iOS version 10 and up. This version aged out of support, so SeaScribe 2.0 was written from scratch to replace it on both stores.

There is no minimum size allowed for use, however, we suggest use of a screen size no smaller than 7". The application was optimized for a 10" screen and we recommend this sized tablet for optimal usability of the application.

Devices must have a built-in GPS or be able to obtain location services through an attached GPS via Bluetooth or some other method. Location services must be enabled for the position information to be recorded in the survey app. A testing tool is provided in SeaScribe to test whether the GPS is operational. More information about this tool is provided later in the guide here.

The device must be able to communicate via Wi-Fi or other data connection to the internet and must have a valid email account and/or Dropbox account to be able to export data. It is best if these accounts are set up prior to using SeaScribe.

We have done only limited testing of wireless keyboards and pointing devices (e.g., mice, trackballs) but they should be able to be used with SeaScribe if they work with the device itself. Use of wireless keyboards and pointing devices may assist with data entry.

Installing SeaScribe

Android

Installing the app to an Android device is very easy. You can visit the Google Play store and search for SeaScribe. Tap “INSTALL” to install the app. You may need to provide a password. Accept the special permissions to continue to install. The application will be downloaded and installed.

Alternatively, download the installer file (SeaScribe.apk) from http://www.briwildlife.org/seascribe or otherwise obtain a copy of the installer. Browse to the file on your device and click on the installer file. You must agree to allow the app to use certain functions such as the microphone and location services, etc. You must also change security settings to allow installation of third party applications. You must have installation rights on your device as well, which may be controlled by your organization. Seek IT support if you cannot install this app successfully.

Apple

To install the Apple iOS version on an iPhone or iPad, open the App Store on your device and search for SeaScribe. Click “install” to install the application. The application will be downloaded and installed. You may be asked to provide a password for your account. Once successfully installed, you can click open or tap on the application on the device window.

Uninstalling SeaScribe

Android

Go to the device's settings, select Apps or Application Manager, touch the app you want to uninstall, and touch uninstall. You may also be able to drag the app to the trash in the application folder. Deleting the app will also remove all the data. Make sure you have removed whatever data you would like to keep prior to uninstalling.

Apple

Long-press the icon for the app and click the "X" on the upper corner of the app. Agree to deletion of the app and all its data. You can also remove an app by going to Settings – General – Storage & iCloud Usage – Storage – Manage Storage – SeaScribe – Delete App. Agree to delete the app and all its contents. Deleting the app will also remove **ALL** the data. Make sure you have removed whatever data you would like to keep prior to uninstalling.

Standard Survey Methods

There are two major survey methods in use today: the line transect method (distance sampling) and strip transect method. Some also use a hybrid method, but in our opinion, there is no real benefit to such a method as it makes analysis more complicated with limited benefits. We generally advocate use of the **line transect method** (distance sampling) as estimates of true abundance are of greatest accuracy because they account for differences in detectability and can include effects of observer bias and other environmental effects (e.g., sea state or light conditions) on abundance estimates (Buckland et al., 2001; Ronconi and Burger, 2009).

Buckland, S.T., Anderson, D.R., Burnham, K.P., Laake, J.L., Borchers, D.L., Thomas, L., 2001. Introduction to distance sampling: estimating abundance of biological populations, New York New York USA. doi:10.1007/s00531-004-0408-5

Ronconi, R., Burger, A., 2009. Estimating seabird densities from vessel transects: distance sampling and implications for strip transects. Aquat. Biol. 4, 297–309. doi:10.3354/ab00112

Line transect method (Distance Sampling)

Conduct surveys looking forward from one side of the vessel (plane or ship) in a bow-to-beam arc extending to 90° on one side (0-90° or 270-360° depending on what side you are on). Observations should be made on the side of the vessel that provides the best visibility (e.g., the least glare), changing sides throughout the survey as necessary to maintain good viewing conditions, but recording the change of sides in SeaScribe. Scan continuously using the naked eye or binoculars to identify birds, marine mammals, sea turtles, and other fauna or objects in the distance. Regularly scan horizontally ahead for diving birds, or for sitting birds that may flush off the water. Scan vertically for flying birds. Record distance to the object or group in meters and angle to the object in degrees from the front (bow 0°) of the vessel, 90° being the starboard (or right) side and 270° being the port (or left) side relative to the bow (front) of the vessel. Record the number observed in the group (being 1 or more objects). The distance and angle must be recorded for the center of the group when it is first sighted.

When densities are high and the observer struggles to keep up with entry, record as many distances and angles as possible without missing objects to record. Modeling methods can correct detections without distance measurements, but DO NOT change monitoring protocols under these conditions (e.g., switch from a line transect to a strip transect to reduce the number of objects for observers to count). At the beginning of the survey, and every 15-30 minutes throughout the observation period, record Beaufort sea state, visibility code, and the side the observer is viewing from. SeaScribe will prompt you for this information at a user-defined time (15 minutes default). Update this information whenever the observer changes or conditions visibly change.

The most difficult aspect of this method is the estimation of distance. Observers should practice estimating distance for objects of different sizes at different known distances prior to starting surveys. There are methods that can be used as well to assist with distance estimation such as creating a distance ruler, for which a tool is provided in SeaScribe (Distance Estimation Guide).

Strip transect method

Conduct the strip transect method from one side of the vessel or the other, whichever has the best visibility (e.g., the least glare), changing sides throughout the survey as necessary to maintain good viewing conditions. In the strip method, all objects are counted within an area 300 m from the centerline of the vessel (300 m distance and 90˚ arc).

Primarily the observer should watch the forward 90 degree quadrant, but occasionally look behind to determine if birds are following the vessel. Use a reliable estimate of the strip boundary from the observation position such that the observer can quickly determine if an object is within the strip or not. Scan continuously using the naked eye or binoculars to identify birds, marine mammals, sea turtles, and other fauna or objects in the distance. Regularly scan horizontally ahead for diving birds, or for sitting birds that may flush off the water. Scan vertically for flying birds. At the beginning of the survey, and every 15-30 minutes throughout the observation period, record Beaufort sea state, visibility code, and the side the observer is viewing from.

SeaScribe will prompt you for this information at a user-defined time (15 minutes default). In addition, update this information whenever the observer changes or conditions visibly change. If you record any incidental observations outside of the 300 m strip, such as for rare animals or marine mammals, make sure to record the distance (>300 m) or that these are out-zone (outside 300 m zone) birds somehow so they can be removed from analysis of relative density.

Using SeaScribe

SeaScribe was designed to be as intuitive as possible considering the complexity of the task. The main entry to the application is the main menu when you first bring up the app. Start here to access all areas of the application.

Main Menu

When you start SeaScribe you will see a main window with four menu buttons (Figure 1):

1. Start New Survey: The entry point for starting a new survey
2. Existing Surveys: Access existing survey data
3. Settings: Application settings
4. Tools: Ancillary tools available to assist with surveying

Click a button to advance to the next screen. Each button will be explained within this guide.

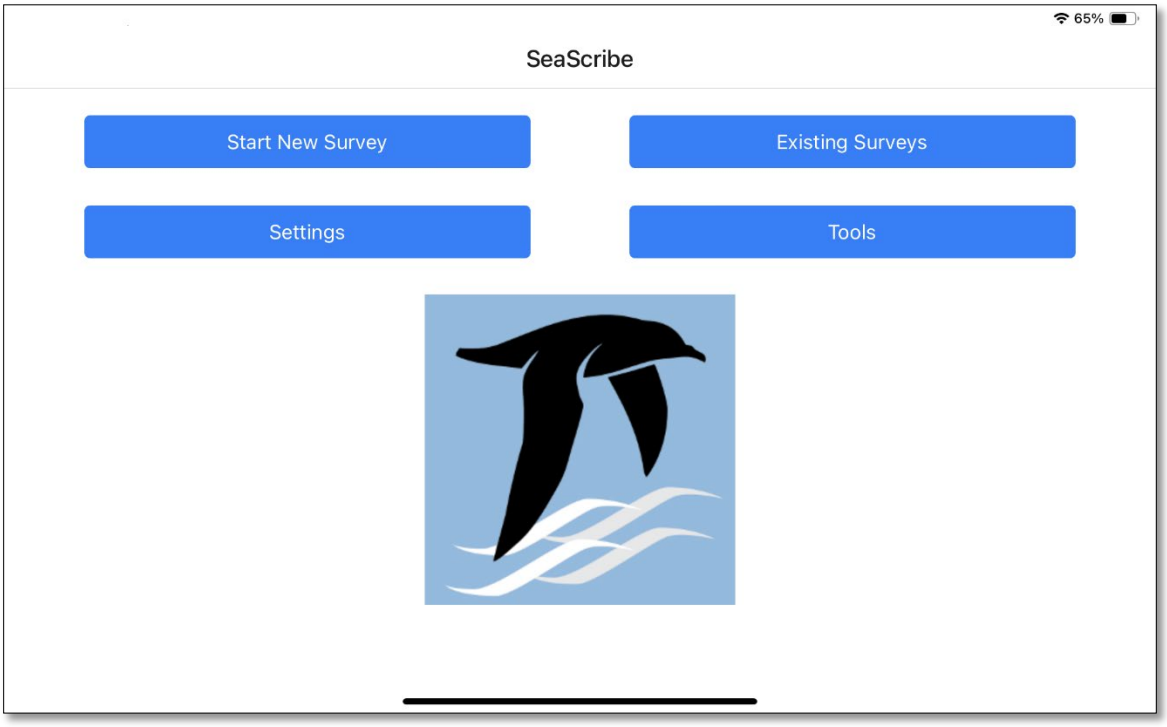


Figure 1: Main Menu

Start New Survey

This is the primary screen for beginning a new survey, where a survey is considered a collection of one or more transects – a transect being an un-interrupted period of observation during a survey. It is up to the user to determine how they want to define a survey rather than a new transect period under an existing survey.

This screen asks the user to provide information about the survey itself, including the survey name, methodology, observers taking part and their experience, survey platform, survey region and sub-region, species list, and ancillary fields (Figure 2).

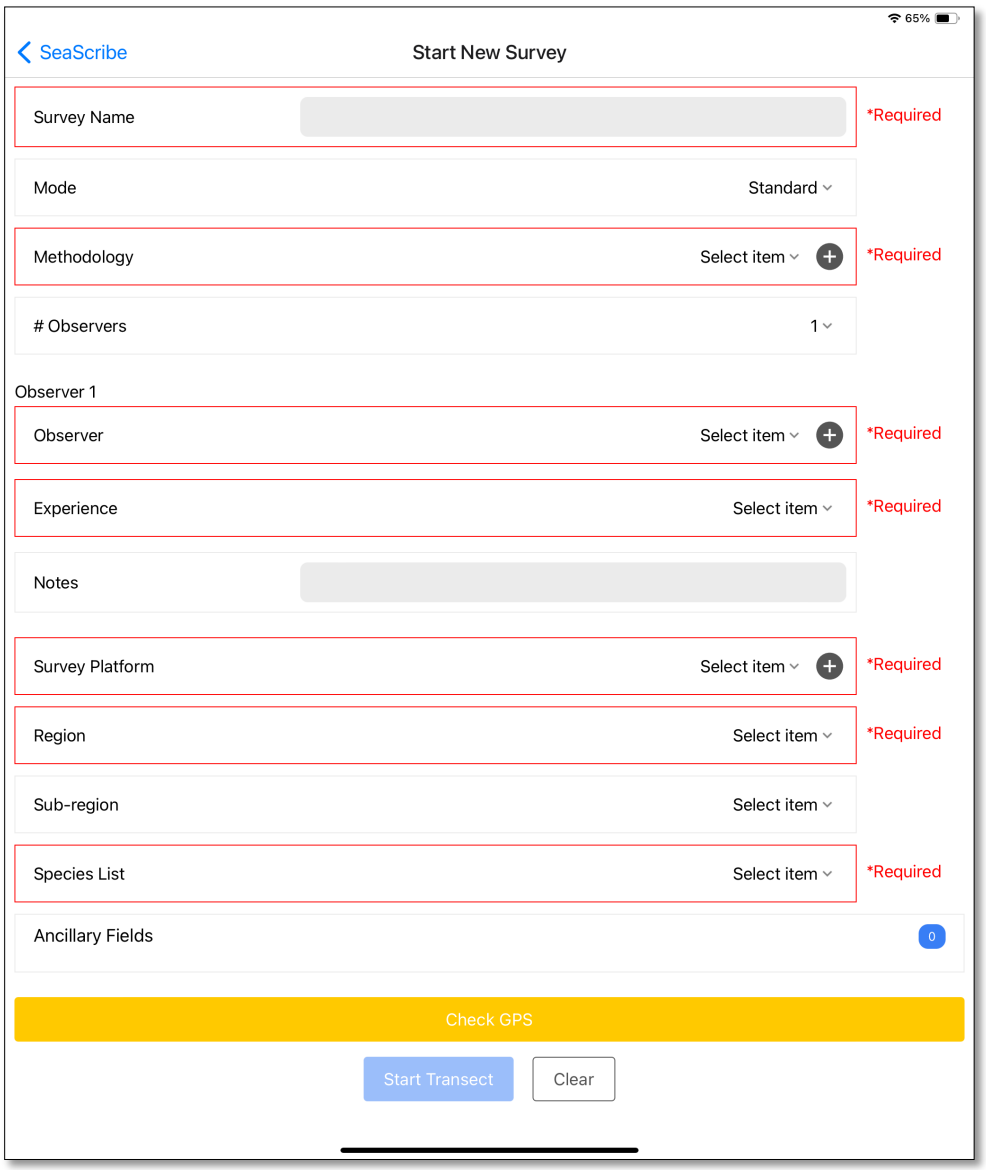


Figure 2: Start New Survey

Filling out the form

Note that for all fields, a **red outline** indicates a **required field**, or a **problem with data entry**.

1. Enter the **Survey Name** (required) – this can be any alphanumeric entry up to 100 characters in length.
2. Enter the **Mode:** This provides a fork for the application for data entry later. Standard is default.
    a. **Standard**: Provides full data entry capabilities along with audio and photo buttons.
    b. **Audio Observations Only**: Provides a data entry window with audio recording buttons only to simplify this type of data entry.
3. **Methodology** – select the stored methodology or click "+" to add a new methodology (Figure 3). This allows the user to define the survey methodology and stores it for later selection. Once this is entered, you can simply select it in the drop down, speeding up data entry in the future.
    a. Enter a **methodology name** in alphanumeric format up to 100 characters (required). This is a name you will select later if using this methodology again when setting up a new survey.
    b. Select the **survey type** (required): fixed width (strip), line transect (distance sampling) or combined.
    c. Select the **counting methodology**: continuous, snapshot, or vector (required).
    d. Select if **one or both sides** of the vessel are being used to count (required) – this is important as it helps determine the primary viewing area of the observer.
    e. **Ancillary fields** – here you can add or modify any additional fields to the observation form. Use this sub form to add ancillary fields, remove or create and add new ancillary fields to the observation form. Ancillary fields are beyond the core set of default fields and are meant to allow observers to record additional information for specific research needs. These fields added here with a methodology are always added when this methodology is selected, saving time in the future once set up.
    f. Click **Save** to accept the New Methodology or **Clear** to start over.
    g. Click **Cancel** to return to the New Survey form.

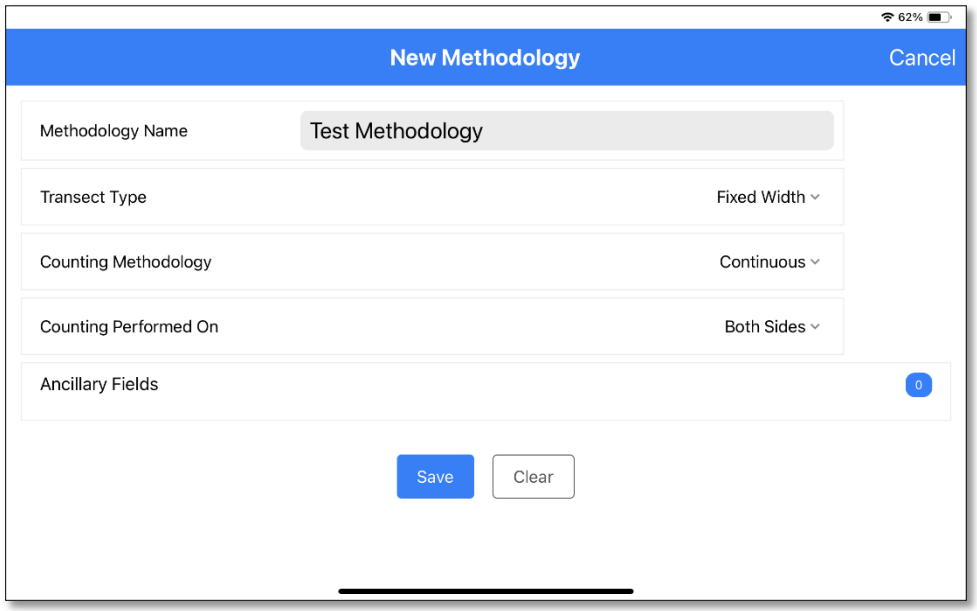


Figure 3: New methodology sub form

4. Enter the **number of observers** and **add observer(s) contact information**. This will automatically create the number of observer fields (observer 1, observer 2, etc.). If you have not already done so, you must populate this list of observers by going to the "New Observer" sub form (Figure 4).

Once you add the observer, you can select them from the dropdown box and then enter their experience level and any notes about their experience such as years of experience, whether they have good knowledge of marine mammals, turtles, or other taxa, etc. Continue to do this for each observer that is observing during the survey. You will be able to select or add each observer in the observations form later if they are not entered here.

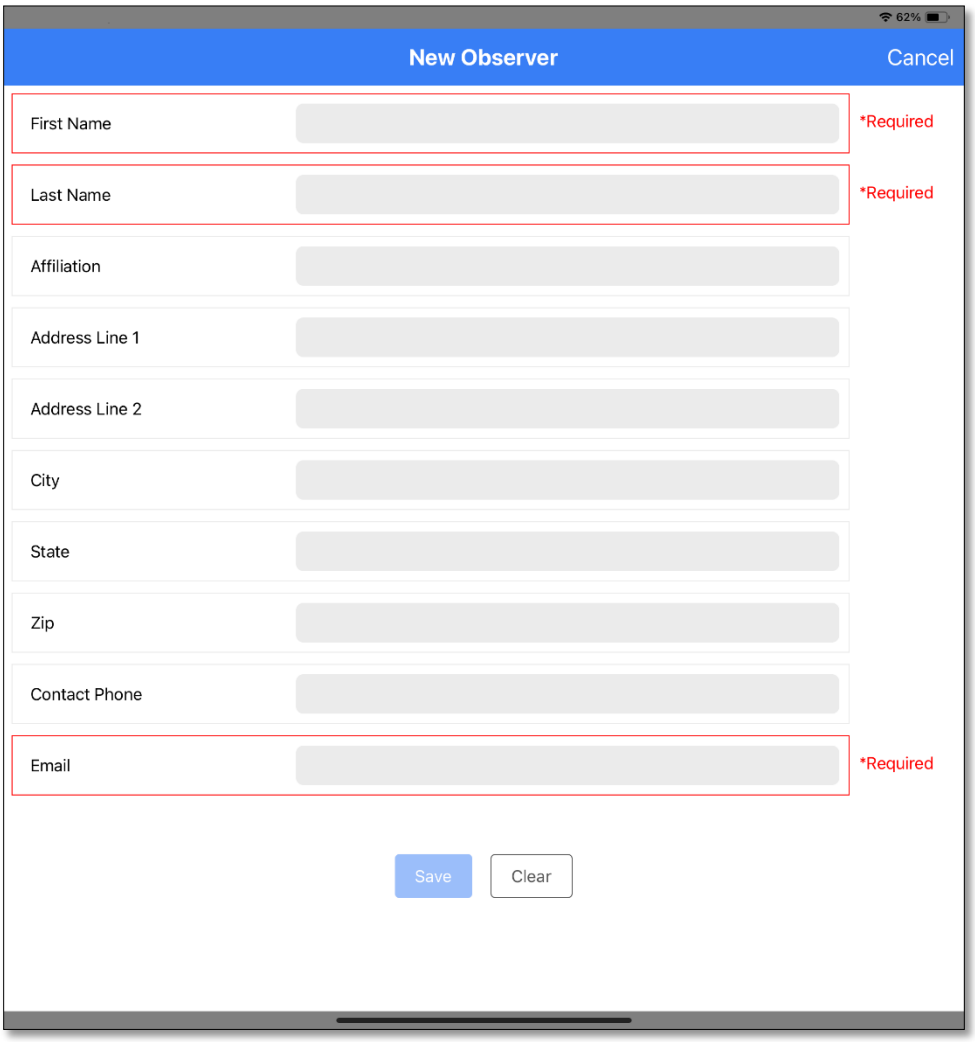


Figure 4: New Observer sub form

5. Select the **survey platform** or **add a new survey platform** if necessary.
    a. Click the **"+"** to go to the "New Survey Platform" sub form (Figure 5).
    b. Entering the **platform name** and type (watercraft, aircraft, or point location).
    c. Click **Save** to accept, **Clear** to clear the form and start over, or **Cancel** (top right) to exit without saving.

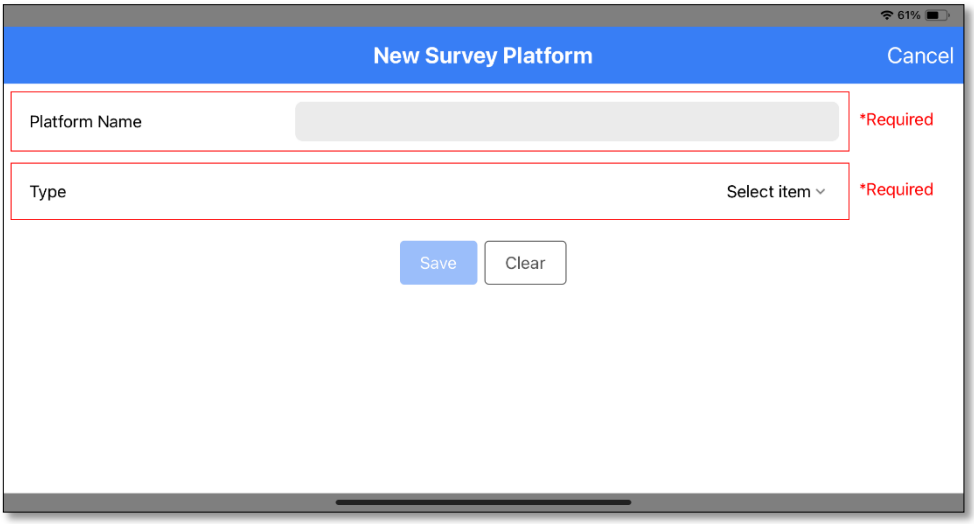


Figure 5: New Survey Platform sub form

6. Select the **Region** from the list: North Atlantic Ocean, North Pacific Ocean, or Arctic Ocean (required).
7. Select the **sub-region** if desired.
8. Select the **species list** that will be used to populate and validate the species selected in the observation form. Currently, SeaScribe provides lists that support the Northwest Atlantic Seabird Catalog database (formerly the Northwest Atlantic Seabird Compendium[1]) and the North Pacific Pelagic Database[2]. The species lists have different codes for different species, species groups, and objects so it is important to select the correct species list to support the geographic area you are observing in.
9. The **ancillary fields added in the methodology will be displayed** and should be checked for accuracy. If you want to modify the ancillary fields, you can do so by clicking here, but any changes to the ancillary fields will create a new methodology. Reference the guidance section Adding Ancillary Fields.
10. Click the **Check GPS** bar to test the GPS for operation. If the GPS can return a location, the bar will turn green (Figure 6). If the bar does not turn green, you may need to improve your view of the sky to allow for better GPS signal. Also, check to make sure that Location Services are enabled which allows the device to access GPS and provide locations to the app. Install a third party GPS app to test the external GPS before use.

[1] O'Connell, A. F., B. Gardner, A. T. Gilbert, and K. Laurent, 2009, Compendium of Avian Occurrence Information for the Continental Shelf Waters along the Atlantic Coast of the United States, Final Report (Database Section- Seabirds). Prepared by the USGS Patuxent Wildlife Research Center, Beltsville, MD. U.S. Department of the Interior, Geological Survey, and Bureau of Ocean Energy Management Headquarters, OCS Study BOEM 2012-076.

[2] Drew, G.S., Piatt, J.F., and Renner, M., 2015, User's guide to the North Pacific Pelagic Seabird Database 2.0: U.S. Geological Survey Open-File Report 2015-1123, 52 p., doi: 10.3133/ofr20151123 (report) doi:10.5066/F7WQ01T3 (database)

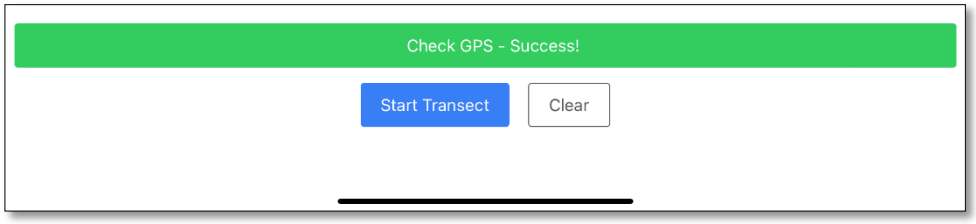


Figure 6: Check GPS success

11. Click **Start Transect** once all required fields are entered and the Start Transect button is not grayed out.
12. Click **Clear** if you want to clear the fields and start again.

Adding ancillary fields to the observation form

Adding and removing ancillary fields is easy. When you select the Ancillary Fields field, you are brought to the **Select Ancillary Fields** form (Figure 7). In this form, you can add available fields to the selected fields list on the right of the form using the right arrow (>), remove it with left arrow (<), add all (>>), or remove all (<<).

Click **Save** to save the ancillary field list to the methodology.

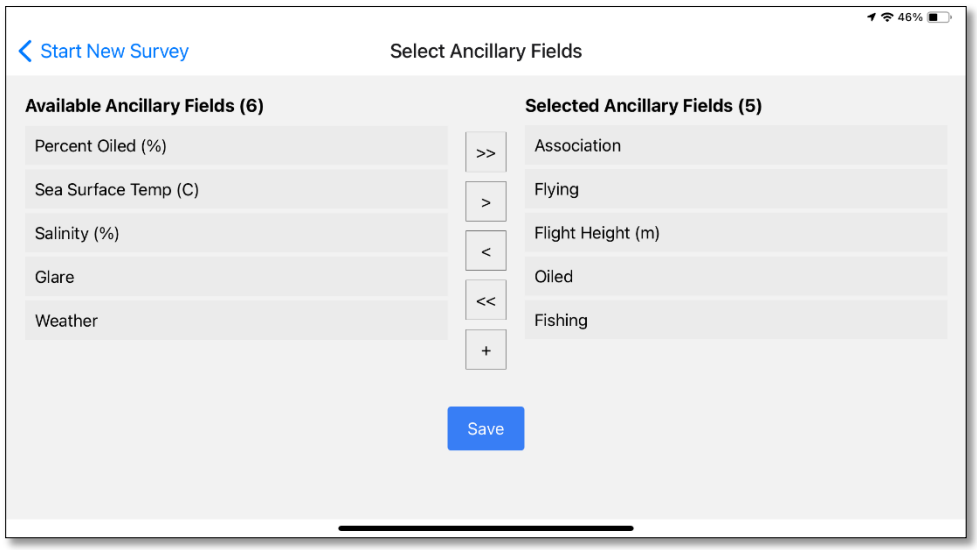


Figure 7: Add and Remove Ancillary field form

If you need to create a new ancillary field, click the "+" button and follow the steps on the next page.

Creating a New Ancillary Field

1. Give the field a **unique name**.
2. Select the **frequency** the observation should be recorded – every observation or only periodically change.
3. Determine the **sort order**, where the field shows in the observation form.
4. Choose the **input control** (numeric, text, select from a list).
    a. When using **select from a list**, you tell the application how many selections you would like and then enter the selections to create the dropdown list in the observation field.
5. Scroll down the form and click **Save** to create the new field, **Clear** to clear the form and start over, or **Cancel** (top right) to exit without saving the new ancillary field.

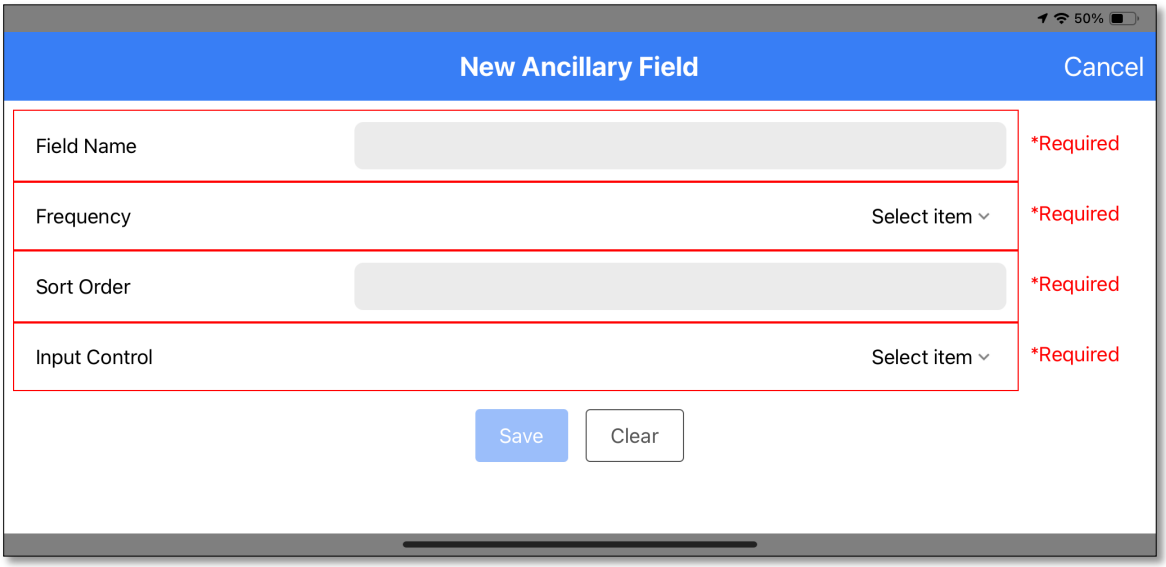
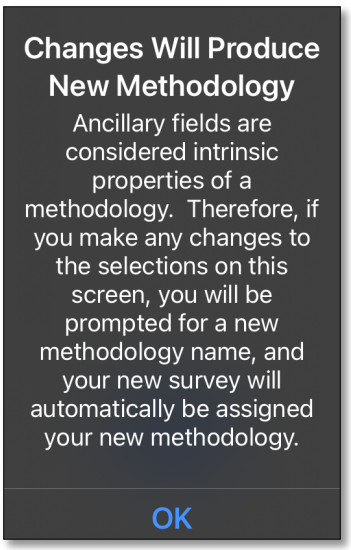


Figure 8: Create a New Ancillary Field

However, ancillary fields are considered intrinsic to the methodology, for which you will be warned.



That is, if you **change ancillary fields** for a methodology that has **already been created**, you must then **change**

the name of the methodology, and this popup box will prompt for a new name.

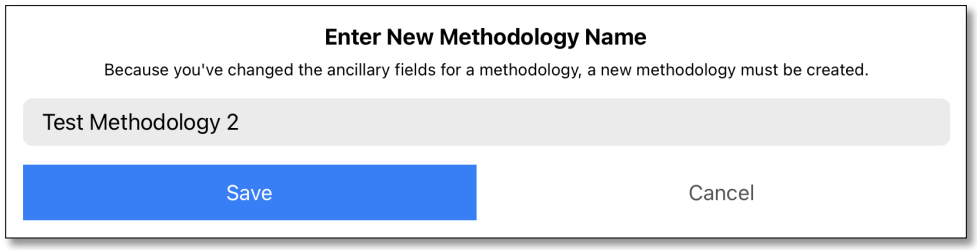


Figure 9: Warning for Ancillary fields

Starting a transect

Once you have clicked **Start Transect** at the end of the **Start New Survey Form** you will enter the Start Transect form. Here you will enter the initial conditions for the start of the survey and confirm the system date/time are correct. This is important as it provides a backup date/time for observations if the GPS fails to provide it.

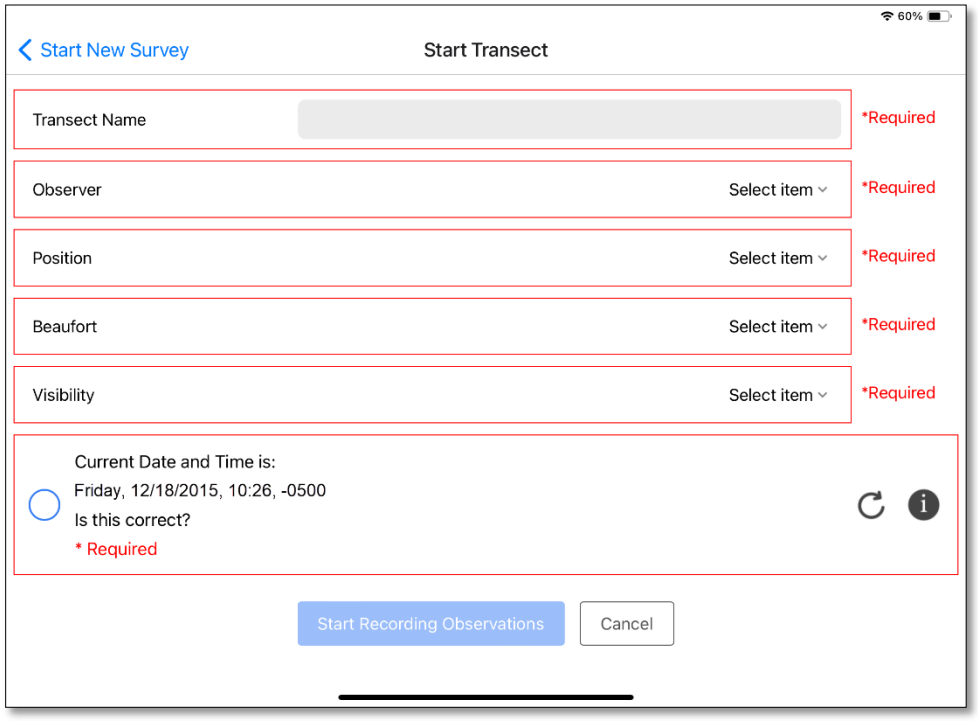


Figure 10: Start Transect form

1. Enter the **Transect Name** if one is used.
2. Select the **Observer** from the list you entered initially (required).
3. Enter the observation **Position** (port or starboard) (required).
4. Enter the **Beaufort sea state** (0-12, required, Figure 70)
5. Enter the **Visibility** category: 0-300m, 300-500m, 500m-1km, 1-3km, 3-5km, unlimited (required).
6. Check that the **date is correct**. Click the radio button next to the date to confirm.
    a. If it is not, you must correct it with the device's date/time settings since this date/time used here is pulled from the system clock.

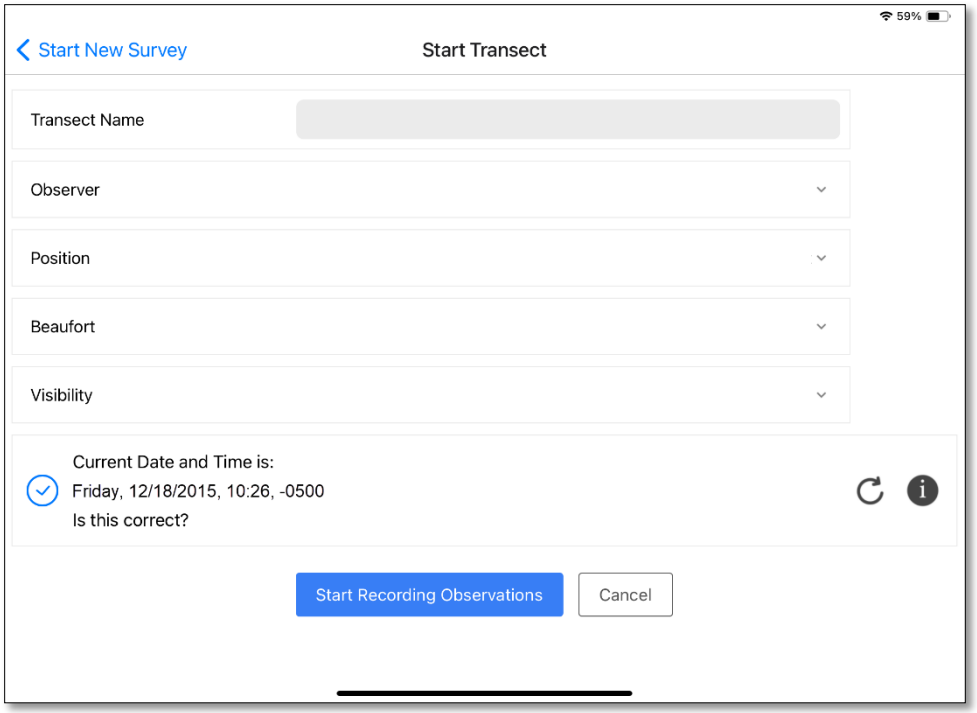


Figure 11: Complete Start Transect form

7. Click the **Start Recording Observations** button (Figure 11) to proceed to the observation form.
8. Click **Cancel** to exit without recording the observation.

Recording Standard Observations

The observation form is split into a header bar and multiple viewing panes (Figure 12):

1. **Data Entry**: Main part of the form for recording all observation related data.
    a. If **Audio Observation Only Mode** is selected, this view does not display. (Figure 13)
2. **Map**: The map of the survey area including survey track(s) and observation points.
3. **Spreadsheet:** Data records are shown here and can be edited.
4. **Action Pane**: Pane for holding various buttons including the save observation, clear data, take picture, record audio, and stop transect buttons.

Viewing panes can be manipulated in size to maximize or minimize one pane over another. Simply drag the grey bars left, right, up or down.

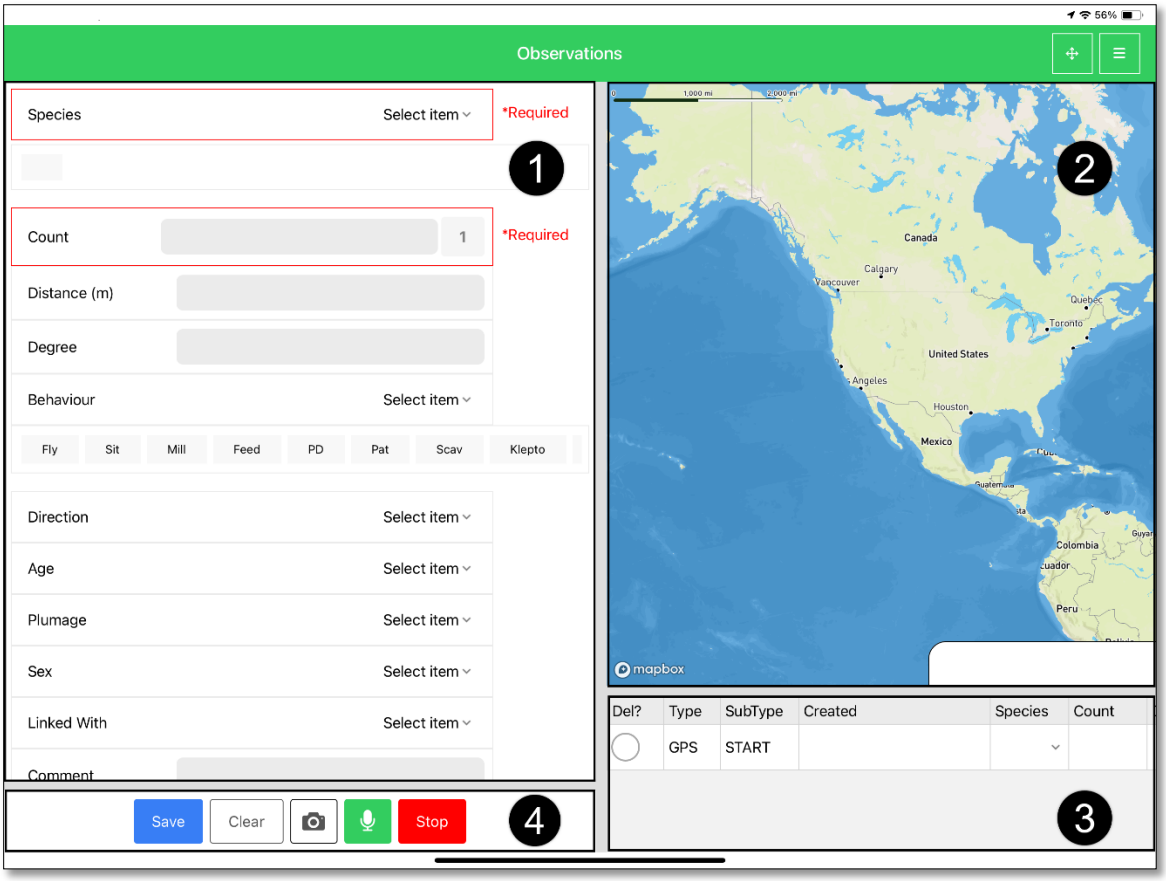


Figure 12: Observation Window for Standard Mode

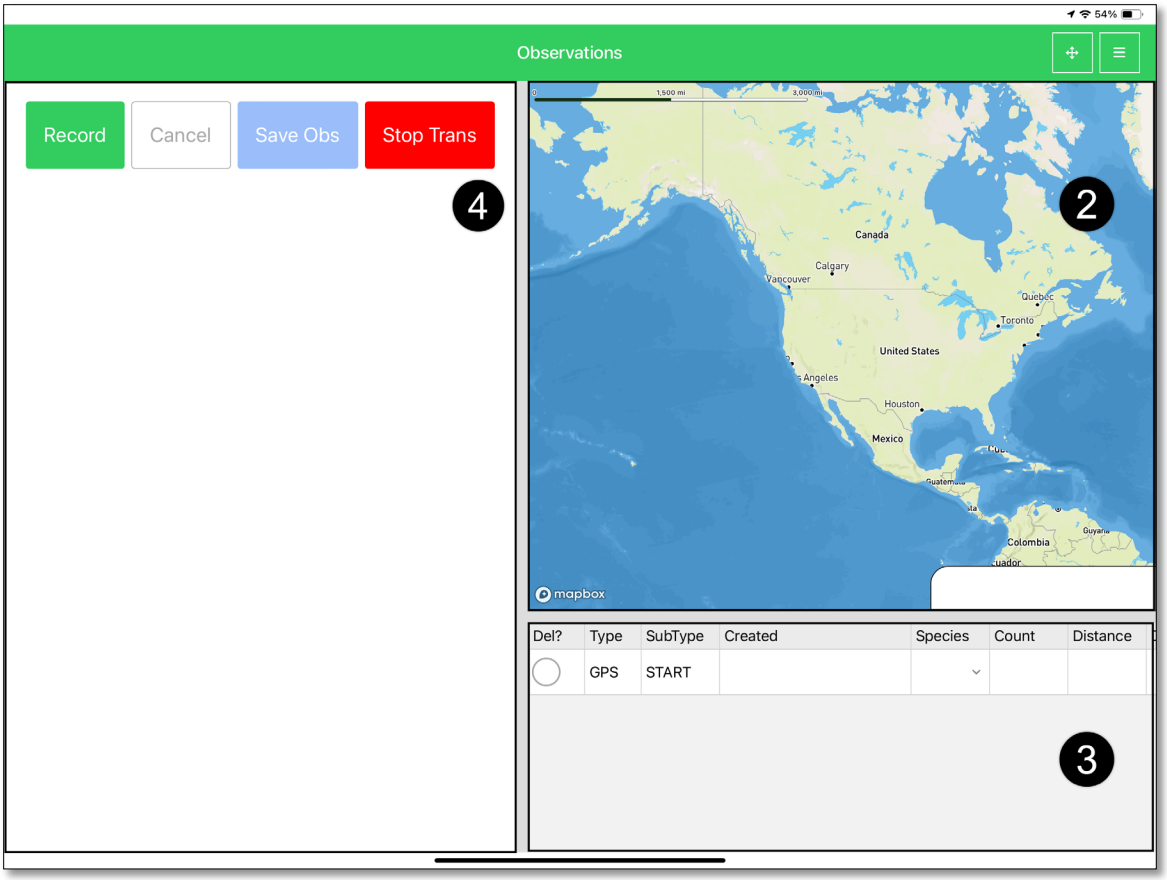


Figure 13: Observation Window for Audio Only Mode

Observation Form Header Bar

The bar at the top of the screen will be green when SeaScribe is successfully acquiring a location and will turn red when GPS signal is lost.

While SeaScribe will continue to function and observations can be saved if a signal is lost, no positional information will be recorded. Only the system date-time stamp will be recorded for that observation which can be used to estimate position in post-processing if speed and direction are known.

There are two buttons on the right hand side of the header bar: **Layout**  **Options** 

The dropdown for these buttons **are dependent** on the **Mode selected** on the Start New Survey form (Figure 2).

Layout Button

Clicking the **Layout button** provides a dropdown menu that allows the user to select a **pre-defined layout** during the observation (Figure 14).

The following layout options are available:

1. Maximize data-entry area (Figure 15)
2. Maximize Map Area (Figure 16)
3. Maximize Spreadsheet Area (Figure 17)
4. Reset Layout

The following field visibility options are available:

5. Hide All Possible Fields
6. Reset All Hidden Fields to Visible
7. Manage Field Visibility

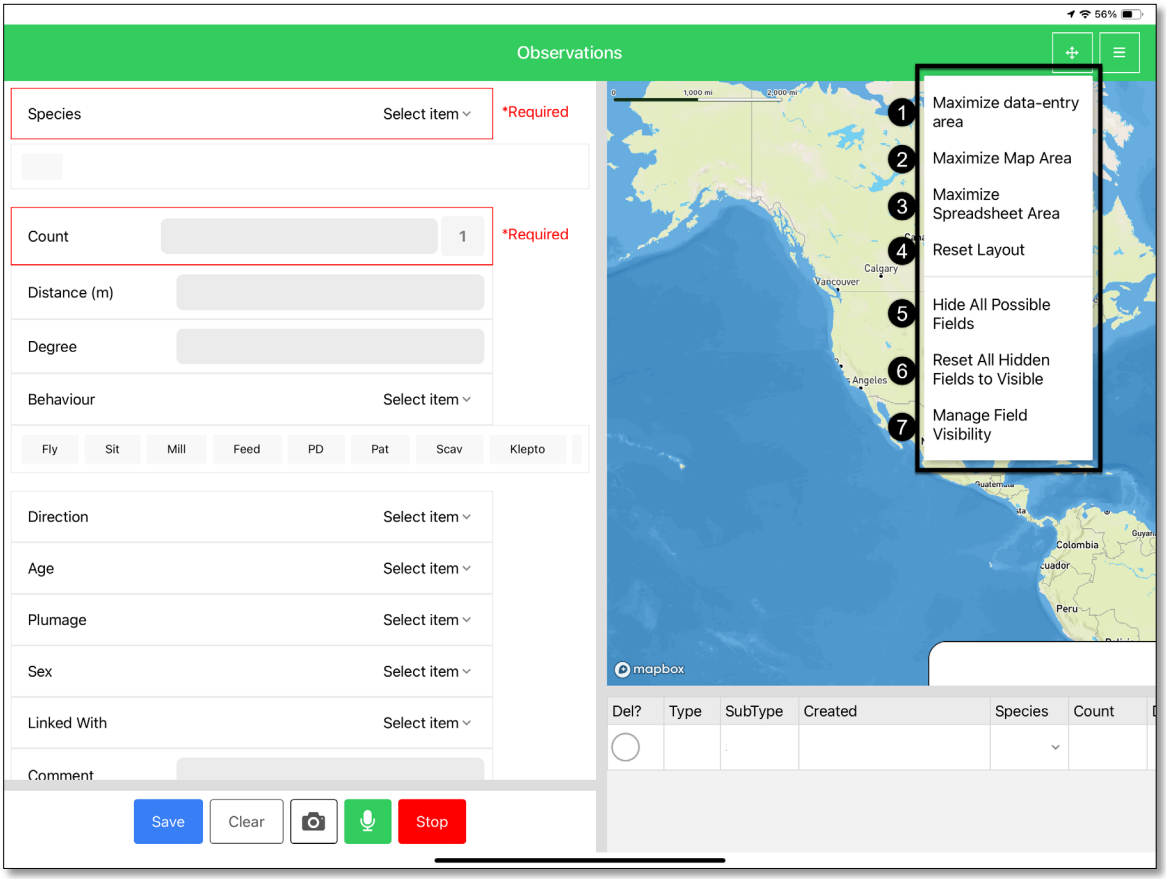


Figure 14: Layout Menu Dropdown

The next few pages will provide a screenshot of the Observation Form with the layouts defined.

Managing Field Visibility is a new feature that has been added. Jump to this section here.

1. **Maximize Data-Entry area** will collapse the map and spreadsheet view.
   a. This option is **not available** in **Audio Observation Only Mode**.

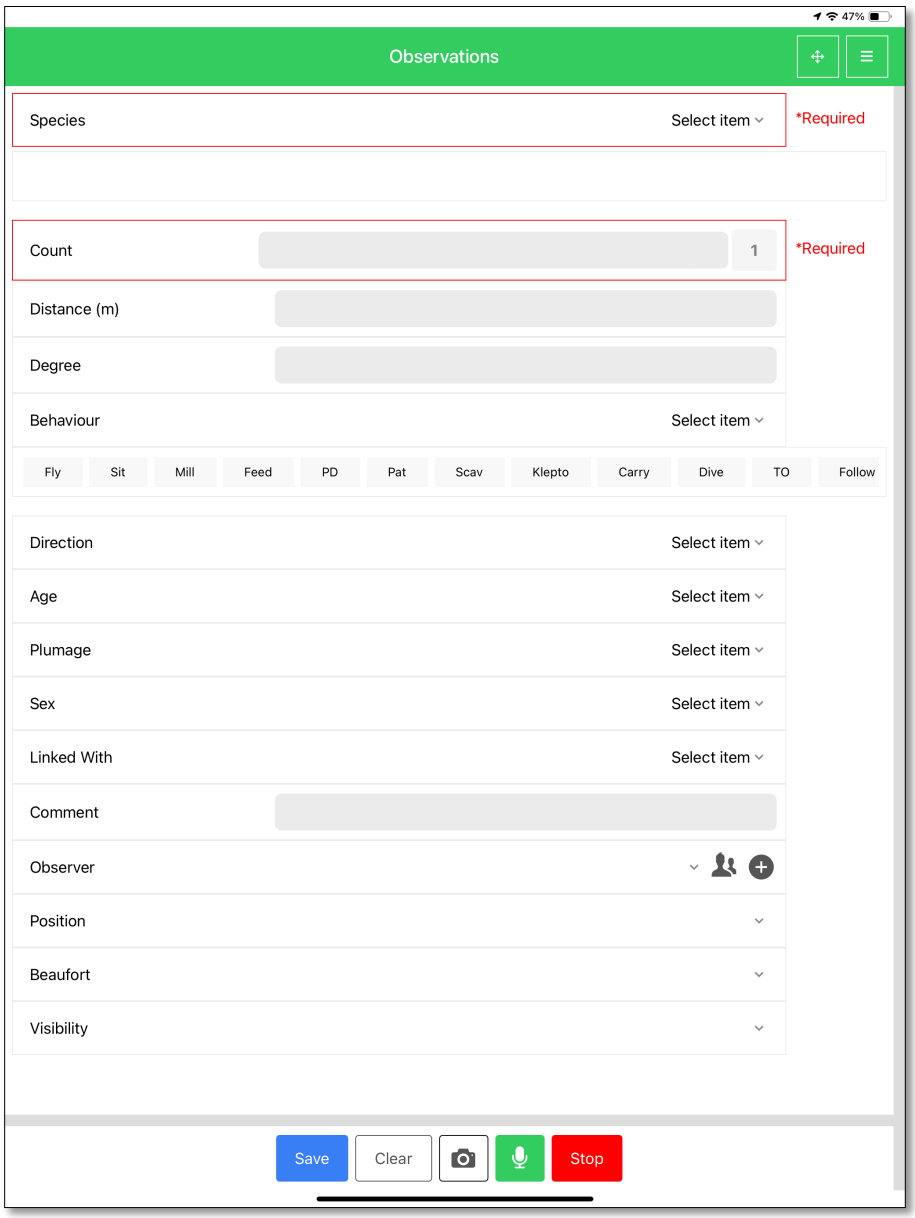


Figure 15: Maximize Data Entry in Observation Form

2. **Maximize Map area** will collapse the Data Entry and Spreadsheet view.

Figure 16: Maximize Map Area in Observation form

3. **Maximize Spreadsheet area** will collapse the Data Entry and Map view.

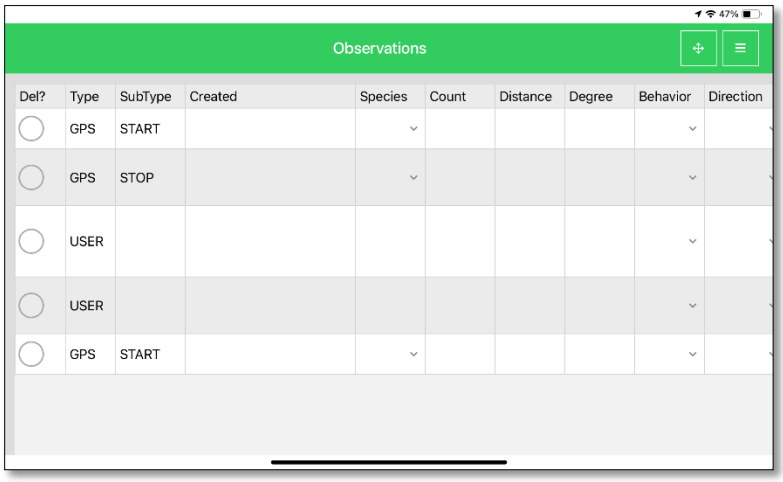


Figure 17: Maximize Spreadsheet in Observation form

4. **Reset Layout** will show all viewing panes.
5. **Hide All Possible Fields** will remove all fields except required fields from the observation form.
6. **Reset All Hidden Fields to Visible** will make all fields visible on the observation form
7. **Manage Field Visibility** allows the user to rearrange field order along with the visibility of select fields that display on the observation form.

Managing Field Visibility

Field visibility on the Observation Form can be changed using the Layout button: 

Select **Manage Field Visibility** from the Layout dropdown menu. The window is separated into two sections: **Changed Each Observation** and **Changed at Intervals**

Visibility of fields can be completed by toggling the button on  or off 

Sorting can be completed by using the up or down arrow buttons. 

Once adjustments have been made, select **Save** at the top right of the screen.

Options Button

Clicking the **Options button** allows the user access to various tools for the Observation form. The following options are available:

1. **Center Map:** Center map on current location
2. **Reset Map Zoom to Default**
3. **Fit Map to Course:** Fit the map to the transect lines
4. **Show Offline Map Cache:** If maps were cached while online (Figure 92) you can switch to the map cache that is stored on the device.
5. **Disable GPS Heartbeat** – turn off the GPS heartbeat which records the current position every X seconds as designated in the settings (Figure 59).
6. **Disable Center Map on Latest GPS**: Do not move map to center on latest GPS position.
7. Show/hide GPS Settings during Heartbeat – show the GPS settings during the GPS heartbeat.
8. **Show all Transects on Map**: Map all the transects recorded from the survey to show prior transects.
9. **Show Illustrated Beaufort Scale**: Show Beaufort sea state chart for reference (Figure 70).
10. **Show Distance Estimation Guide:** Show the distance estimation tool for calculating measurements to put on a guide for distance references (Figure 71).
11. **Stop Transect**

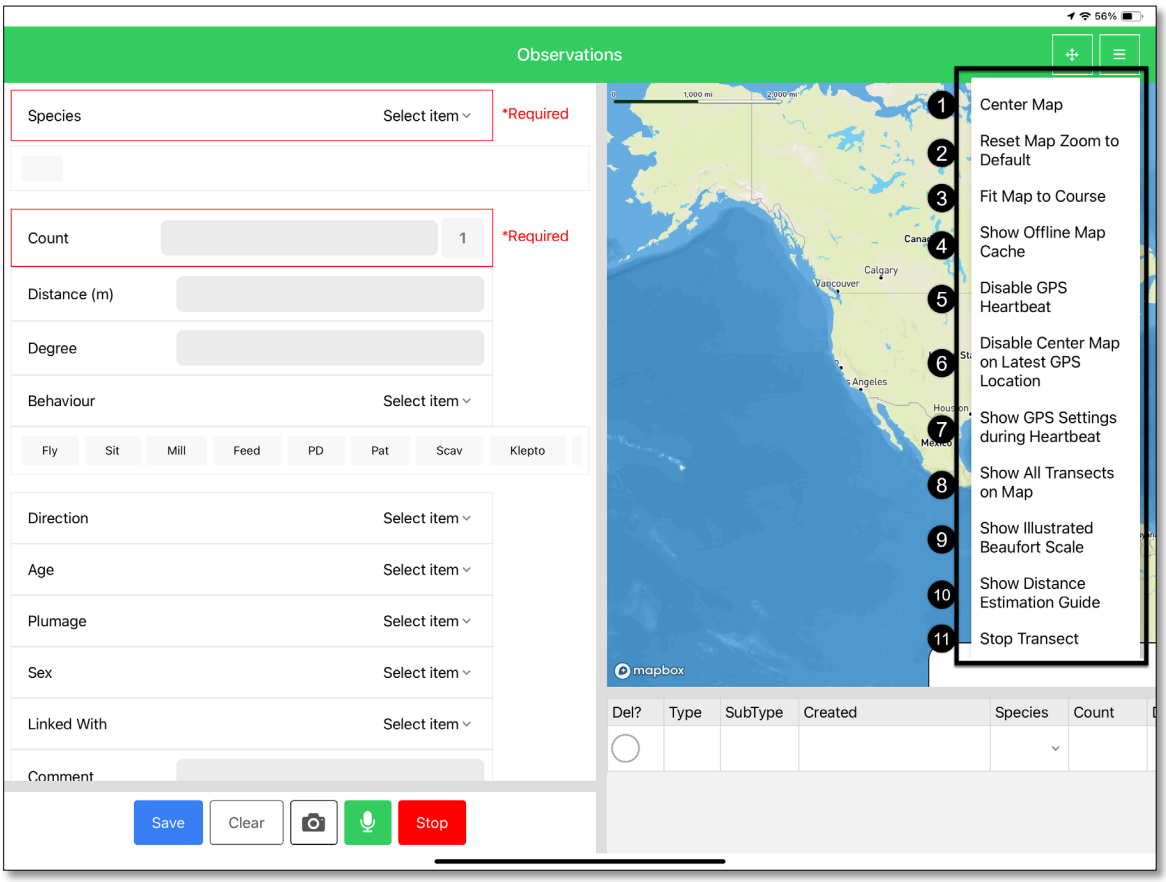


Figure 18: Observation form showing Options menu

Entering observations into the observation form

Entering observations can be as simple as entering the species and count. Users can include many other observation fields and as recommended should include the distance and angle to every observed animal, for which the layout of the fields was optimized.

The default fields are described below, but the app can be customized to include ancillary fields as well. The observation fields are broken into two categories: **non-persistent** (entered on every record as needed) and **persistent fields** (are carried from one record to the next until the user changes the values).

Non-persistent fields

The following fields are considered Non-Persistent fields and are to be entered on every record as needed.

Species: Start typing in the name or the four letter species or species group code and SeaScribe will return a list of matches that you can select (Figure 19).

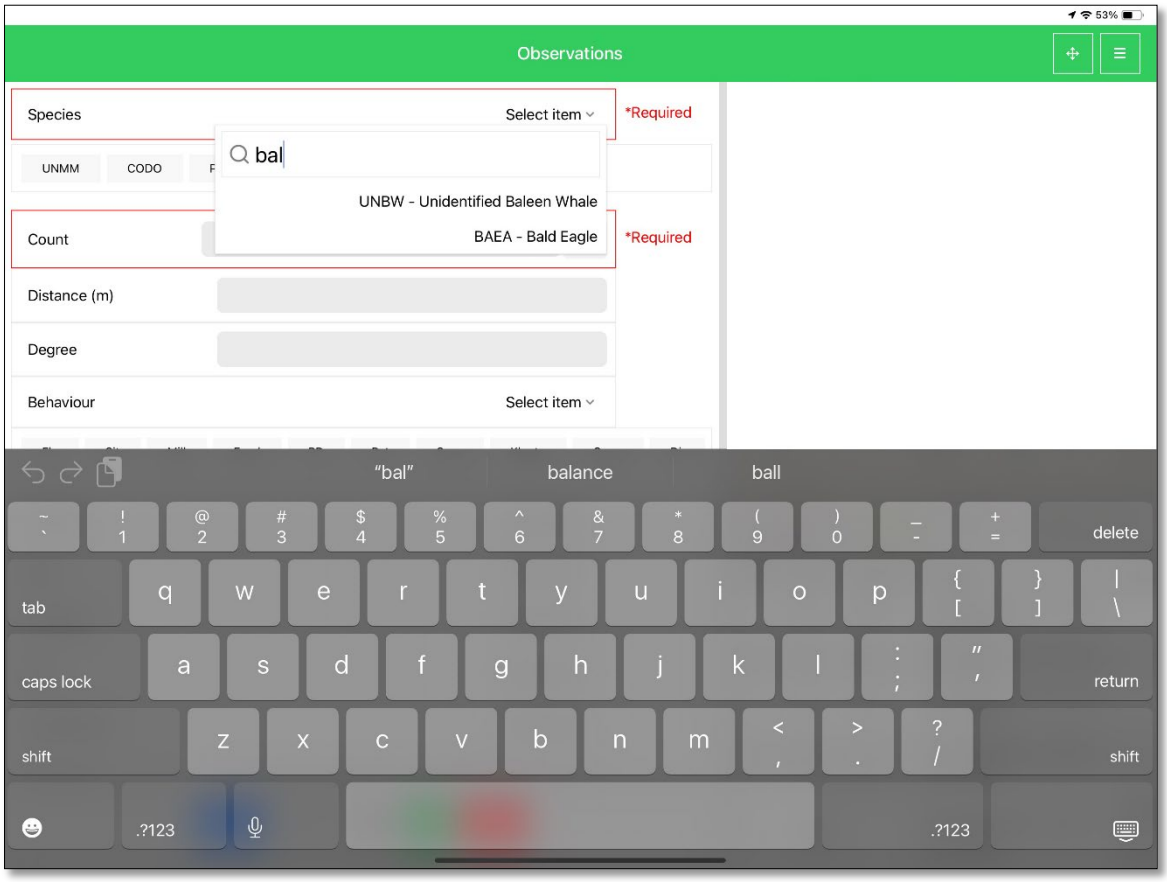


Figure 19: Observation Form showing filtered matches

To speed up data entry, SeaScribe keeps a record of the most recorded codes and adds them to the quick species selector below the species entry field. The program will continue to update this list so that you have an up to date list of species codes to choose from.

If a species code is entered that is not in the application database, SeaScribe prompts for additional

information about this code when you go to save the observation (Figure 20).

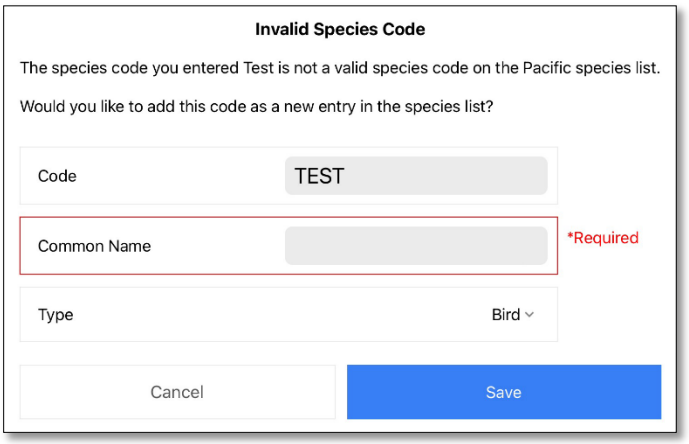


Figure 20: Invalid Species Code Prompt

Enter the common name for the object and type (bird, marine mammal, sea turtle, fish, or other). If this was an error in data entry, you may cancel and change the species code.

Count: Can be entered as any whole number or use the quick pick value of 1.
Distance: Entered as distance to object in meters.
Degree: Bearing to the object with the front of the vessel equal to 0 degree, right side 90 degrees, left side 270 degrees, etc.
Behavior: Select from the list the behavior of the animal.
Quick Behavior: Press the quick behavior button to speed up behavioral code entry. These can be changed in the settings of the app.
Direction: Cardinal movement of the object.
Age: Age code of the animal.
Plumage: Plumage code of the animal.
Sex: Male, female, or unknown.
Linked With: This is a unique identifier that allows the observer to link species observations records together so that one can associate species that have been observed together.
Comment: Any additional comments about the observation.

Ancillary fields: if added to the form, are typically found below the non-persistent fields. Sort order can be set when adding the ancillary fields.

Persistent fields

Persistent fields are ones that normally do not change or change infrequently and are recorded in each record until the user changes them.

Observer: Select the observer. Add an observer using the "+" button if not already entered during initial survey setup.
Position: Select the side of the vessel observations are being made on.
Beaufort: Select the sea state code.
Visibility: Select the visibility category.

SeaScribe will prompt the user to review persistent fields in the header bar with a blue alert.

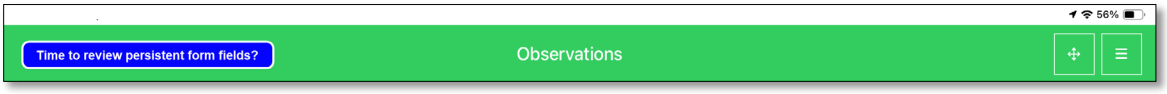


Figure 21: Persistent Field Review Prompt

Users can change the alert schedule in the Settings Menu.

Entering observations when two observers are active

SeaScribe is not specifically set up to record observations from two active viewers, however because of its flexibility, a method is available to successfully record observations from two viewers and provide data about which observer has observed the animal.

This is a work around which is not yet tied to the observer table. Future versions may be set up for multiple concurrent observers removing the need to follow this process.

The below work around should be followed:

1. At the start of a new survey, create a new methodology for multiple concurrent observers (Figure 22).

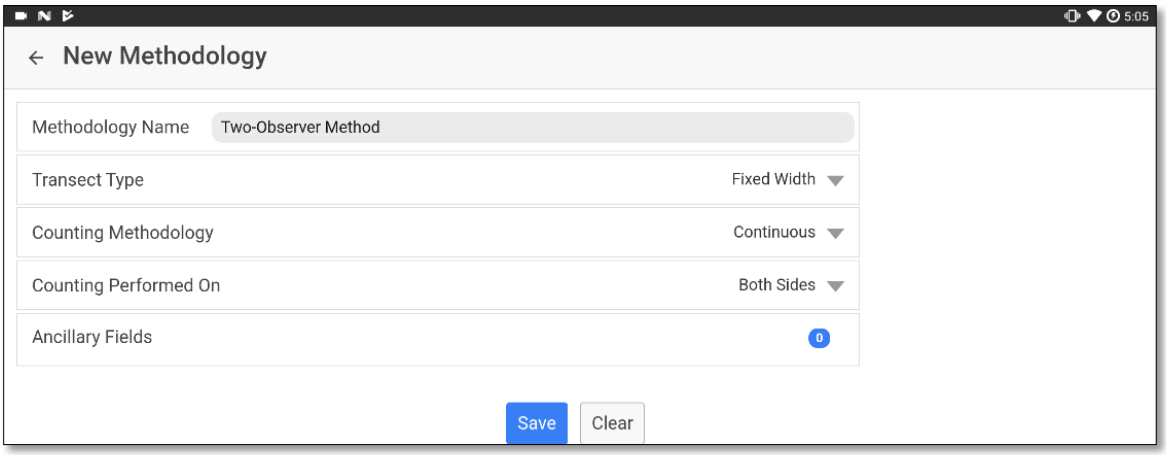


Figure 22: Create new two-observer methodology

2. Add a new ancillary field by clicking the "+" button to create a new ancillary field, "Observer 2" (Figure 23). This will be a persistent select field, with 3 options (the number of observers that will be present in total on the vessel).

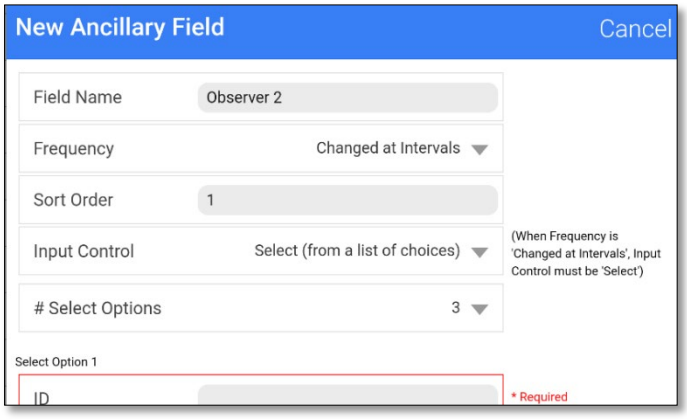


Figure 23: Add observer two names persistent field

3. Fill in the names of the three observers and save (Figure 24). Note that entering the observer names here is duplication of effort; they'll also need to be defined as observers in the main Start New Survey

page.

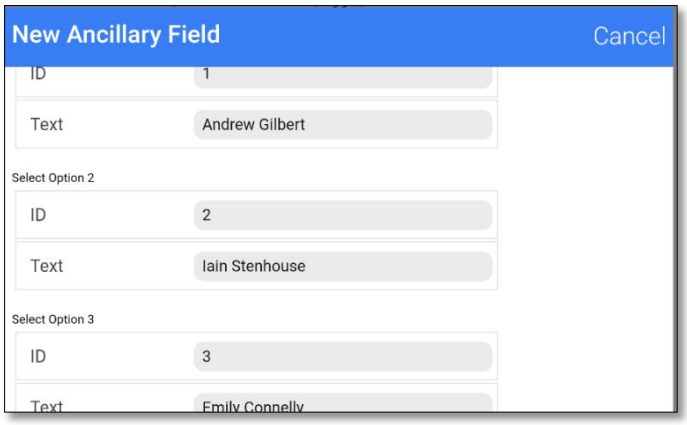


Figure 24: Add observer two names options

4. Return to the Ancillary Fields page and clicked the "+" button again to add another field, "Observer 2 Position" (Figure 25). This will be a persistent field (Frequency = "Changed at Intervals") with 2 options (one for each side, Figure 26).

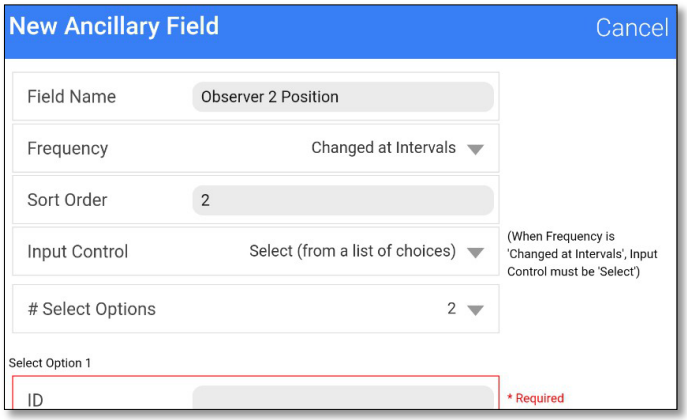


Figure 25: Add observer two position persistent field

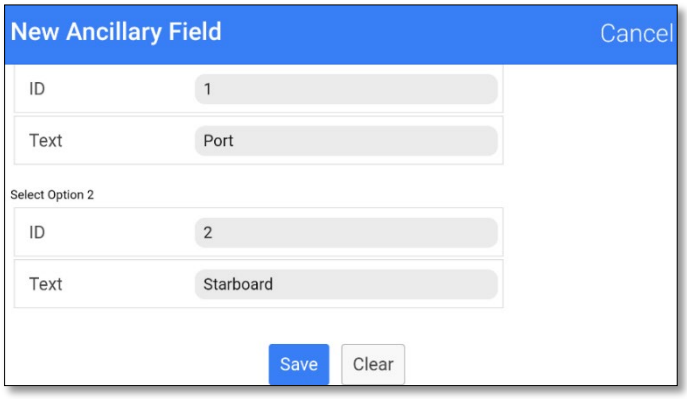


Figure 26: Add observer two position options

5. Return to the Ancillary Fields page, and click the "+" button again to add another field, "Reporting

Observer" (Figure 27); this will be a non-persistent (Frequency = "Each Observation") select field with 2 options ("Observer 1" and "Observer 2", Figure 28). This will be selected each time an observation is made to designate which of the observers reported the observation. Alternatively, you could create a selection with the names of all observers and use this as the selected observer. One could then ignore the persistent observer field. Saving returns you to the "select ancillary fields" screen showing the newly created and selected ancillary fields (Figure 29).

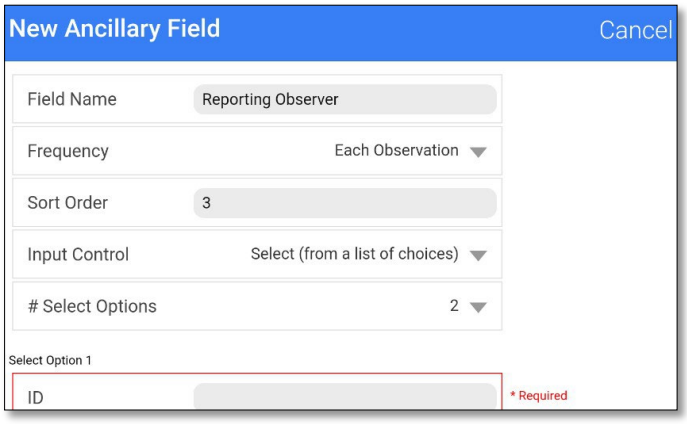


Figure 27: Add reporting observer ancillary field control

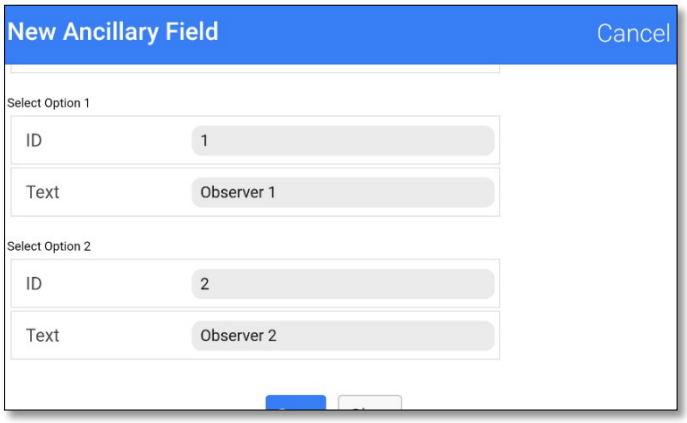


Figure 28: Add reporting observer ancillary field observer options

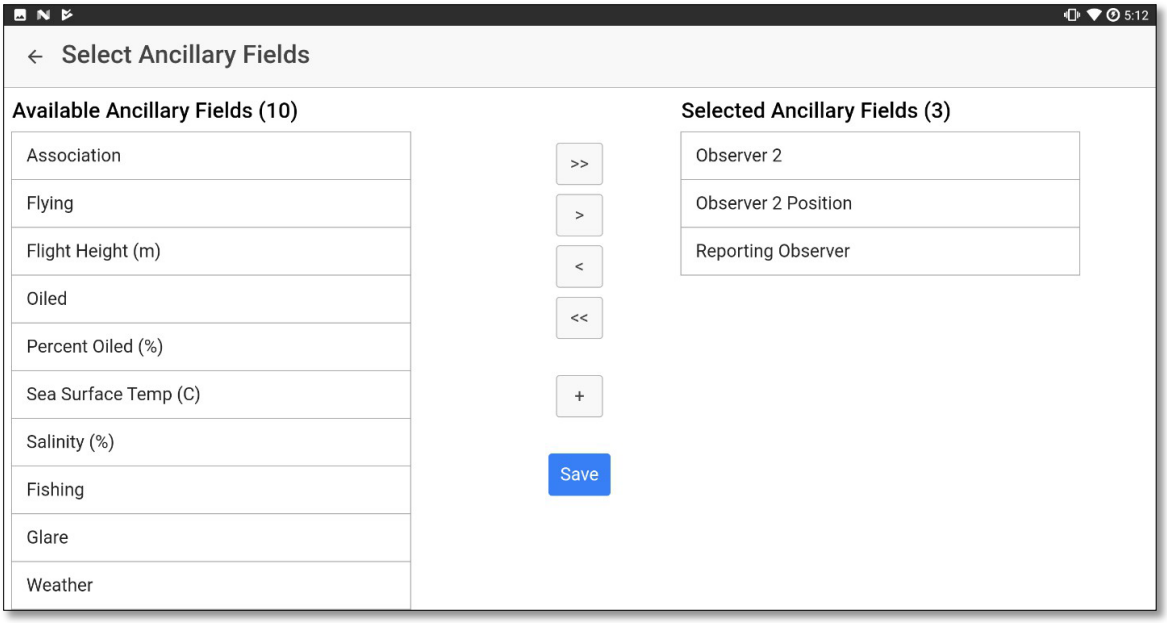


Figure 29: Addition of three ancillary fields to perform two observer method

6. The three new ancillary fields will show up as selected and you can now "Save" the methodology (Figure 30).

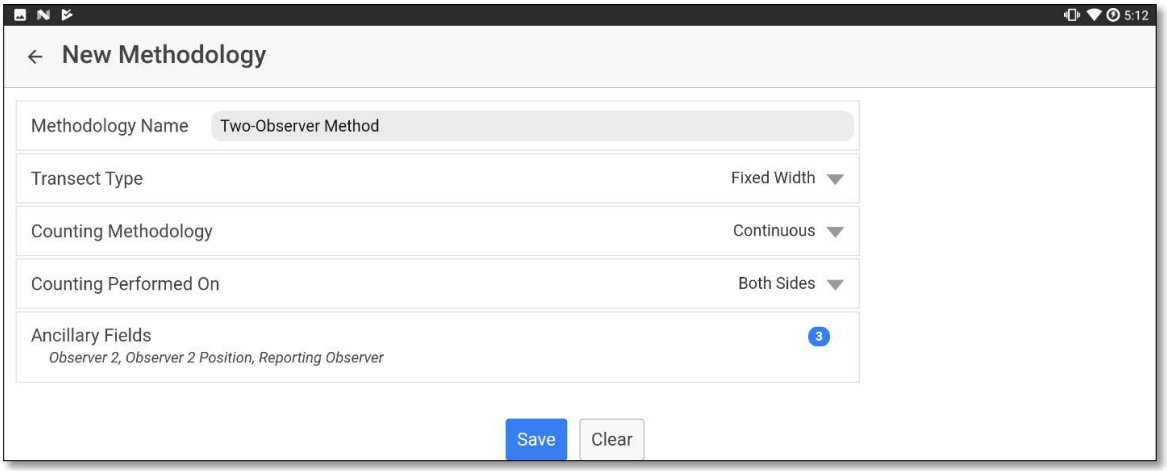


Figure 30: Finalize two observer methodology

7. Back in the Start New Survey page specify the number of observers coming on the trip, the individuals, and their experience levels (Figure 31).

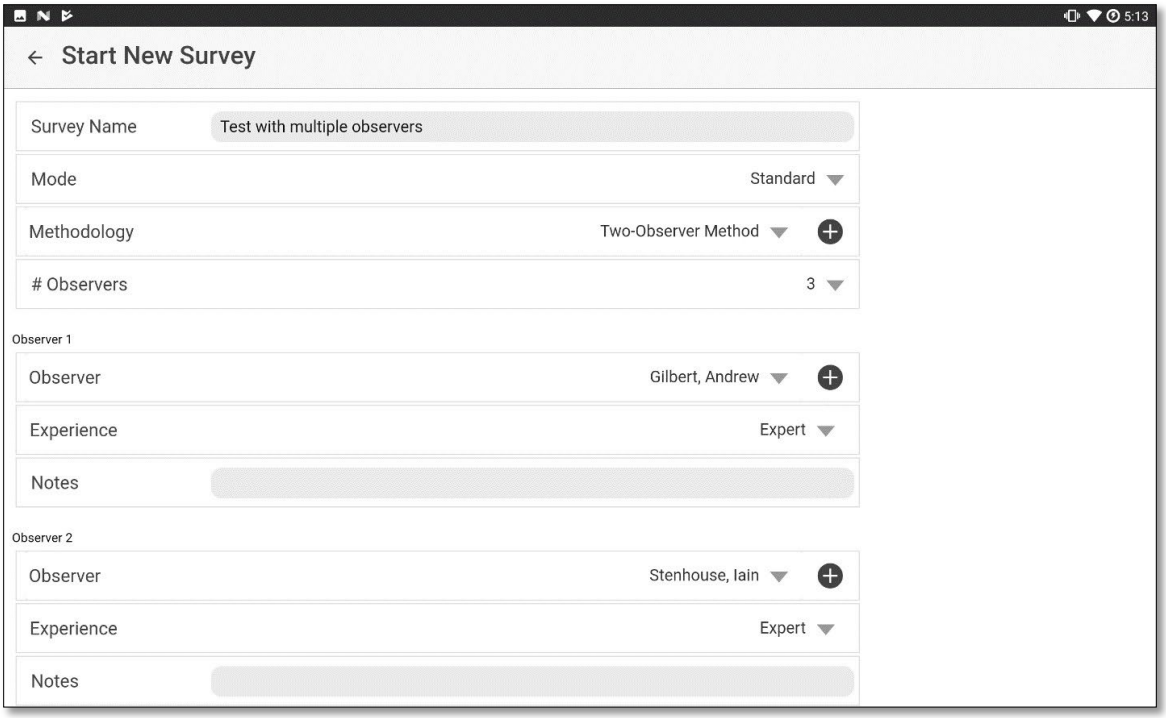


Figure 31: Two observers active experience entry form

8. Click Start New Transect.
9. At the Start Transect page, identify which two of the three observers are on-duty, and their positions (Figure 32).

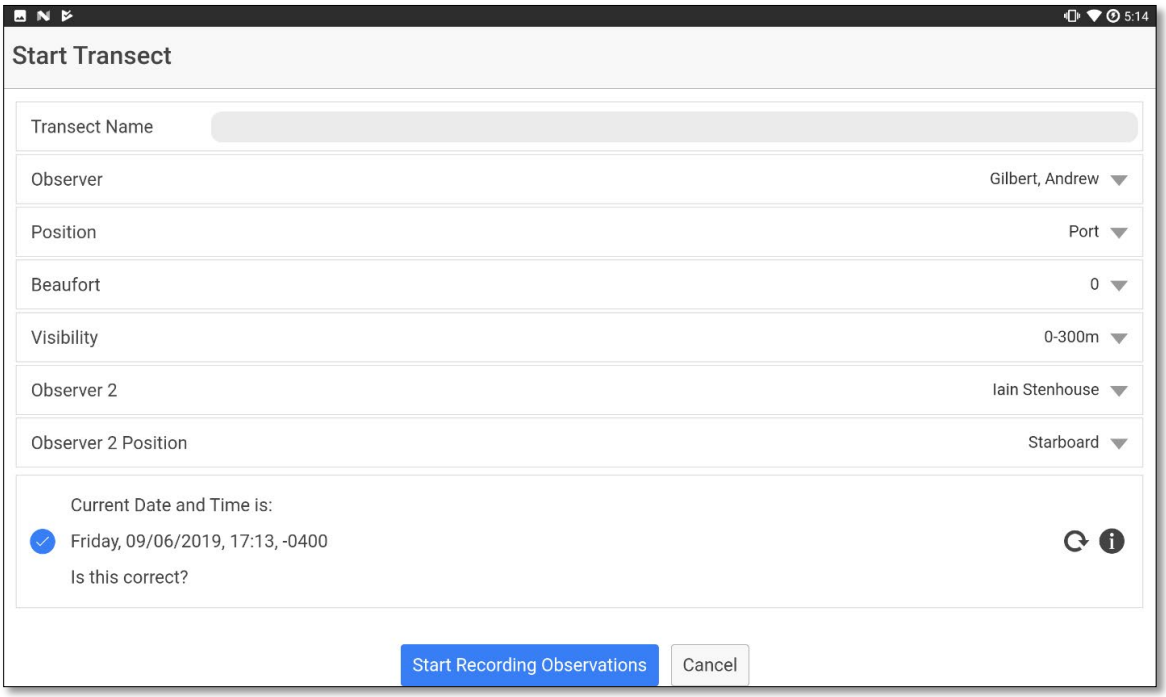


Figure 32: Start transect window entry form with two observers active

10. Click Start Recording Observations.

11. In the Observations page change who is assigned to each position.
12. Enter who is reporting the actual observation during each recorded observation.

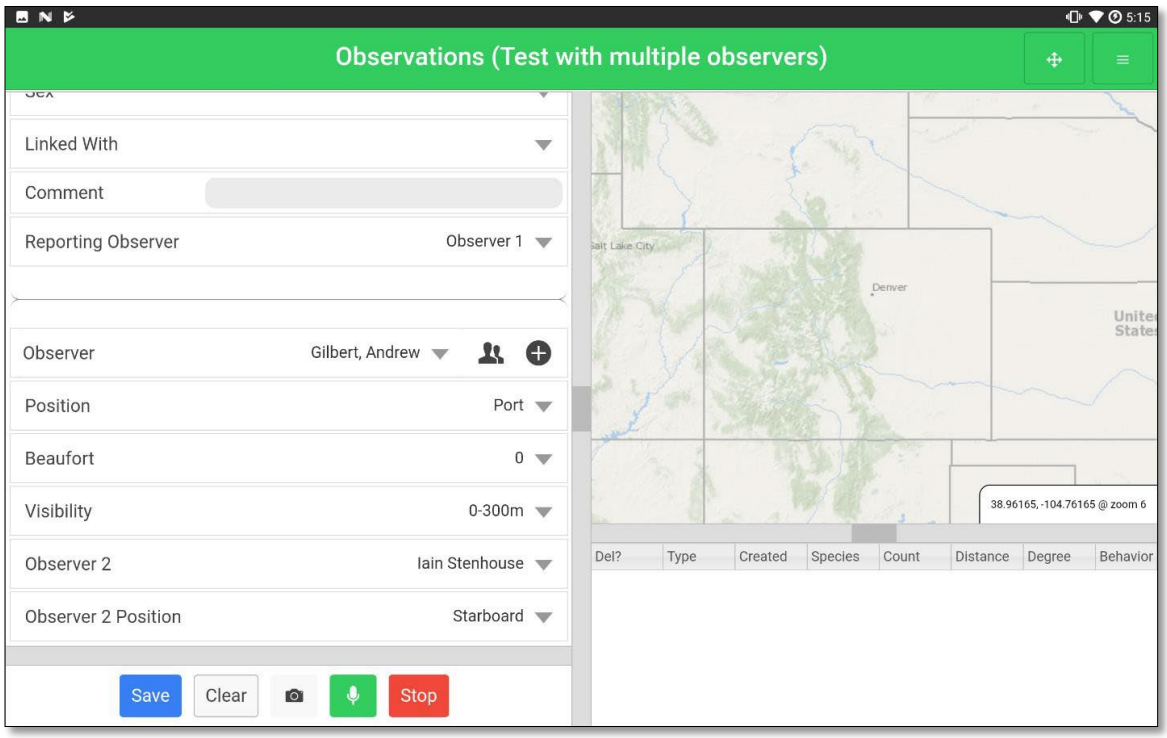


Figure 33: Observation entry form with two observers active

Associating audio and pictures with records

Using the  buttons, the user can take photos using the onboard camera and/or record audio and associate these image and audio files with an observation record. These files are also exported and associated with the record for ease of reviewing and archiving later.

Selecting the **camera button** gives you access to the camera device and its functionality, allowing you to "retry" or "ok" the picture for saving.

Selecting the **microphone button** allows the user to record a segment of audio and save it to observation.

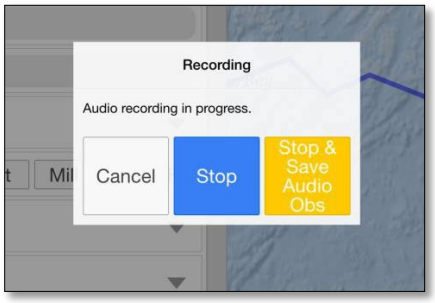


Figure 34: Audio Recording Popup

The audio file can later be played, deleted or saved, if necessary, by clicking on the audio field in the record for

that observation in the spreadsheet view.

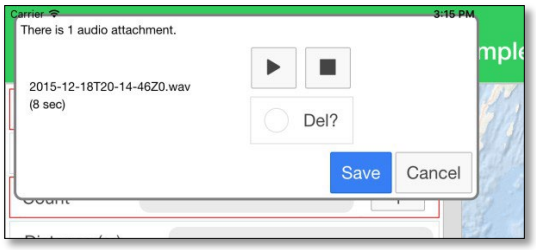


Figure 35: Review popup of Audio Recording

Mapping pane

The map pane allows the user to track the progress of the survey as well as shows the observations in increasing size markers with larger counts (Figure 36). The observation circle marker has a number of settings including color, radius multiplier, radius minimum and radius maximum allowing the user to customize these markers.

The blue line below shows the track of the survey and can be customized for color in Map settings. If you would like to display all the tracks from transects for the survey, go to the observation options and click **Show All Transects on Map**.

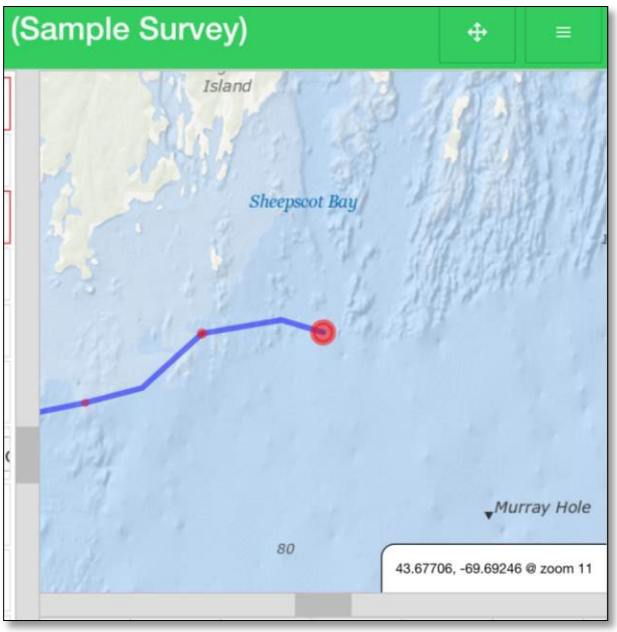


Figure 36: Observations with increasing size marker depending on count and survey track line

The map displays the current map center location and zoom level of the map in the lower right of the map window. The default is for the map view to shift to keep the last position centered in the window, but this can be disabled by going to the observations form option button.

The map is dynamic and can be manipulated by touching the map and dragging it and can be zoomed out or in by using two fingers to pinch or spread fingers apart. You can always re-center the map by going to the options button in the header bar.

The map defaults to online streaming of map content. If you do not have internet access, the map will show no content in the background, though the track and observation points will continue to display. If you

anticipate not having internet connection while conducting the survey, it is advised that you download a map cache for the anticipated survey area at multiple zoom levels (Figure 92).

Doing so will allow the map background to display properly once the **Show Offline Map Cache** button is clicked in the options button of the header bar. If no maps are available in the map cache, the following will be shown:

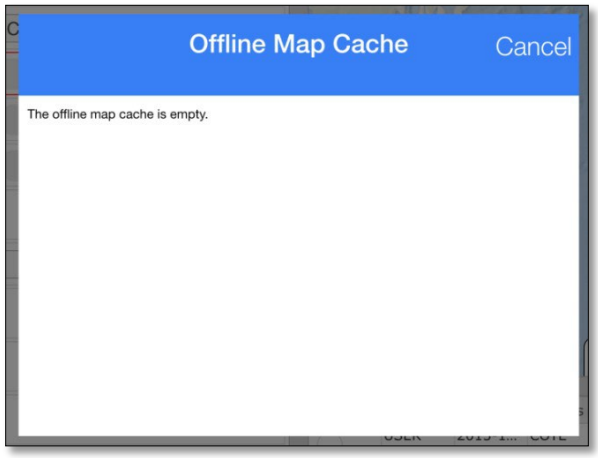


Figure 37: Offline Map Cache window

Download map content prior to beginning the survey when internet is available. Other options are available for the map including: **Resetting Map Zoom to Default, Fit Map to Course, and Disable Center Map on Latest GPS Location**

Spreadsheet pane

The spreadsheet pane shows the observation records as they are entered and allows the user to make edits to these observations while still collecting data. The user can maximize this pane for easier viewing and editing, if necessary, by clicking the layout button in the header.

Editing records in the spreadsheet pane

To edit records, simply scroll to the desired record to edit and click in the cell for editing. Clicking on a cell will bring up the appropriate keyboard or dropdown list. If it's a text or number field simply type in the field (Figure 38). If it's a dropdown list, click the cell and then click the list shown again and it will expand to allow selection of the correct entry (Figure 39).

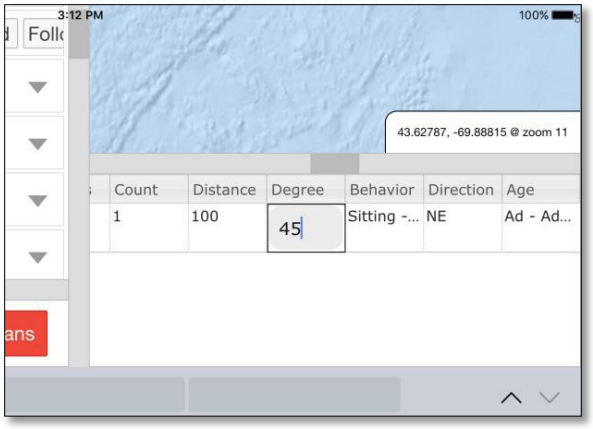


Figure 38: Text Entry in Spreadsheet pane

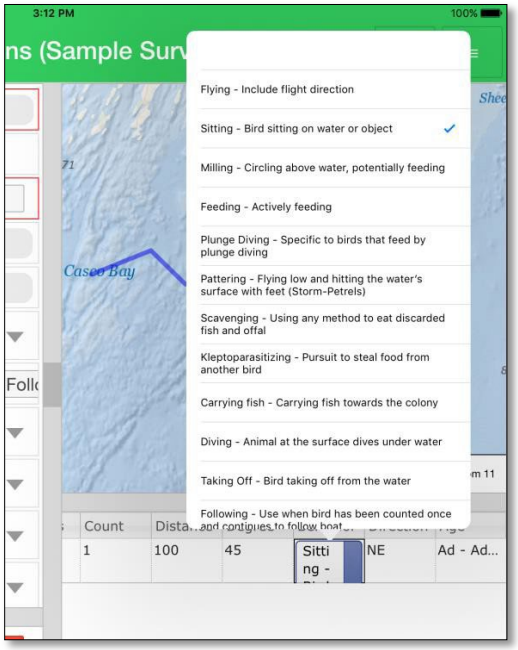


Figure 39: Dropdown list in Spreadsheet pane

Marking a record for deletion in the spreadsheet pane

The first column of the spreadsheet view allows you to mark the record for deletion.

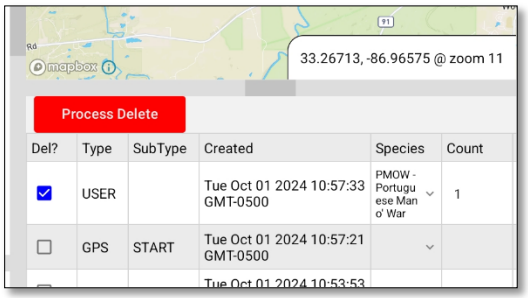


Figure 40: Marking row for deletion in Spreadsheet pane

Once selected, a “Process Delete” button will appear to apply the change. Any deletes this way are nonreversible.

Finishing the transect

When you have finished the transect, you may click the “Stop Trans” button in the button pane or in the options button list. Once you have clicked this button it confirms that you want to stop collecting data for this transect.

Click “OK” to accept or click “Cancel” to return to the observation form and continue the transect. Caution, once you click “OK”, there is no way to continue, you must start a new transect and then merge the two transects later in post-processing if they need to be continuous for analysis purposes.

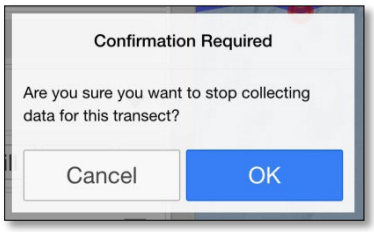


Figure 41: Confirmation window to stop Transect

Once you have confirmed that you want to end the transect, you will be given the opportunity to add comments about the transect if you want. Click “Stop Transect” to exit.

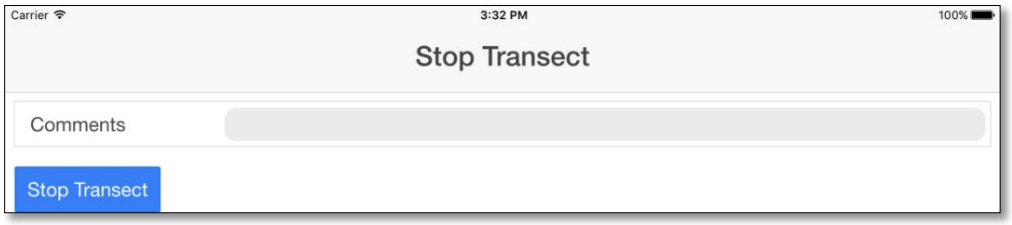


Figure 42:Comment box to be completed upon Stop Transect

Recording Audio Observations

In some surveys, it may be necessary to perform audio-only data entry during the survey. This is common when performing aerial surveys where animals are passing by at high rates of speed and entering data in the standard data entry form could result in missing animals. We have provided an audio-only data entry form with simple, large buttons for recording audio observations and saving records (Figure 43).

Each audio file is geo-referenced and the record of which can be seen in the spreadsheet view. Click **Record** to start recording an observation. Click **Save Obs** to stop recording and save the observation audio file. Clicking **Cancel** will cancel the current audio recording. Click **Stop Trans** to exit the current transect.

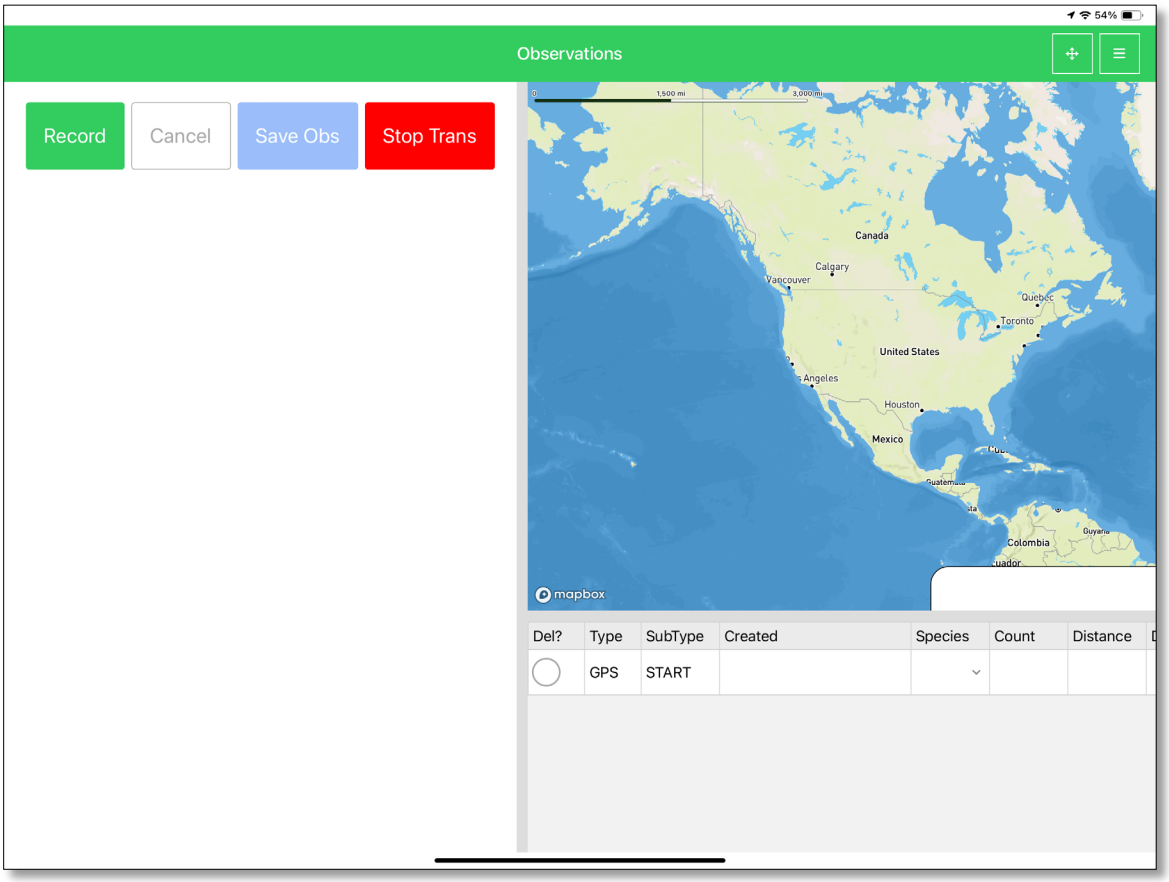


Figure 43: Audio Only Observation Form

Existing Surveys

Within **Existing Surveys**, the user can see the list of existing surveys, most recent first, and corresponding transects, also most recent first (Figure 44). There are different operations that can be performed when selecting surveys or transects of chosen surveys.

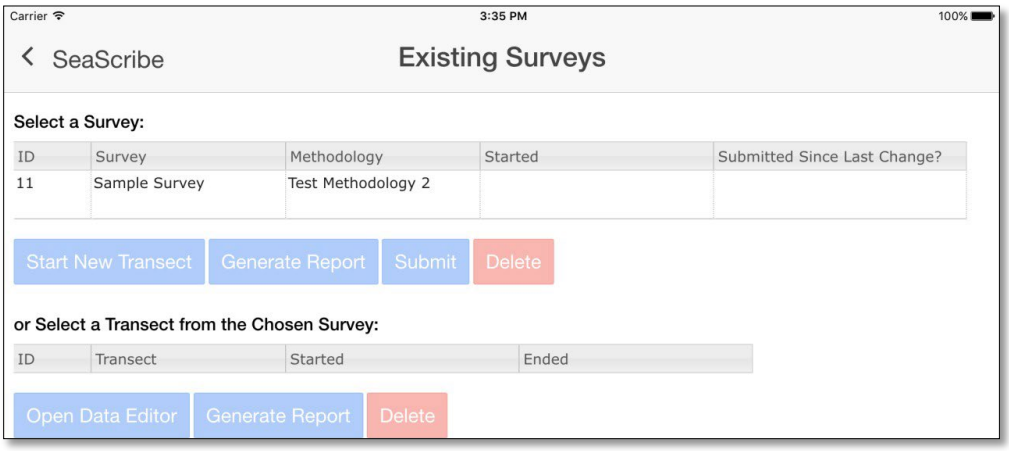


Figure 44: Existing Surveys Screen

The following pages will cover the buttons found under the **Select a Survey** area, along with the buttons that are located under the **Select a Transect from the Chose Survey**.

Operations on surveys

Start new transect

This button allows you to start a new transect within an existing survey. This brings you back to the Start Transect form where you can continue to add data to the survey.

Generate survey report

You can generate a summary report for the survey by selecting the survey of interest and pressing **Generate Report**. An on-screen report will be created with information about the survey including survey name, duration, distance traveled, methodology, number of transects, transect name(s), and number of users along with a summary table of observations to included observed species, number observed, total count, counts/hour, and counts/km (Figure 45).

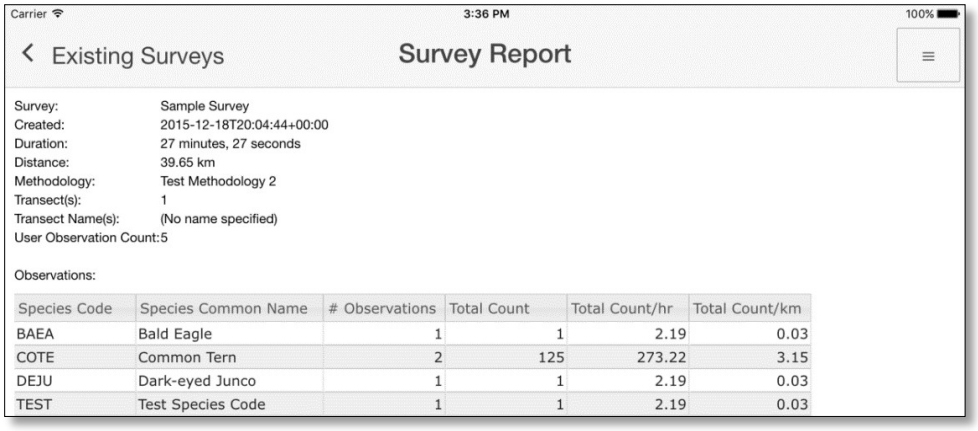


Figure 45: The Survey Report Tabulating a Survey

Within the survey report screen, if you click the upper right button on the screen,  you are given the option to **Submit Report** via email or Dropbox in HTML format. This report can be read in any web browser and will show up in email content as well. Select the export destination (Email or Dropbox) and select "Export" or "Cancel" (Figure 46).

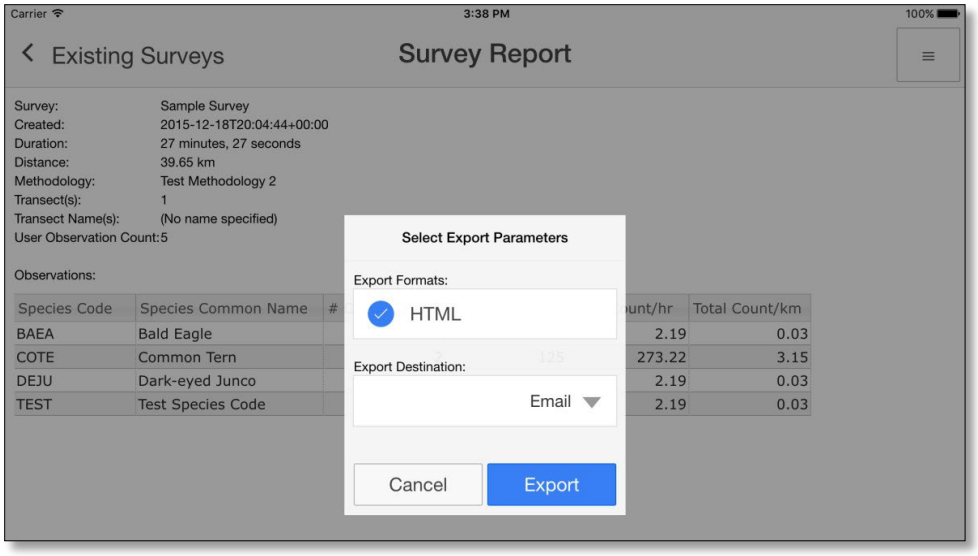


Figure 46: Survey Report Exporting Parameters

If you choose email, and an email client is setup, then the html report will be attached to a generated email in the email client on the device. Enter a recipient to send.

If you choose to export via Dropbox, and no Dropbox account is linked to SeaScribe, the program will request an email and password to link (Figure 47).

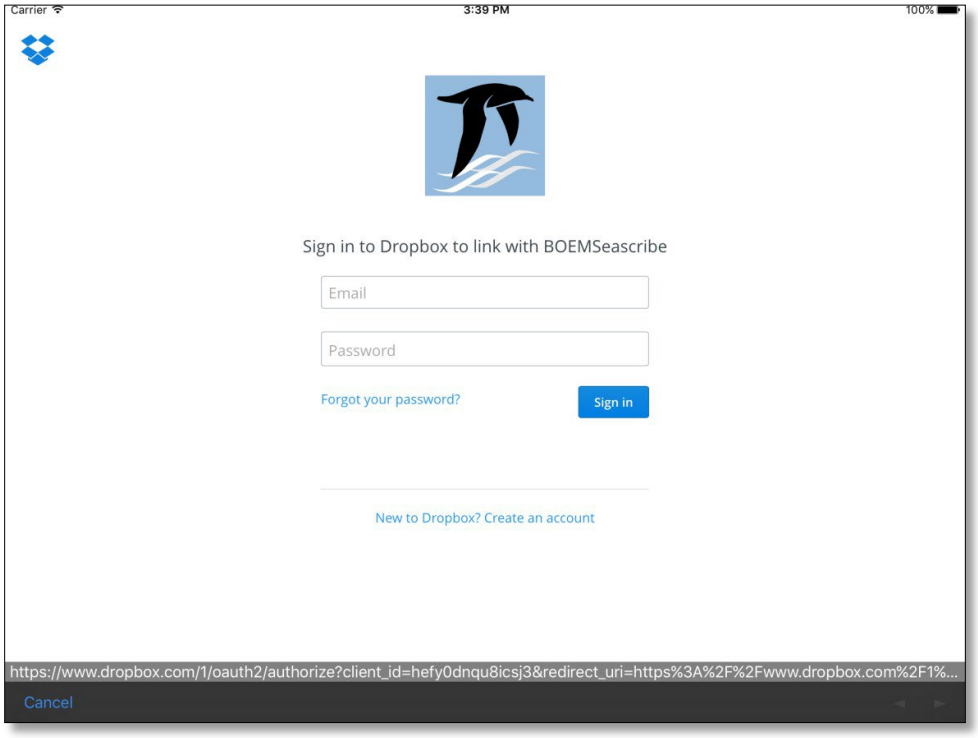


Figure 47: Dropbox sign in form for linking Dropbox to SeaScribe

Submit survey data

To submit data by email or Dropbox, select one or more surveys. Selected surveys will be highlighted in blue and can be unselected by clicking the selected (blue) row. Click "Submit" for selected survey(s) to submit all the data collected for the survey(s) including all transects. Like report submission, data submission gives you options for the export destination, email or Dropbox, as well as export format options (Figure 48): JSON (JavaScript object notation) and CSV (comma-separated value).

JSON is a lightweight data-interchange format popular for programming and the web (http://www.json.org/). Using JSON, all fields and metadata are stored in this text-based format and only a single file is exported per survey. CSV data is presented in tabular format, ready to be loaded into statistical software or GIS programs for example. When selecting CSV, in addition to the data, metadata about the survey is provided separately as a JSON file, and the trip report in HTML (total of three files).

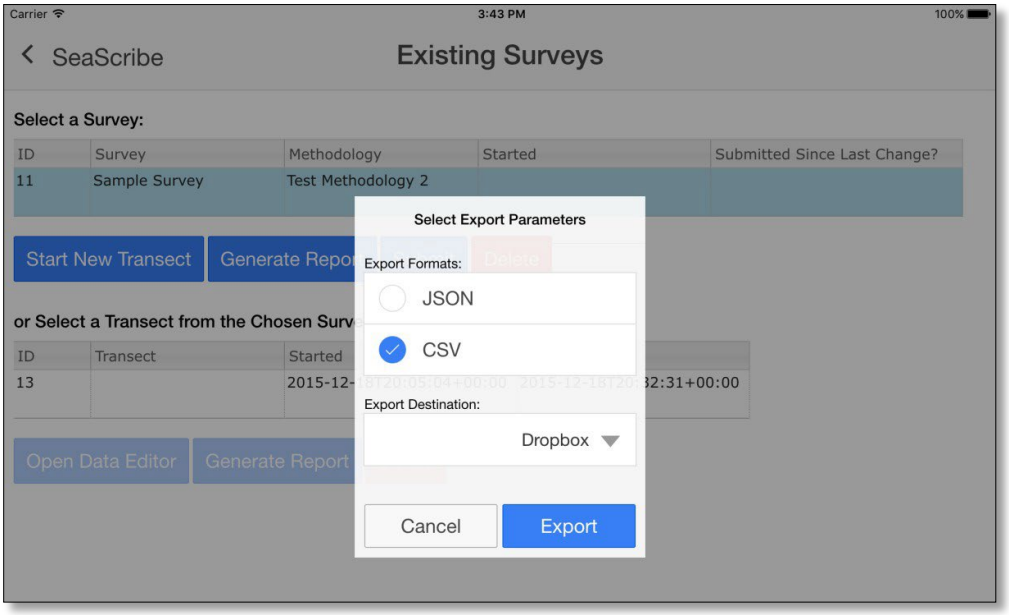


Figure 48: Submitting Data for Existing Surveys

You will see that once data are submitted that the column "Submitted since Last Change?" will be filled in with either Email and/or Dropbox.

Successful export will generate an email with attachment(s) when submitting by email but note that SeaScribe can't verify whether the email has been sent. Check your sent email box for confirmation of submission.

If submitting data directly to BOEM, the address 'boemseascribe@boem.gov' can be used to submit data. This address is monitored by personnel at BOEM.

If results have been successfully written to Dropbox, an "Export Results" dialog box will be shown.

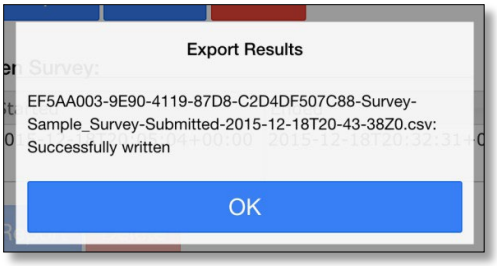


Figure 49: Export Result for Dropbox

Delete a survey

To delete survey level data, select one or more surveys. Selected surveys will be highlighted in blue and can be unselected by clicking the selected (blue) row. Click "Delete" for selected survey(s) to delete all the data collected for the survey(s) including all transects. Confirmation is required.

Figure 50: Warning on Deleting Survey

Click "OK" to confirm and proceed to the next confirmation step or "Cancel" to exit. In the next step, you will be provided a confirmation code to enter to execute the deletion. This is a safety mechanism to protect the user from accidental deletion. Enter the code and click "Delete" to delete or "Cancel" to exit.

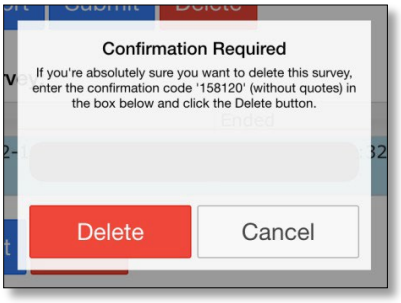


Figure 51: Confirmation on Deleting Survey

After deletion, the survey and associated transect(s) will be removed from the list (Figure 52).

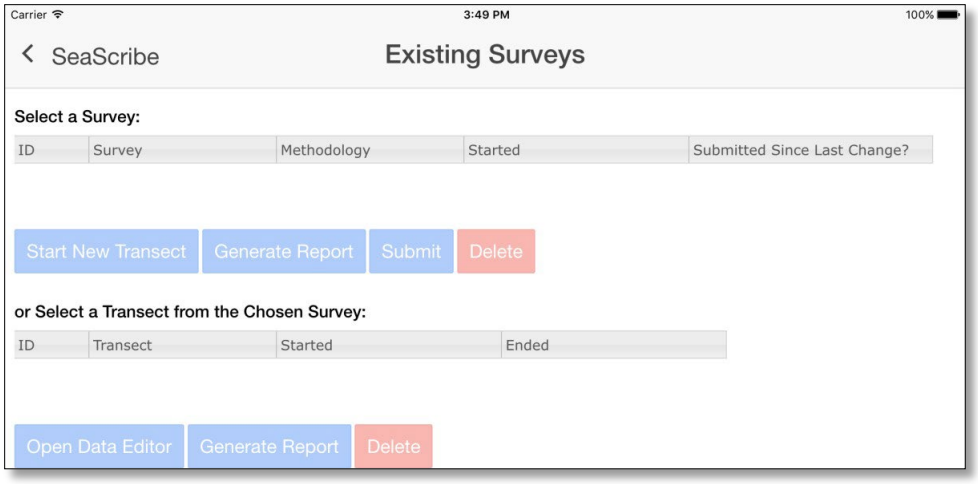


Figure 52: Transect removed after deletion from list of transects

Operations on transects

Select a survey to activate the **Select a Transect from the Chosen Survey** area. When a transect is selected you can **Open Data Editor**, **Generate Report** and **Delete**.

Open Data editor

You can edit observations for a particular transect by selecting the transect and clicking the "Open Data Editor" button which takes you to the editor screen (Figure 53).

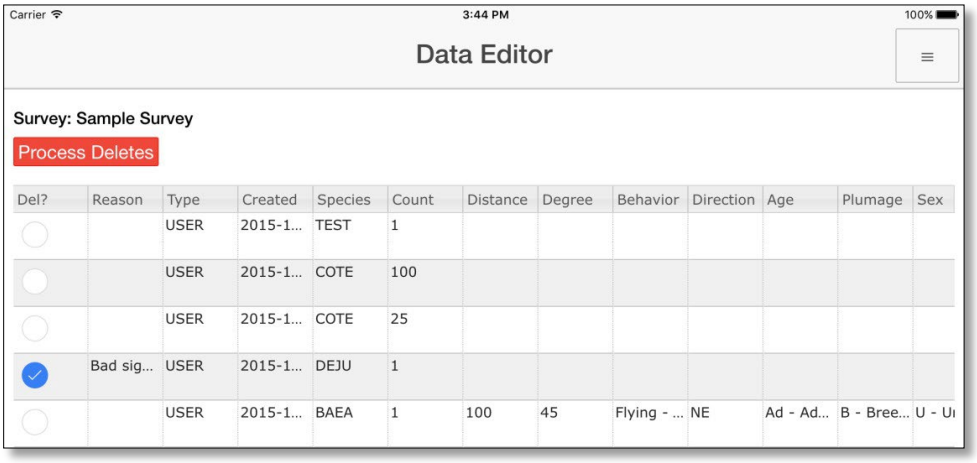


Figure 53: The Data Editor Screen

If you click on the options button at the top right,  you have access to three options:

Start New Transect for this Survey, **Submit Survey** and **Exit**

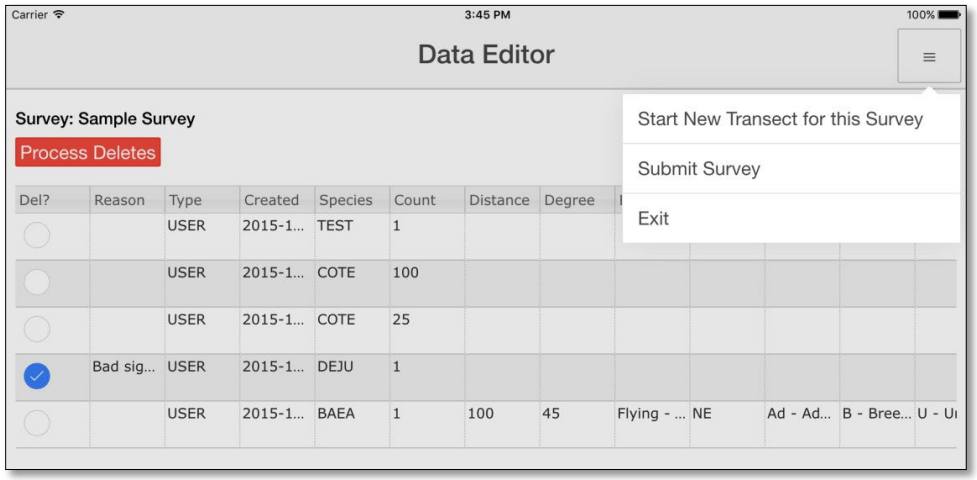


Figure 54: Options in the data editor menu

In the data editor, you can edit data fields like in the real-time spreadsheet view of the observation form (Figure 55, Figure 56).

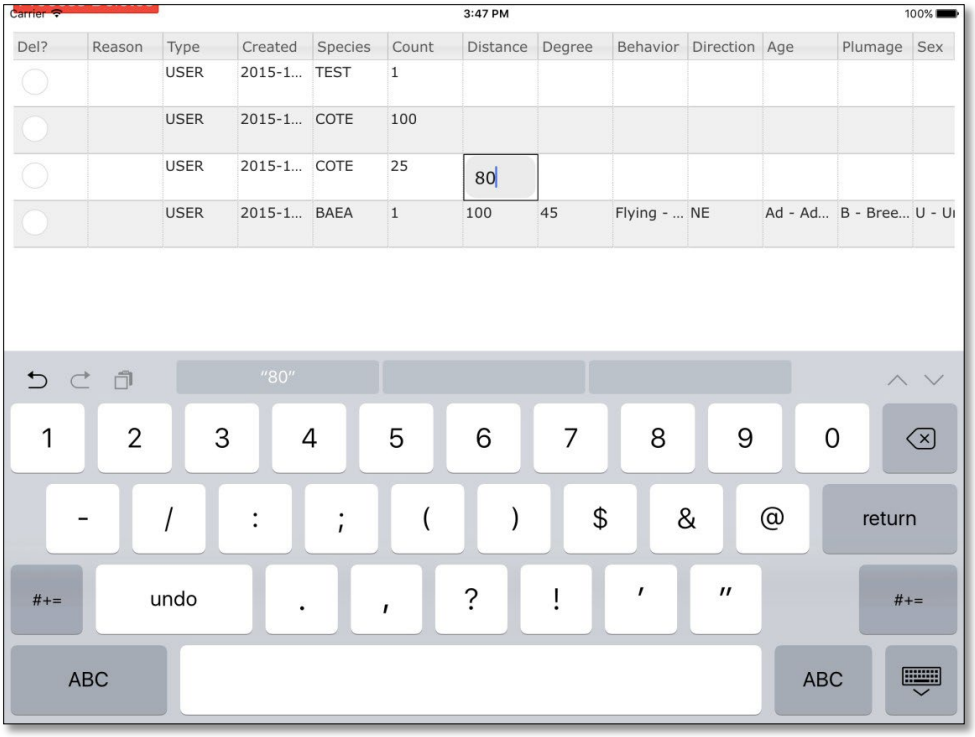


Figure 55: Editing text fields in the Data Editor

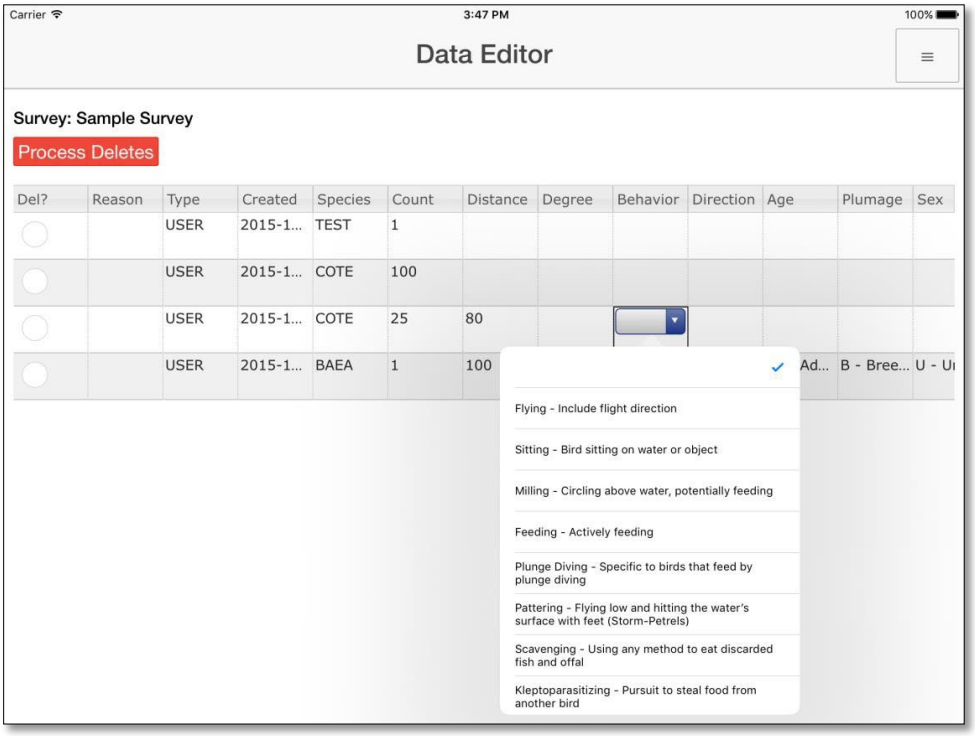


Figure 56: Selecting from dropdown in the Data Editor

You can also process records for deletion here that you marked while recording data or marked here in data editing. Mark any additional records you may wish to delete and click the Process Deletes Button.

Figure 57: Process Deletes button in Data Editor

Generate transect-level report

You can generate a summary report for a transect by selecting the transect of interest and pressing "Generate Report". An on-screen report will be created with information about the transect including survey name, duration, distance traveled, methodology, number of transects, transect name(s), and number of users along with a summary table of observations to included observed species, number observed, total count, counts/hour, and counts/km (Figure 46). This is a similar report but at the survey level.

Within the survey report screen, if you click the upper right button on the screen,  you are given the option to "Submit Report" via email or Dropbox in HTML format. This report can be read in any web browser and will show up in email content as well.

Select the export destination (Email or Dropbox) and select Export or Cancel (Figure 47). If you choose email and an email client is set up, then the html report will be attached to a generated email in the email client on the device. Enter a recipient to send. If you choose to export via Dropbox and no Dropbox account is linked to SeaScribe, the program will request an email and password to link (Figure 48).

Delete a transect

To delete transect level data, highlight a transect in blue by selecting it (unselected by clicking the selected blue row). Click "Delete" for the selected transect to delete all the data collected for this transect. Confirmation is required. After deletion, the transect will be removed from the list.

Settings

SeaScribe has several settings that allows the user to customize many things within the program. You can access the settings from the main menu of SeaScribe (see Figure 1). The settings are grouped into the following categories:

GPS, Mapping, User Interface, Hotkeys, Alerts, Export, System

SeaScribe comes with default settings, which can always be reset by clicking the reset button at the bottom of the form.

If any settings are outside of the required bounds, SeaScribe will suggest the upper or lower limits and prompt you with a red box around it to enter a value.

Continue to the following pages to learn about all settings or click the links above to jump to certain settings.

GPS Settings

The first category of settings is related to GPS function (Figure 58).

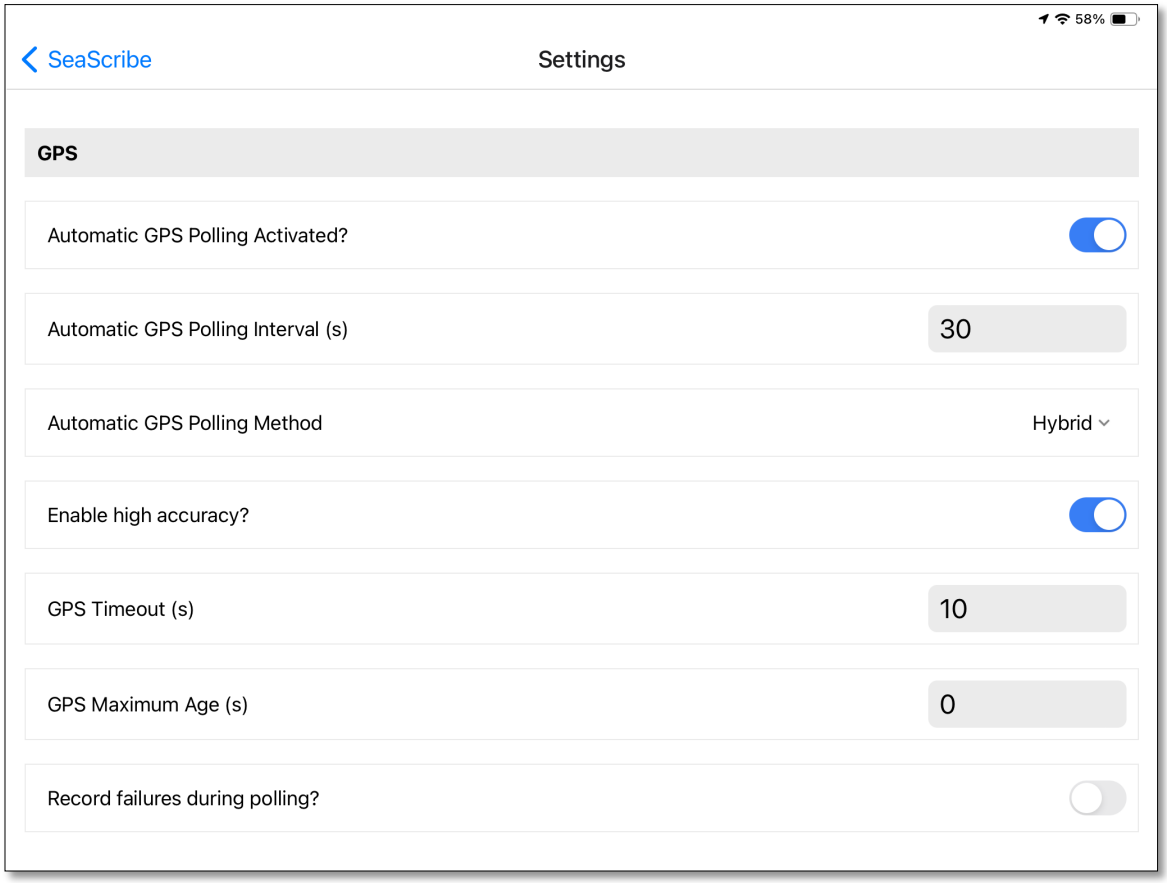


Figure 58: GPS Function Settings

Automatic GPS Polling Activated:

Selection: Enabled or disabled, default = Enabled

Enable or disable the polling function of the GPS. Automatic polling means that SeaScribe will request a location from the GPS and record this location along with the persistent field data at the set polling interval.

Having polling enabled allows the user to record the track and thus effort for the survey. If the survey is a fixed survey effort, however, such as a sea watch, you may not want the location information being constantly recorded since it is of the same position.

Automatic GPS Polling Interval (s):

Entry: 5-3600s, default = 30s

Set the polling interval in seconds (see above).

Automatic GPS Polling Method:

Selection: Interval, Positional or Hybrid, default = Hybrid

The method used to acquire the GPS location: interval, positional, hybrid (default). Choices are:

1. **Interval:** This is the historical method SeaScribe has always used which seems to work well for the Android platform and passes GPS locations upon request.
2. **Positional:** Always watches the location, passing GPS locations to SeaScribe when requested as for heartbeat positions or observations. Discards intermediate positions.
3. **Hybrid:** A hybrid method of the two above. We recommend this setting.

Enable High Accuracy:

Selection: Enabled or disabled, default = Enabled

Enable/disable high accuracy locations on the devices.

GPS Timeout (s):

Entry: 1-60s, default = 10s

When GPS signal is poor, the GPS can "timeout" causing no location to be returned to SeaScribe. This timeout issues a warning in SeaScribe. The timeout interval can be lengthened if signal is poor, and timeout occur regularly or shortened as necessary.

GPS maximum age (s):

Entry: 0-999, default = 0

Maximum age of the location from GPS that SeaScribe will use for a position. 0 means it will use the latest except for when there is a GPS error.

Record failures during polling:

Selection: Enabled or disabled, default = Disabled

When a request for GPS coordinates fails, do you want to record the error message to the database.

Mapping Settings

Here you can adjust settings related to mapping in the observation form (Figure 59).

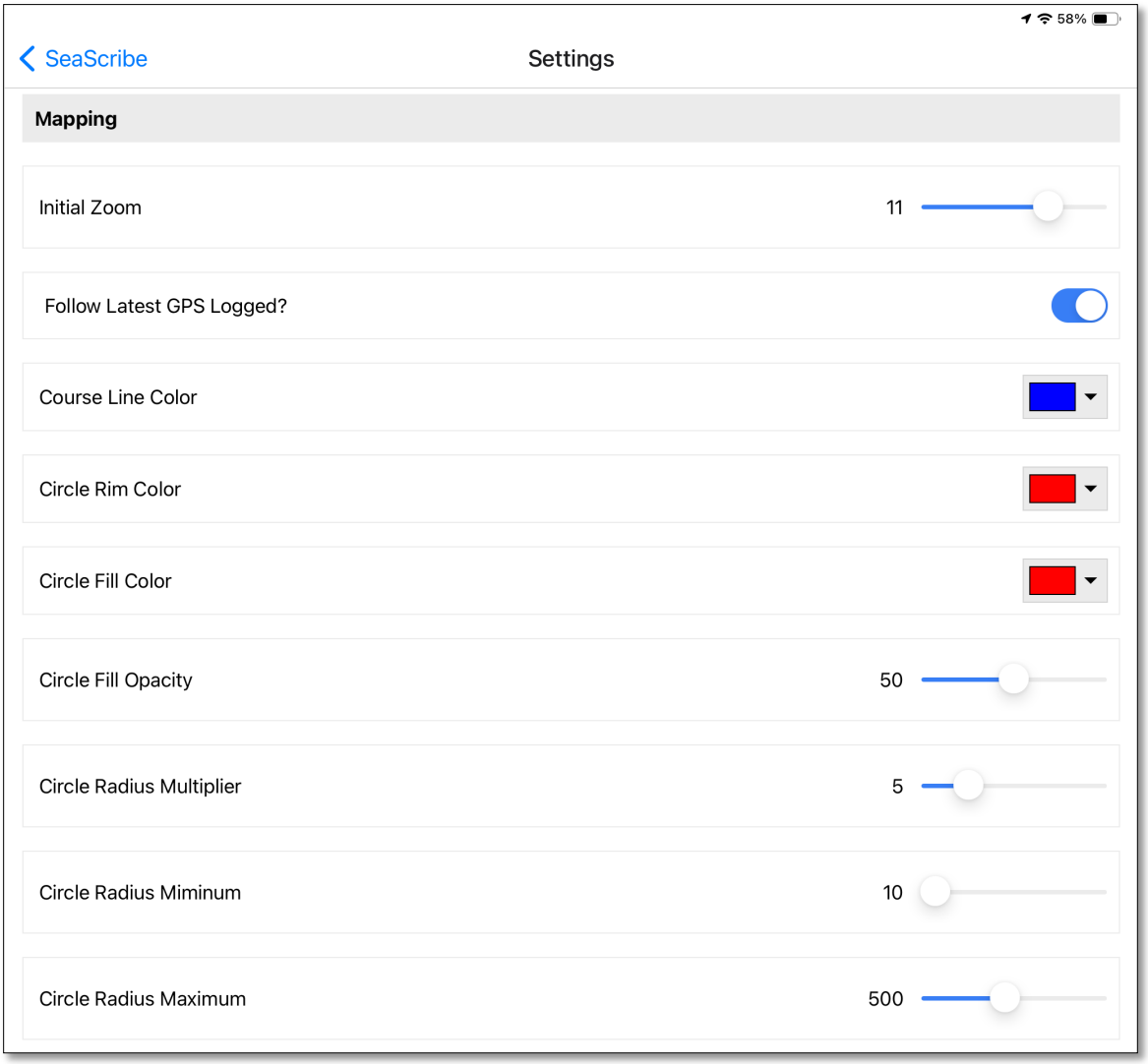


Figure 59: Mapping Function Settings

Initial zoom level:

Entry: 1-15, default = 11

Select the initial zoom level when the map is populated.

Follow Latest GPS Logged:

Selection: Enabled or disabled, default = Enabled

Move the map to follow the latest GPS position logged (enabled or disabled, default=enabled)

Course Line Color:

Selection: Color, default = Blue

Select one of fifteen colors.

Circle Rim Color:
Selection: Color, default = Red
Select one of fifteen colors.

Circle Fill Color:
Selection: Color, default = Red
Select one of fifteen colors.

Circle Fill Opacity:
Entry: 0-100, default = 50
Set the opacity of the circle fill from transparent (0) to opaque (100)

Circle Radius Multiplier:
Entry: 1-20, default = 5
Sets the multiplier of the observation point circle radius; this factor is responsible for the circle size increasing as the observation count increases.

Circle Radius Minimum:
Entry: 10-100, default = 10
Sets the minimum of the observation point circle radius.

Circle Radius Maximum:
Entry: 100-1000, default = 500
Sets the maximum of the observation point circle radius.

User Interface Settings

Settings related to the user interface (Figure 60).

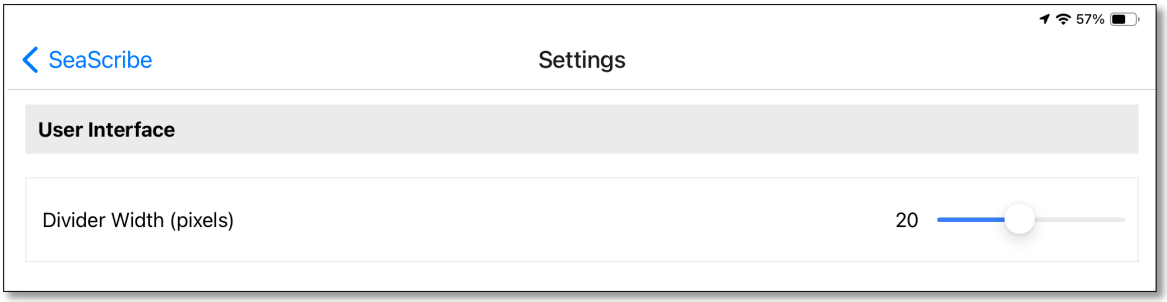


Figure 60: User Interface Settings

Divider Width (pixels):

Entry: 5-40, default = 20

Set the divider width between panes in the observation data entry form. A wider divider is easier to touch in the UI but takes up valuable screen real estate.

Hotkeys Settings

These are settings to control hotkeys (Figure 61).

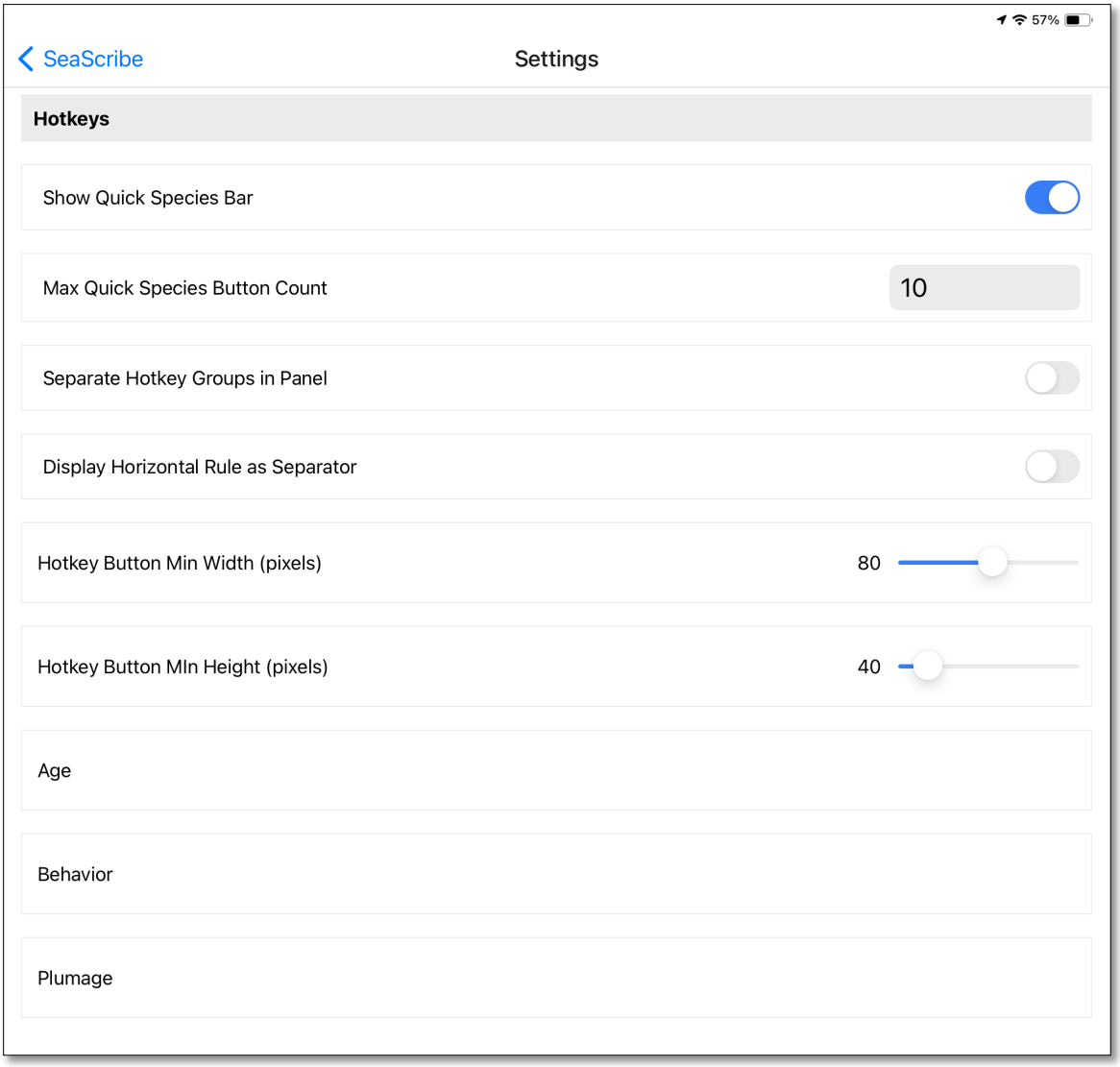


Figure 61: Hotkey Settings

Show Quick Species Bar:

Selection: Enabled or disabled, default = Enabled

Displays or hides button area on Observations screen to quick select from the most recently used Species, rather than finding in the dropdown.

Max Quick Species Button Count:

Entry: 1-99, default = 10

Displays how many most recently used Species will show to select from.

Separate Hotkey Groups in Panel:
Selection: Enabled or disabled, default = Disabled
Enabling this feature will allow groups to be separated in the hotkey area. The fields will wrap as a default.

Display Horizontal Rule as Separator:
Selection: Enabled or disabled, default = Disabled
Enabling this feature will display a separator line between two hotkey groups.

Hotkey Button Min Width (pixels):
Entry: 30-125, default = 80
Adjust the minimum width for the hotkey button

Hotkey Button Min Height (pixels):
Entry: 30-125, default = 40
Adjust the minimum height for the hotkey button

Age:
Assign the ages as hotkeys to speed up data entry.

Behavior:
Assign the behavior as hotkeys to speed up data entry. Defaulted to show on observation form.

Plumage:
Assign the plumage as hotkeys to speed up data entry.

If the user adds any hotkeys to **Age** or **Plumage**, the "Quick Age" and "Quick Plumage" fields are added to the observation form.

The user can change the listed order by clicking on the blue **Show Reorder** button. Drag the values to the desired order by using the three lined symbol to the right of the field.

Click **Save** to save the hotkey settings. **Cancel** to close and exit the popup form.

Alerts Settings

Here the user can modify settings related to the persistent check alert (Figure 62).

Figure 62: Alerts Settings

Persistent Check Activated:
Selection: Enabled or disabled, default = Enabled
Enable the Time to Review Persistent Form Fields alert to appear in the observation form (Figure 21)

Persistent Check Interval:
Entry: 60-7200s, default = 900s
The interval at which the persistent check flag will appear in seconds.

Scroll to Persistent:
Selection: Enabled or disabled, default = Enabled
Enable to have the form scroll to the persistent fields when the user clicks the Time to Review Persistent Form Fields button (Figure 21) in the header.

Export settings

Settings related to data export (Figure 63).

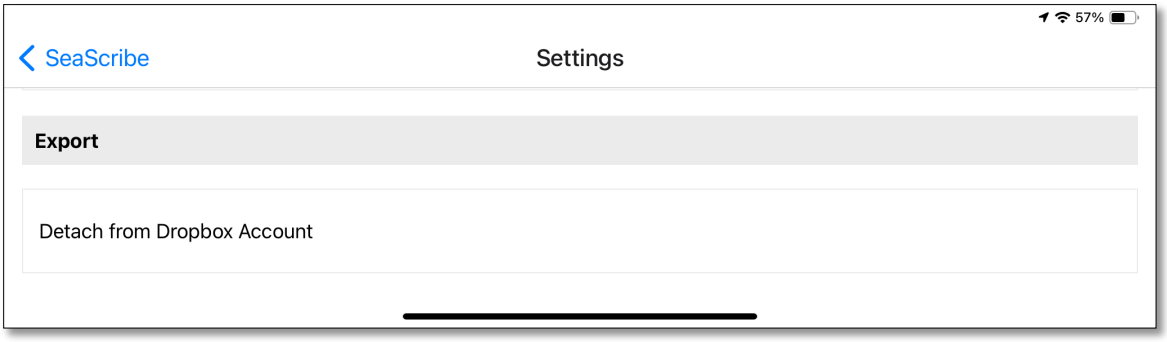


Figure 63: Export Settings

Detach from Dropbox Account

This setting allows the user to detach the device from Dropbox. This is a 3-step process including:

(1) signing out of Dropbox

(2) disassociating the application from the Dropbox account via a web browser

(3) restarting the app.

You will be asked to click next to continue after explaining this process in a dialog box.

System settings

System settings can be changed here (Figure 64).

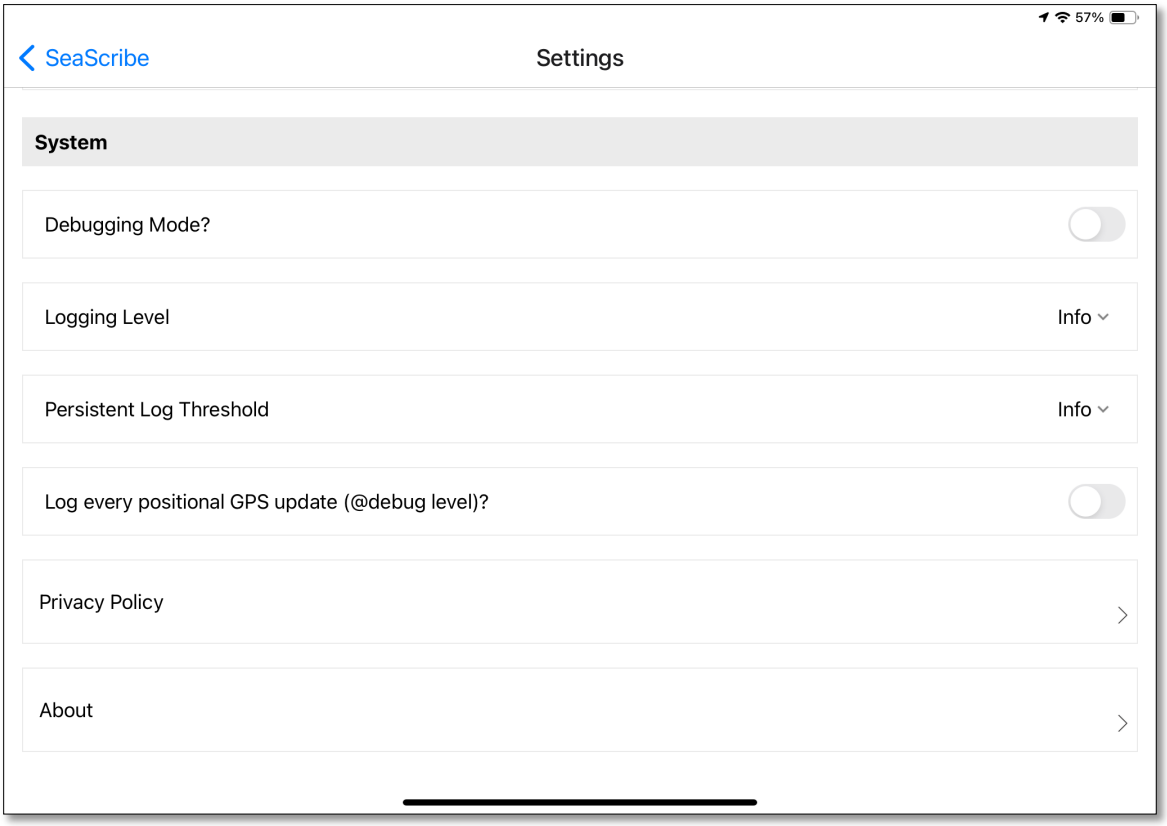


Figure 64: System Settings

Except for **Privacy Policy** and **About**, all these options are designed to assist with debugging any issues that may arise. As such, we recommend leaving the default settings unless directed otherwise by a technical support representative.

Debugging Mode:

if enabled, extra options are shown in the Manage Data page. These extra options are Export Database, View Persistent Logs, and View Device Info (enabled or disabled, default = disabled).

Logging Level:

sets the transient logging level. Levels, in order from most voluminous to least, are Debug, Info, Warn, Error, and Fatal. This is of no practical use unless the device is directly connected to a developer workstation for debugging purposes; we recommend leaving the setting at Info (Trace, Debug, Info, Warn, Error, or Fatal; default = Info).

Persistent Log Threshold:

sets persistent logging level. Levels, in order from most voluminous to least, are Debug, Info, Warn, Error, and Fatal. We recommend never setting this threshold below Info unless so directed by a technical support representative (Debug, Info, Warn, Error, or Fatal; default = Info).

Log every positional GPS update (@debug level)

log GPS positions when logging is set to debug and GPS setting is hybrid or positional.

Privacy Policy:

SeaScribe's privacy policy which briefly describes how SeaScribe collects, uses, and handles your information (Figure 65).

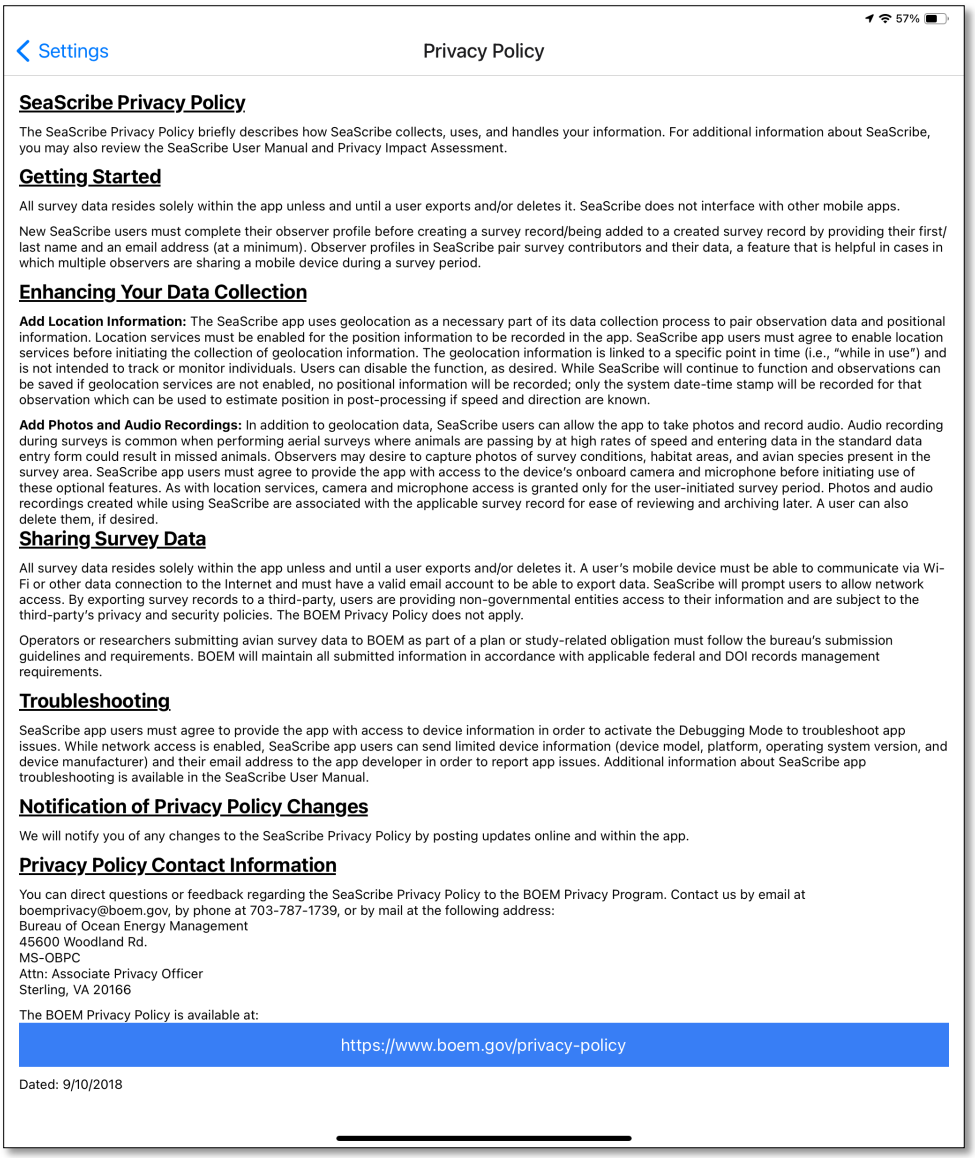


Figure 65: SeaScribe's Privacy Policy description

About:

Details about SeaScribe that include Version, Funders (BOEM) and Creators (BRI and Tilson), Mapping Data and open source attributions. Links to further information can be accessed by clicking **Go** to open a web browser for more info and clicking the **X** to return to SeaScribe.

Figure 66: About Screen in Settings

Tools

SeaScribe provides a few tools accessed from the Tools menu (Figure 67).

Illustrated Beaufort Scale, Distance Estimation Guide, Manage Data, Offline Maps, GPS Tests

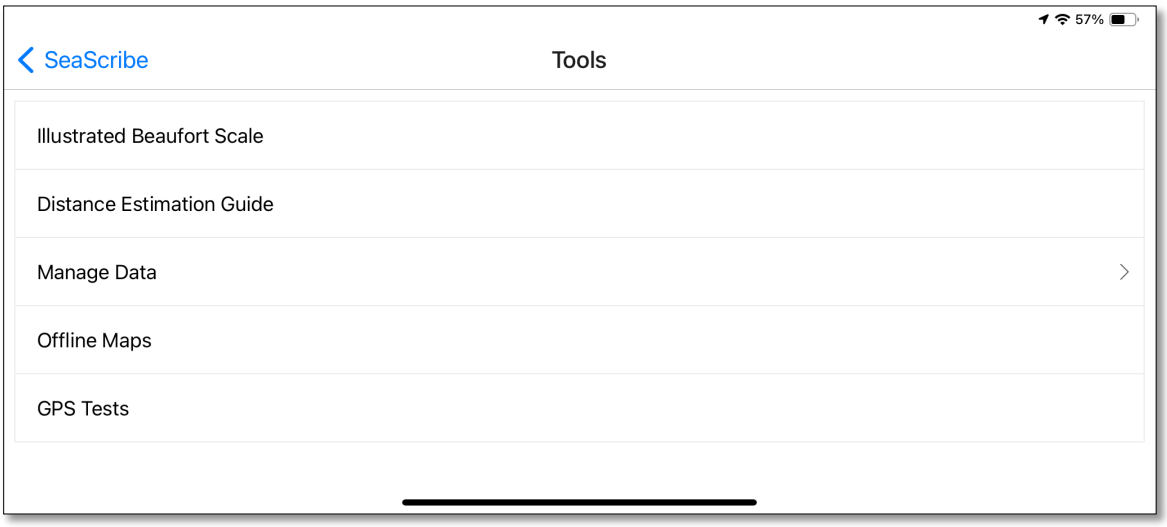


Figure 67: Tools Menu

Illustrate Beaufort Scale

This tool provides an illustrated guide to assessing Beaufort Scale (sea state)[3]. Within the tool there are the conditions along with an image (Figure 68) to assist the observer in correctly identifying Beaufort condition which has an important effect on object detection.

This scale is also accessible from the observation form options and tools button ≡ in the Observation Form.

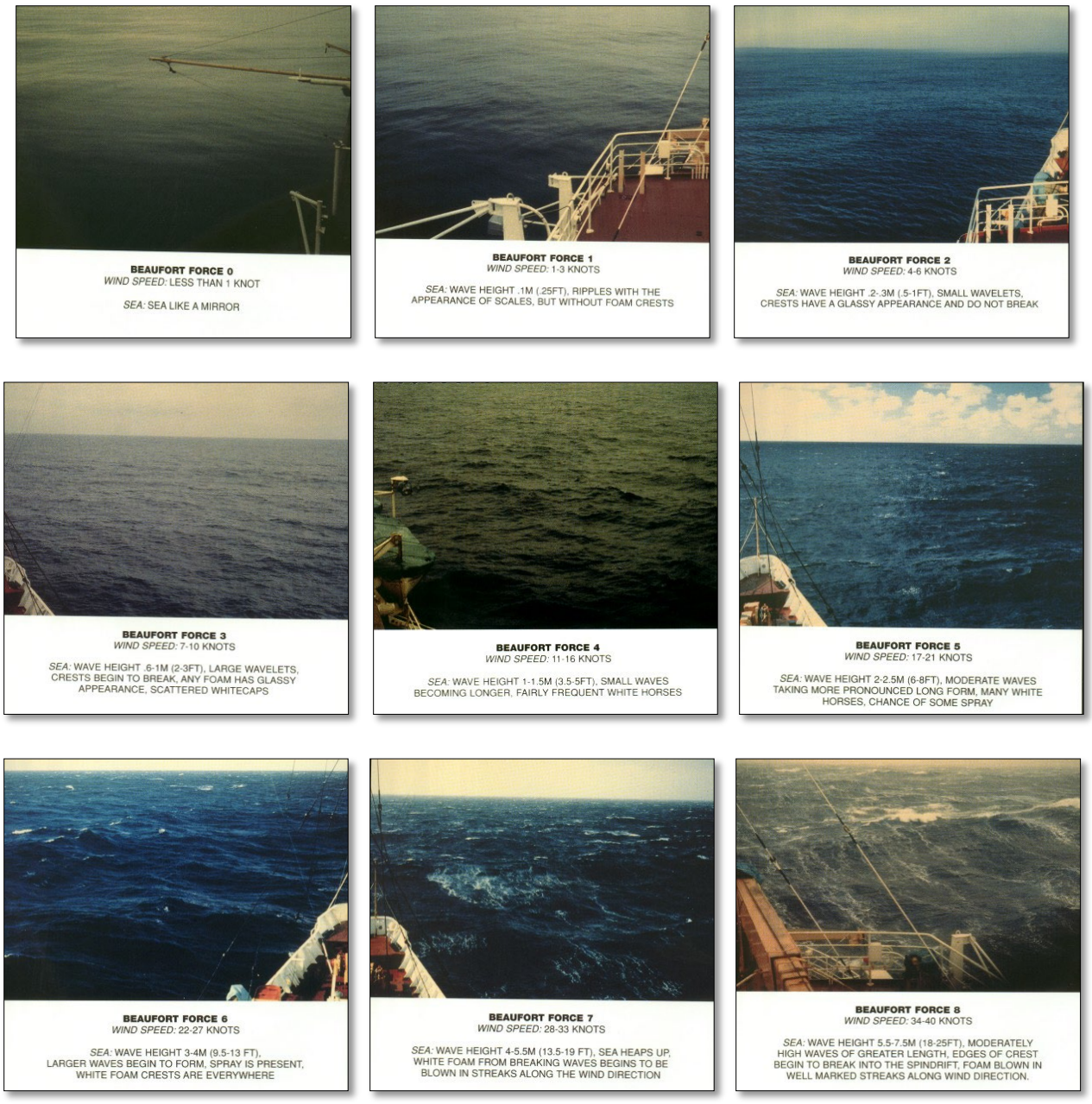


Figure 68: Beaufort Scale 0-12

[3] https://en.wikipedia.org/wiki/Beaufort_scale

Distance Estimation Guide

The distance estimation guide is a tool for calculating the measurements on a ruler necessary to estimate distance of the object using the horizon and markings on a ruler or window as a guide (Figure 69).

Enter the distance between the observer and ruler (or window) when the observer's arm is fully outstretched (holding the ruler) or distance of the eye to the window which will have markings. Enter the distance above water in meters. Enter distances you would like estimated in a comma-separated list.

Click **Calculate** and the list of distances (in meters) and distance below horizon in millimeters is given to be marked on the ruler or window[4].

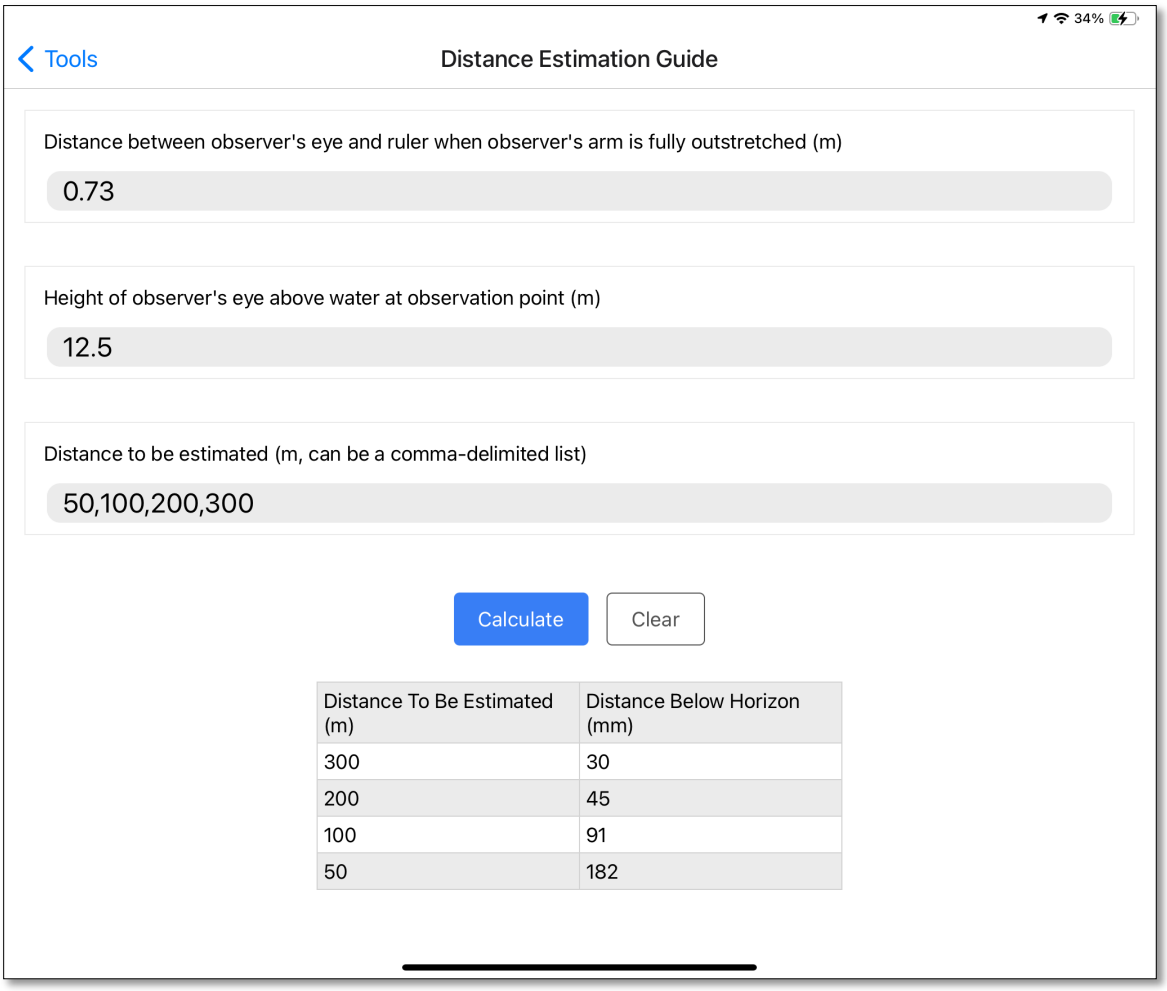


Figure 69: Distance Estimation Tool

[4] Gjerdrum, C., D.A. Fifield, and S.I. Wilhelm. 2012. Eastern Canada Seabirds at Sea (ECSAS) standardized protocol for pelagic seabird surveys from moving and stationary platforms. Canadian Wildlife Service Technical Report Series No. 515. Atlantic Region. Vi, 37 pp.

Manage Data

The “Manage Data” window gives access to the database which stores the data behind the scenes for the application (Figure 70). Within this form you can select:

Edit Ancillary Fields, Edit Survey Platforms, Edit Observers, Edit Methodologies, Edit Hotkey Groups, Edit Species, Reset All Settings to Defaults, Delete and Recreate Database, View GPS Test Data, and Recovery

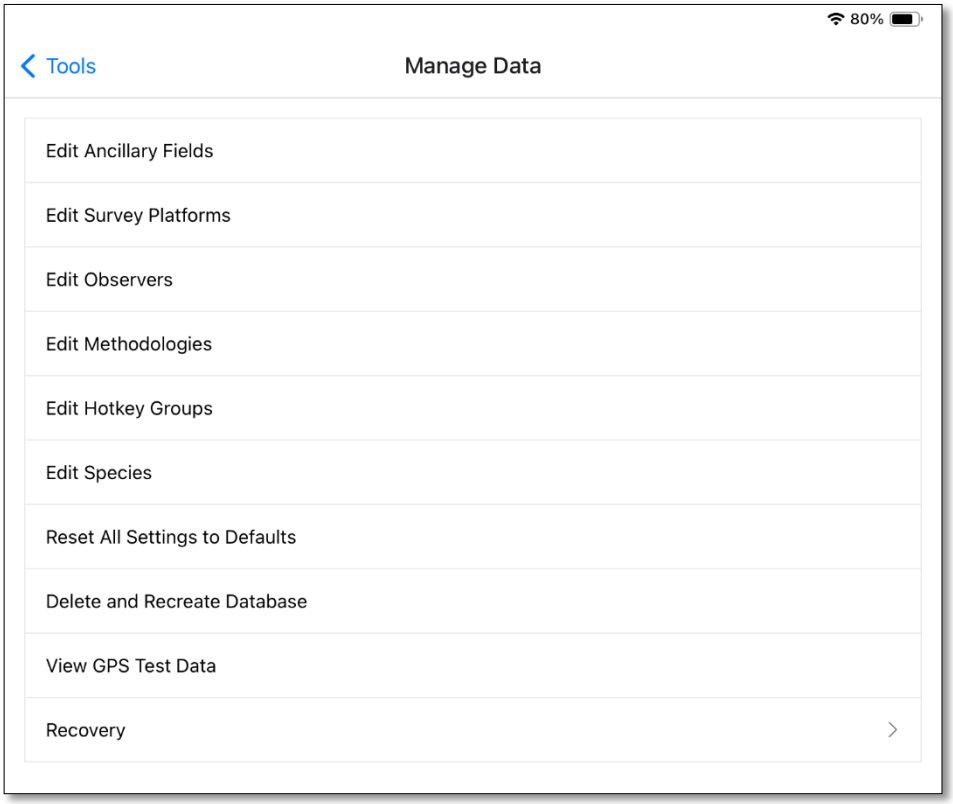
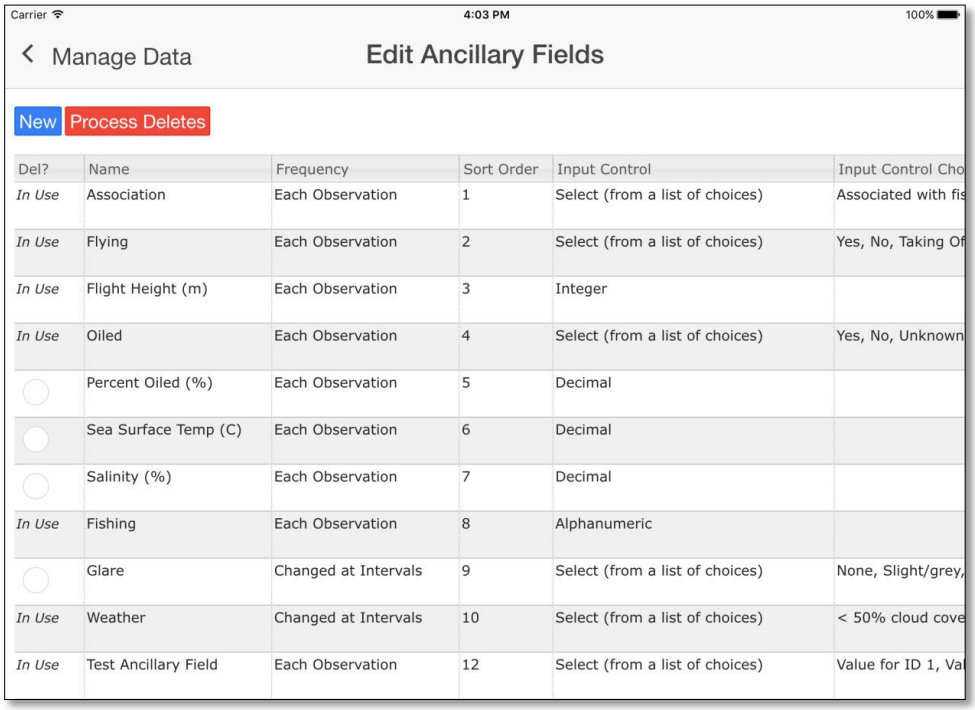


Figure 70: Manage Data Tools

Continue to the following pages to learn about the edit options within the Manage Data Tools. The links above can be used to jump to certain features.

Edit Ancillary Fields

You will see in the Edit Ancillary Fields table a list of the ancillary fields that have been added and the information about those fields (Figure 71). Here you can edit fields that are not in use, delete fields that have not been used, and add new fields.



Del?	Name	Frequency	Sort Order	Input Control	Input Control Cho
In Use	Association	Each Observation	1	Select (from a list of choices)	Associated with fis
In Use	Flying	Each Observation	2	Select (from a list of choices)	Yes, No, Taking Of
In Use	Flight Height (m)	Each Observation	3	Integer	
In Use	Oiled	Each Observation	4	Select (from a list of choices)	Yes, No, Unknown
○	Percent Oiled (%)	Each Observation	5	Decimal	
○	Sea Surface Temp (C)	Each Observation	6	Decimal	
○	Salinity (%)	Each Observation	7	Decimal	
In Use	Fishing	Each Observation	8	Alphanumeric	
○	Glare	Changed at Intervals	9	Select (from a list of choices)	None, Slight/grey,
In Use	Weather	Changed at Intervals	10	Select (from a list of choices)	< 50% cloud cove
In Use	Test Ancillary Field	Each Observation	12	Select (from a list of choices)	Value for ID 1, Val

Figure 71: Edit Ancillary Fields Table

To edit a field, click the cell in a row you want to change that does not have the "*In Use*" designator. If the field is already in use, and you try to edit it, a warning is given that the field can't be edited because it is in-use by the listed methodologies (Figure 72). Once the ancillary field has been used in a survey, that field is locked from editing or deletion to preserve the information for that survey. You will need to add another ancillary field with the changes you desire.

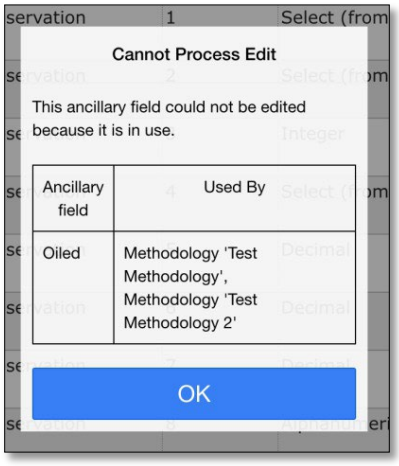


Figure 72: Ancillary field in use, Cannot Edit Prompt

To delete an unused ancillary field, click the open circle in the "Del?" column in the field of choice. Only those ancillary fields with rows that do not say "*In Use*" are able to be deleted. Click the red "Process Deletes" button to execute the ancillary field delete.

To add a new ancillary field, click the blue “New” button; doing so will open the “New Ancillary Field” dialog box where you can enter values for the new field. Click “Save” to save the new field or “Clear” to start over and “Cancel” to exit without creating a field (Figure 73).

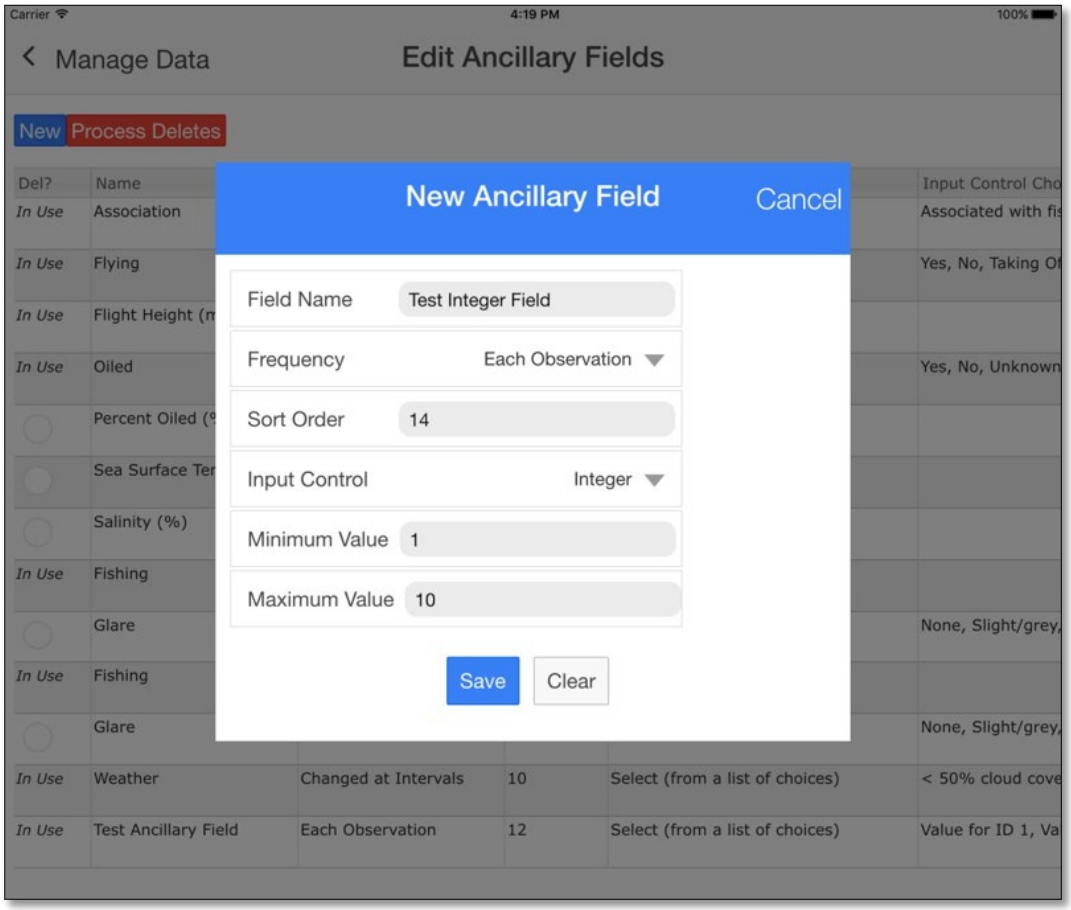
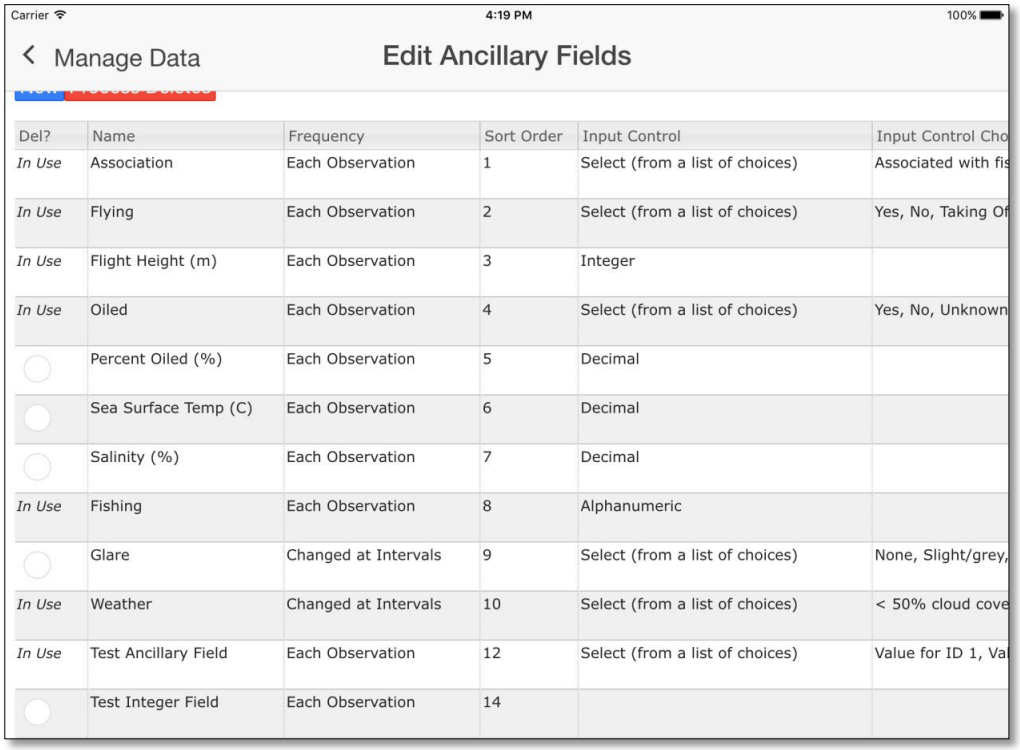


Figure 73: Enter a New Ancillary Field from the Edit Ancillary Field Form

Once created, the new ancillary field gets listed in the table and is available for use in surveys (Figure 74).

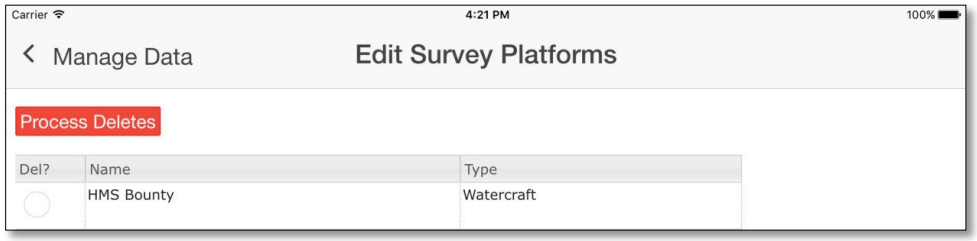


Del?	Name	Frequency	Sort Order	Input Control	Input Control Cho
In Use	Association	Each Observation	1	Select (from a list of choices)	Associated with fis
In Use	Flying	Each Observation	2	Select (from a list of choices)	Yes, No, Taking Of
In Use	Flight Height (m)	Each Observation	3	Integer	
In Use	Oiled	Each Observation	4	Select (from a list of choices)	Yes, No, Unknown
	Percent Oiled (%)	Each Observation	5	Decimal	
	Sea Surface Temp (C)	Each Observation	6	Decimal	
	Salinity (%)	Each Observation	7	Decimal	
In Use	Fishing	Each Observation	8	Alphanumeric	
	Glare	Changed at Intervals	9	Select (from a list of choices)	None, Slight/grey,
In Use	Weather	Changed at Intervals	10	Select (from a list of choices)	< 50% cloud cove
In Use	Test Ancillary Field	Each Observation	12	Select (from a list of choices)	Value for ID 1, Val
	Test Integer Field	Each Observation	14		

Figure 74: Addition of a New Ancillary Field

Edit Survey Platforms

The user can edit survey platform information or delete survey platform(s) from the database (Figure 75). Select the cell in the platform of interest to edit or click the "Del?" cell and click "Process Deletes" to delete.



Del?	Name	Type
	HMS Bounty	Watercraft

Figure 75: Edit Survey Platforms

To edit a text field simply click in the field and make the edits in the cell (Figure 76).

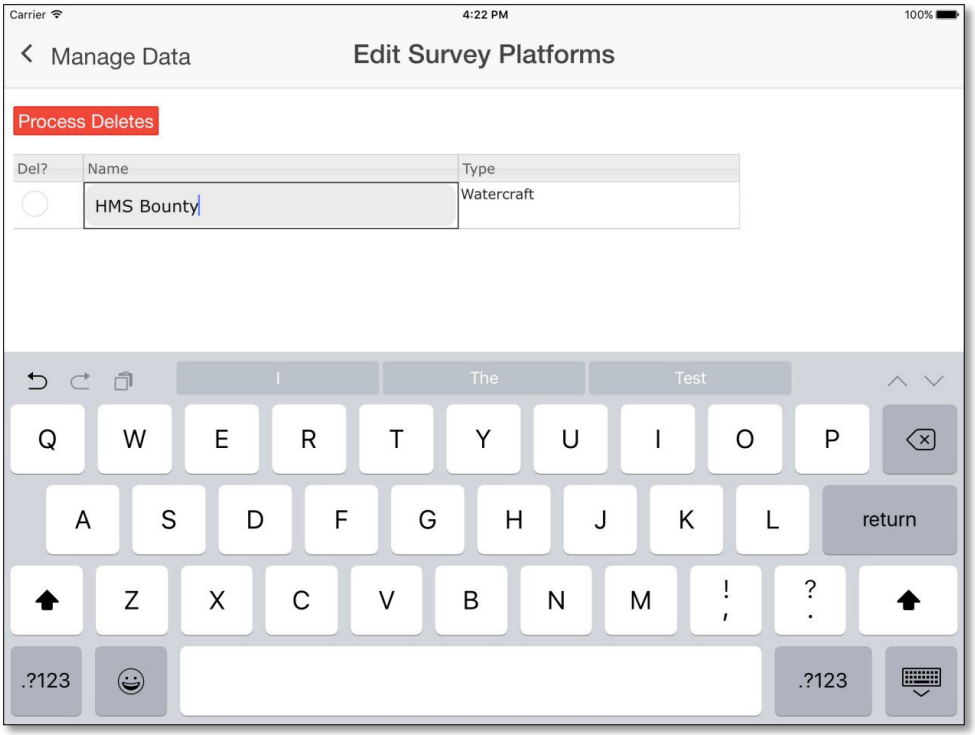


Figure 76: Edit a Text Field for a Survey Platform

To change a dropdown, click the dropdown box and select the desired entry (Figure 77).

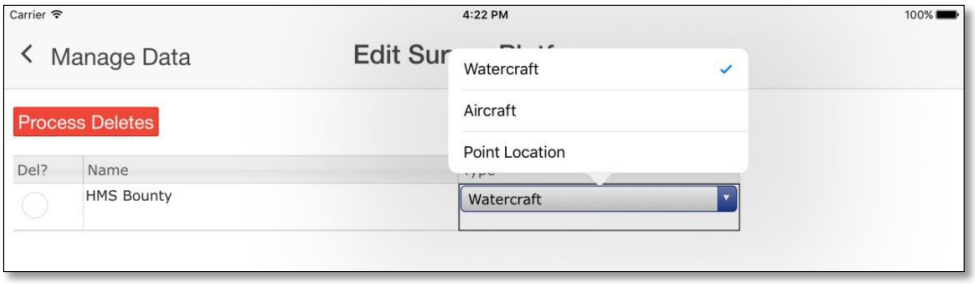


Figure 77: Changing a dropdown item for a Survey Platform

Edit Observers

The user can edit observer information or delete observer(s) from the database (Figure 78). Select the cell in the observer record to edit or click the "Del?" cell and click "Process Deletes" to delete. Editing observer fields follows in the same way as for survey platforms.

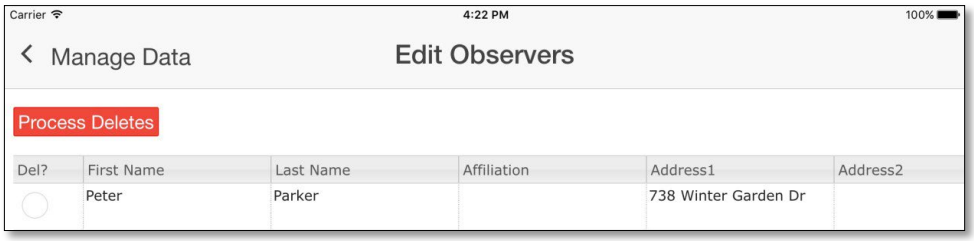


Figure 78: Edit Observers Data

Edit Methodologies

The user can edit methodologies or delete them from the database (Figure 79). Select the cell in the platform of interest to edit or click the "Del?" cell and click "Process Deletes" to delete.

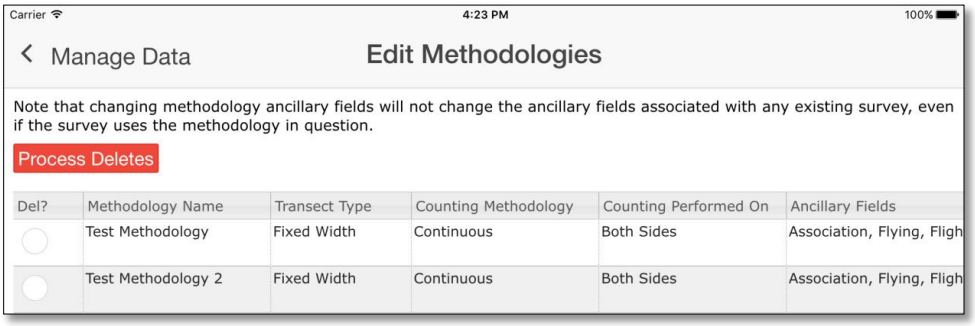


Figure 79: Edit Methodologies

To edit a text field simply click in the field and make the edits in the cell (Figure 80).

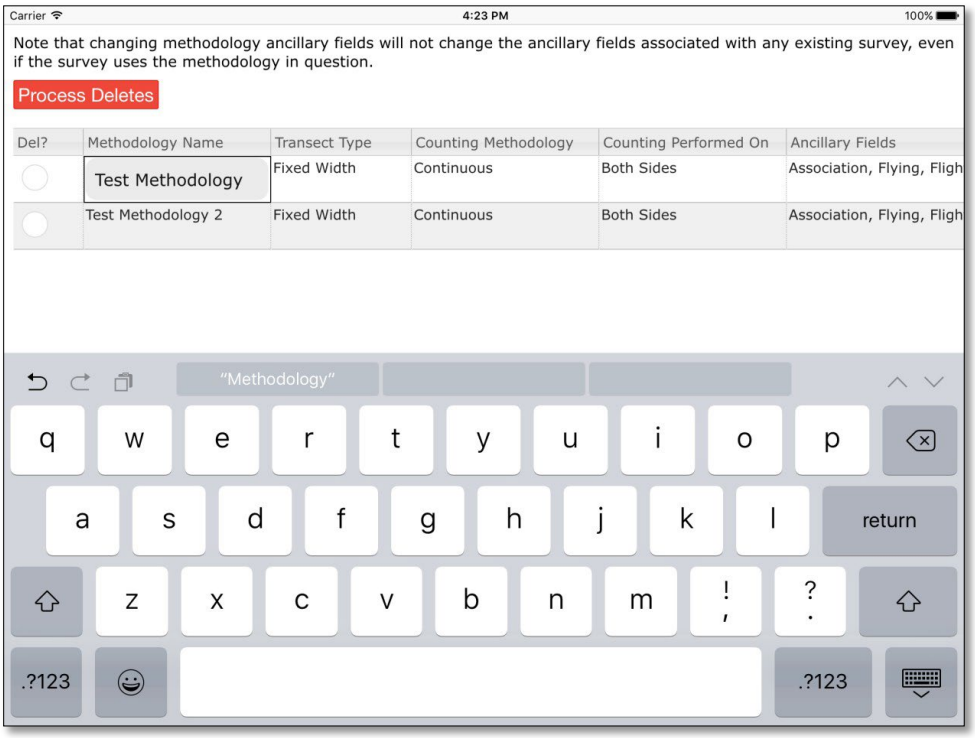


Figure 80: Edit a text field for a Methodology

To change a dropdown, click the dropdown box and select the desired entry (Figure 81).

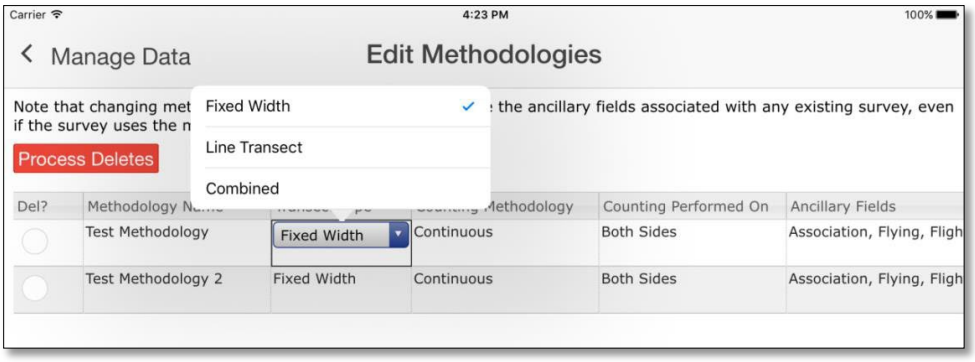


Figure 81: Changing a dropdown box for a Methodology

You can also modify the ancillary fields for a methodology using the select ancillary field dialog box (Figure 82).

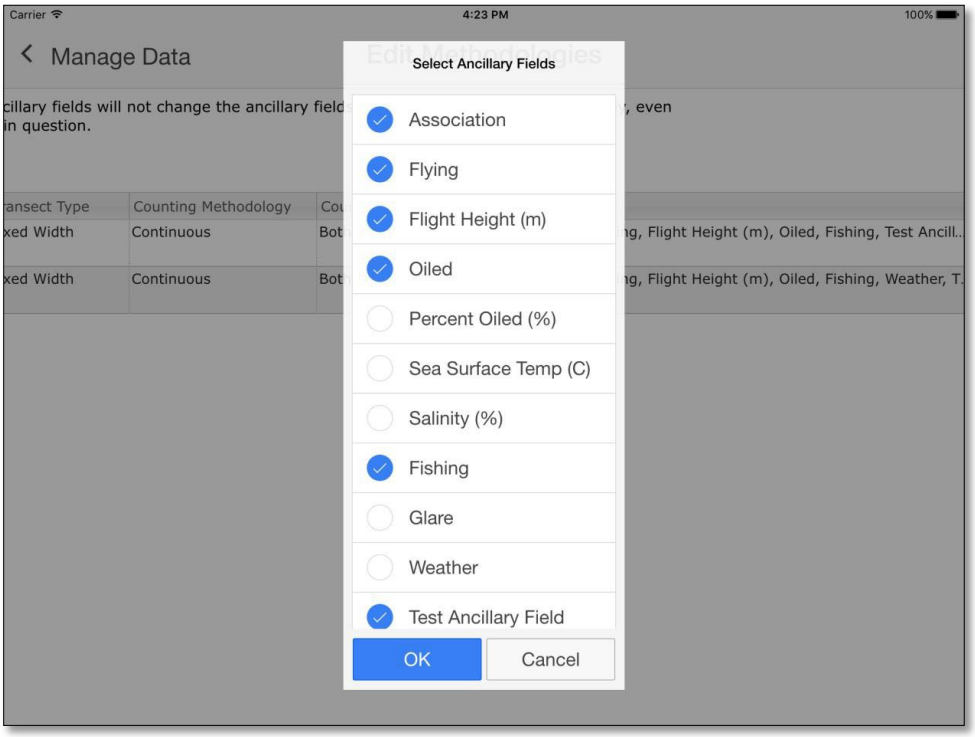


Figure 82: Modify ancillary fields dialog box in the edit methodologies window

Edit Hotkeys Groups

The user can add, edit or delete the Hotkey groups from the database (Figure 83).

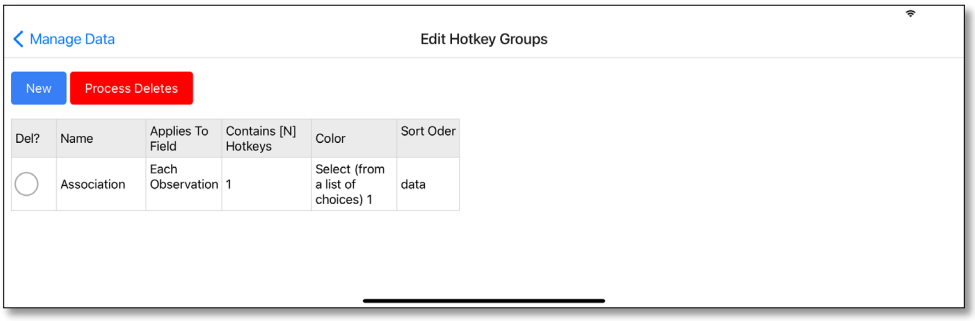


Figure 83: Edit Hotkey Groups

To add a Hotkey group, click **New**. Fill in the appropriate fields and click **Save**.

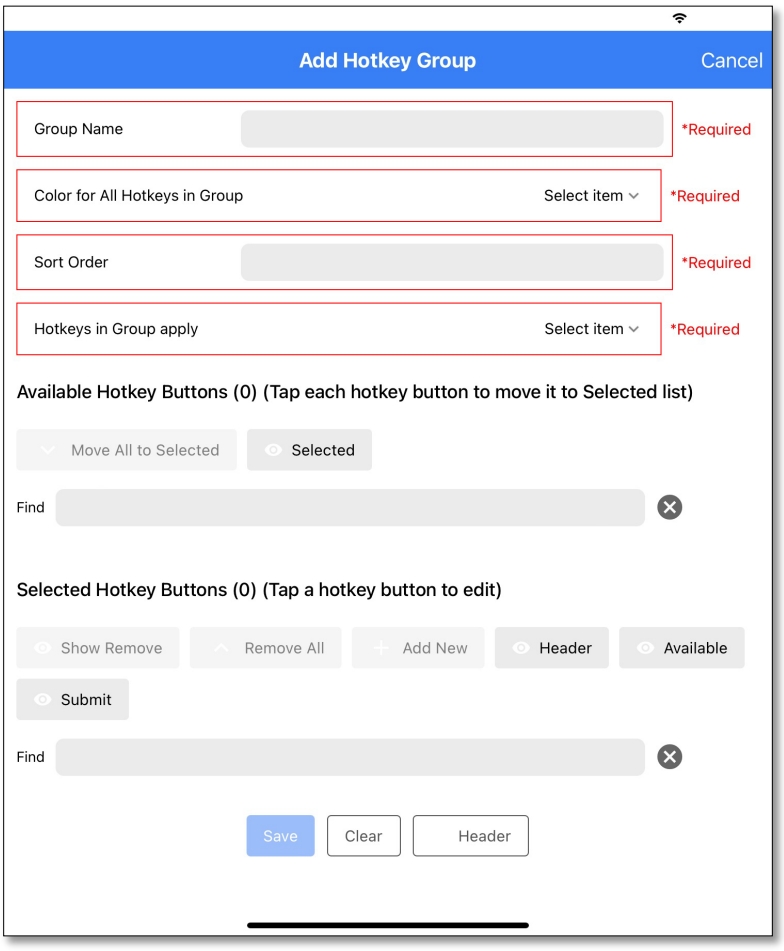


Figure 84: Add Hotkeys Group

To edit a field simply click in the field and make the edits in the cell.

To delete a group, select the radio button next to the cell and click **Process Deletes** to delete.

Edit Species

The user can add a new species list, edit species within a current list, or import/export a list from this menu (Figure 85). Users can also add, edit, or delete species from within a specific list.

Figure 85: Edit Species

Species List

To add a new list, click Add new list from the menu dropdown. Fill in the appropriate name and click Save.
To reset a list, click on the list. Open the menu dropdown and select Reset. Confirm the reset by clicking Yes.
To delete a custom list, long press on the list. Confirm the delete by selecting Delete.

Species

To add a new species to a list, navigate to the list and select the New button. Fill in the Code, Common Name, and select the Type from the dropdown. Click Save (Figure 86).

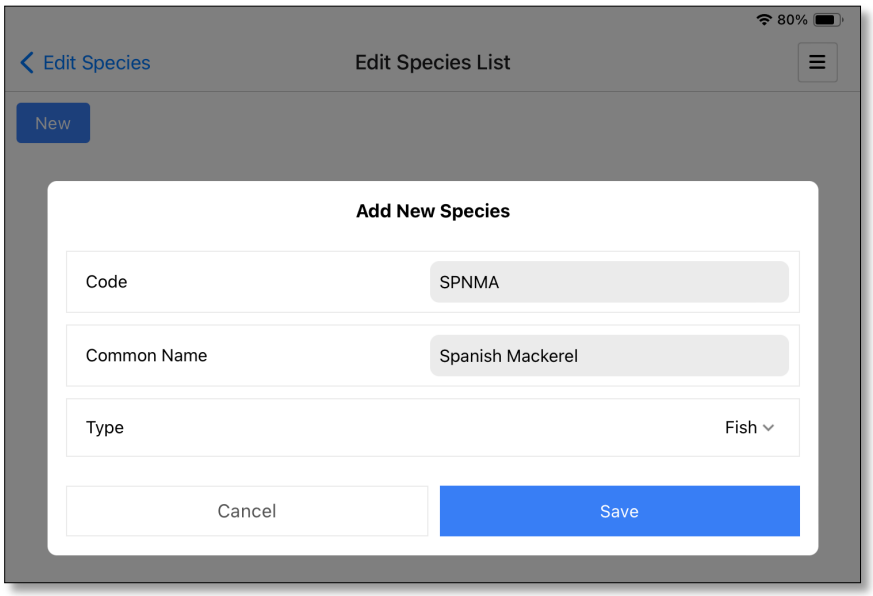


Figure 86: Add Species to List

To edit species within a list, click on the list. Locate the species and then update the appropriate fields.

To delete a species from a list, click on the list. Select the radio button next to the species and click the Process Deletes button. Confirm the delete by clicking Ok. ***If a species is in use, the user will not be able to delete.***

Import/Export Species List

Users can download a sample file for importing a species list. Within the species list, navigate to the menu and select Download sample from the dropdown.

To import species into a list, click on the list. From the menu dropdown, select Import. Choose the file to import, confirm the information that displays, and click Add (Figure 87).

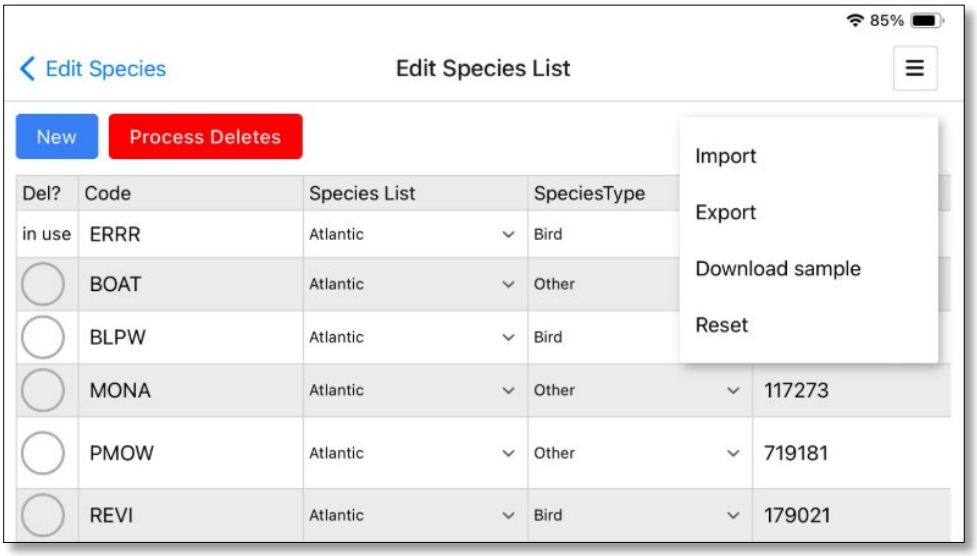


Figure 87: Import Species to List

Import options include Replace All, Append Valid Only, and Cancel.

To export species from a list, click on the list. From the menu dropdown, select Export. Select the destination for the file. The list will be saved as a .txt file.

Reset All Settings to Defaults

You can perform a reset on the settings by clicking on the **Reset All Settings to Default** button which will bring up the following dialog box.

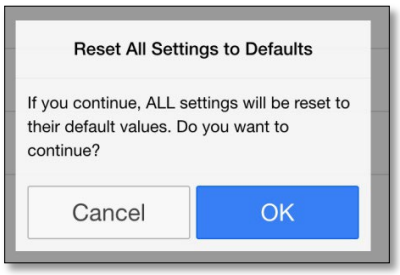


Figure 88: Reset all Settings to Default

Click **Cancel** to exit or **OK** to accept the factory reset.

Delete and Recreate the Database

The database can be reset, which will delete all data and reset the base database (Figure 89).
Caution should be taken as this will irreversibly delete **ALL DATA**.

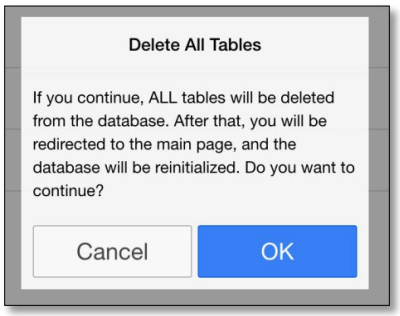


Figure 89: Delete all Tables Warning

You will be asked to confirm deletion and enter a confirmation code to complete the database reset (Figure 90).

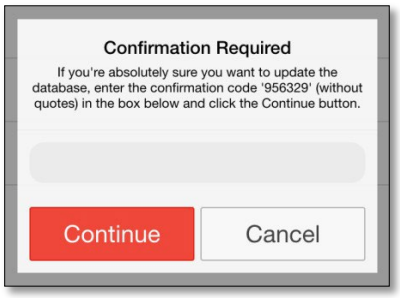


Figure 90: Confirmation Delete Warning

View GPS Test Data

View GPS test data if a GPS test was conducted using “GPS Test” in tools.

Recovery

Here you can back up SeaScribe to the local device and restore from the local device (Figure 91). Note that this function requires additional steps to restore to another device, if possible. No guarantee that this will work as intended. The best option for backup and recovery is using Android or Apple specific backup and restore features.

For example, using iTunes to back and restore a device and its application to a computer to which it is connected.

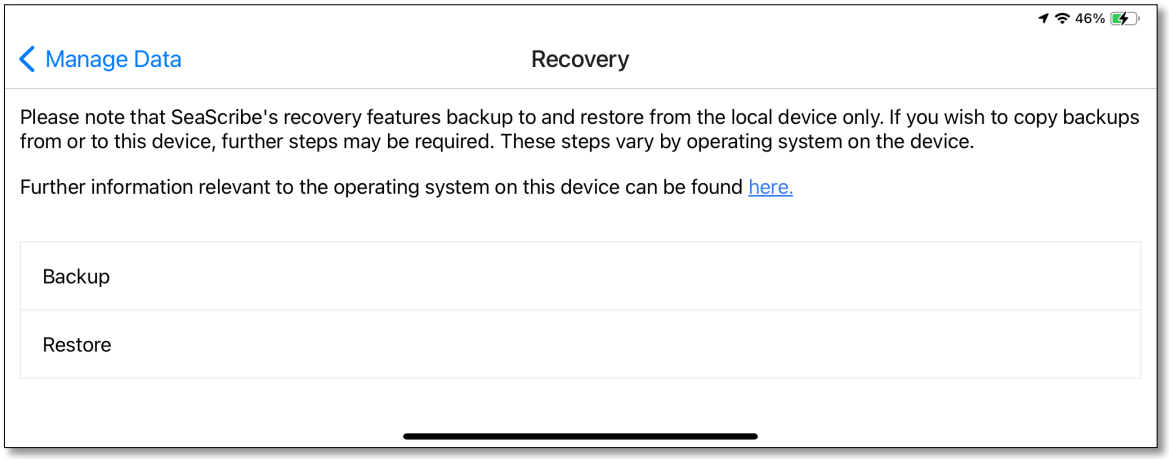


Figure 91: SeaScribe's backup and recovery function

Offline Maps

With access to the internet being typically unavailable during surveys, SeaScribe has a utility for caching maps while internet is available and using these maps while offline (Figure 92). This utility requires the user to move around the map and cache maps at various zoom levels. Pan to the area of the map that you think will be most useful for your survey efforts. By default, the map centers on your current location, if known.

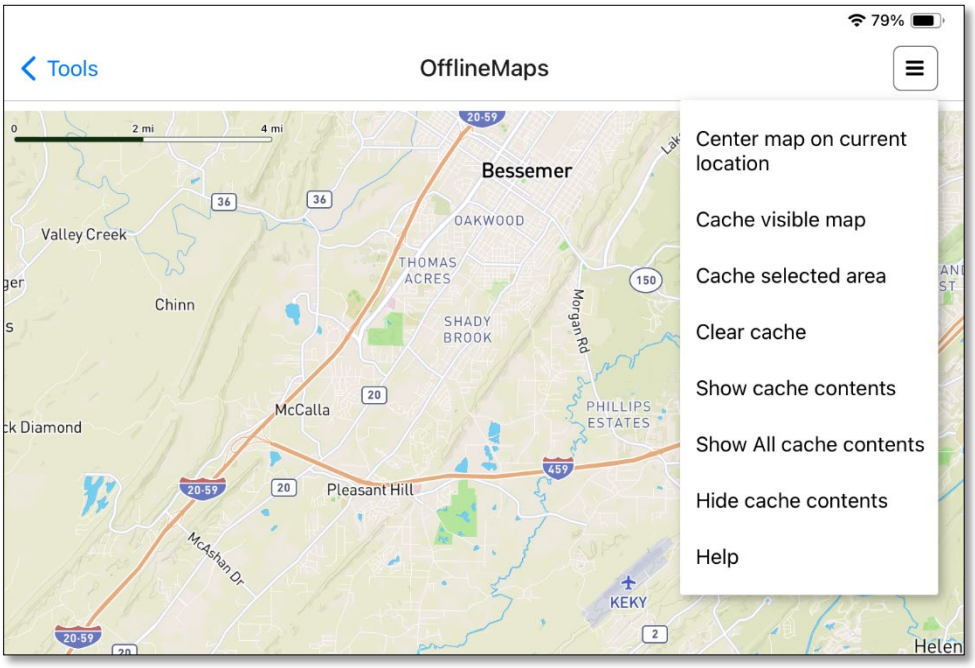


Figure 92: Offline Map Caching Utility

When you click on the hamburger menu button at the top right of the screen, a suite of available options drop down including: Center map on current location, Cache Visible Map, Cache selected area, Clear Cache, Show Cache Contents, Show all cache contents, Hide cache contents, Help.

Option 1: Cache Visible Map

When you cache the visible map, you are asked to set zoom levels to the upper and lower bounds you wish to cache (Figure 93). SeaScribe allows multiple zoom levels of caching to speed up the process of caching maps. When you open the Cache maps dialog (below) it sets the “From Zoom” and “To Zoom” to the current zoom level. Level 1 is the outmost view of the earth, while 11 is zoomed in the most.

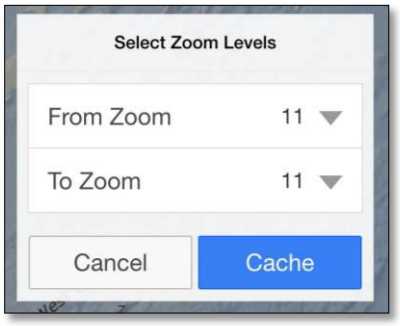


Figure 93: Select Zoom Levels Window

Select “From Zoom” and “To Zoom” and click “Cache” to begin downloading and caching map tiles or “Cancel” to exit. When you click “Cache” you will be asked to confirm the request for the specified number of tiles (Figure 94). As tiles are downloaded and cached, the progress will be followed at the lower left corner of the screen.

Figure 94: Confirm Cache Request Window

A dialog box will show when the cache request is complete, and the number of tiles and size of the cached tiles will be shown in the lower left hand corner of the screen (Figure 95).

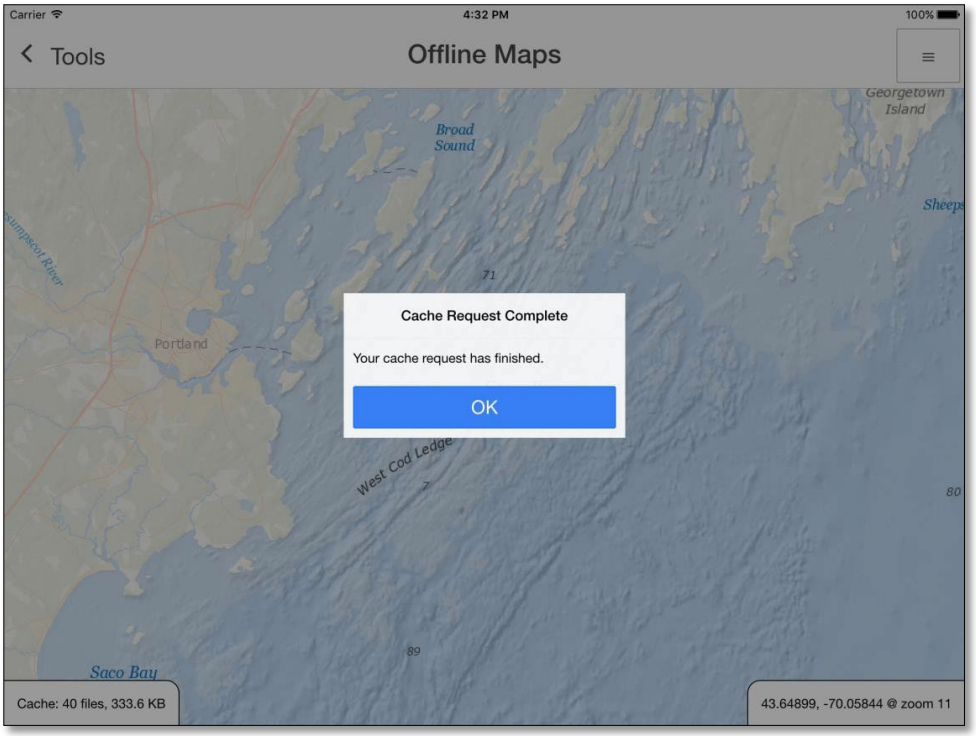


Figure 95: Cache Request Complete Window

Option 2: Cache Selected Area

Users can now cache a selected area of a map by drawing points on the map. From the menu, select **Cache Selected Area** to enable the feature (Figure 96).

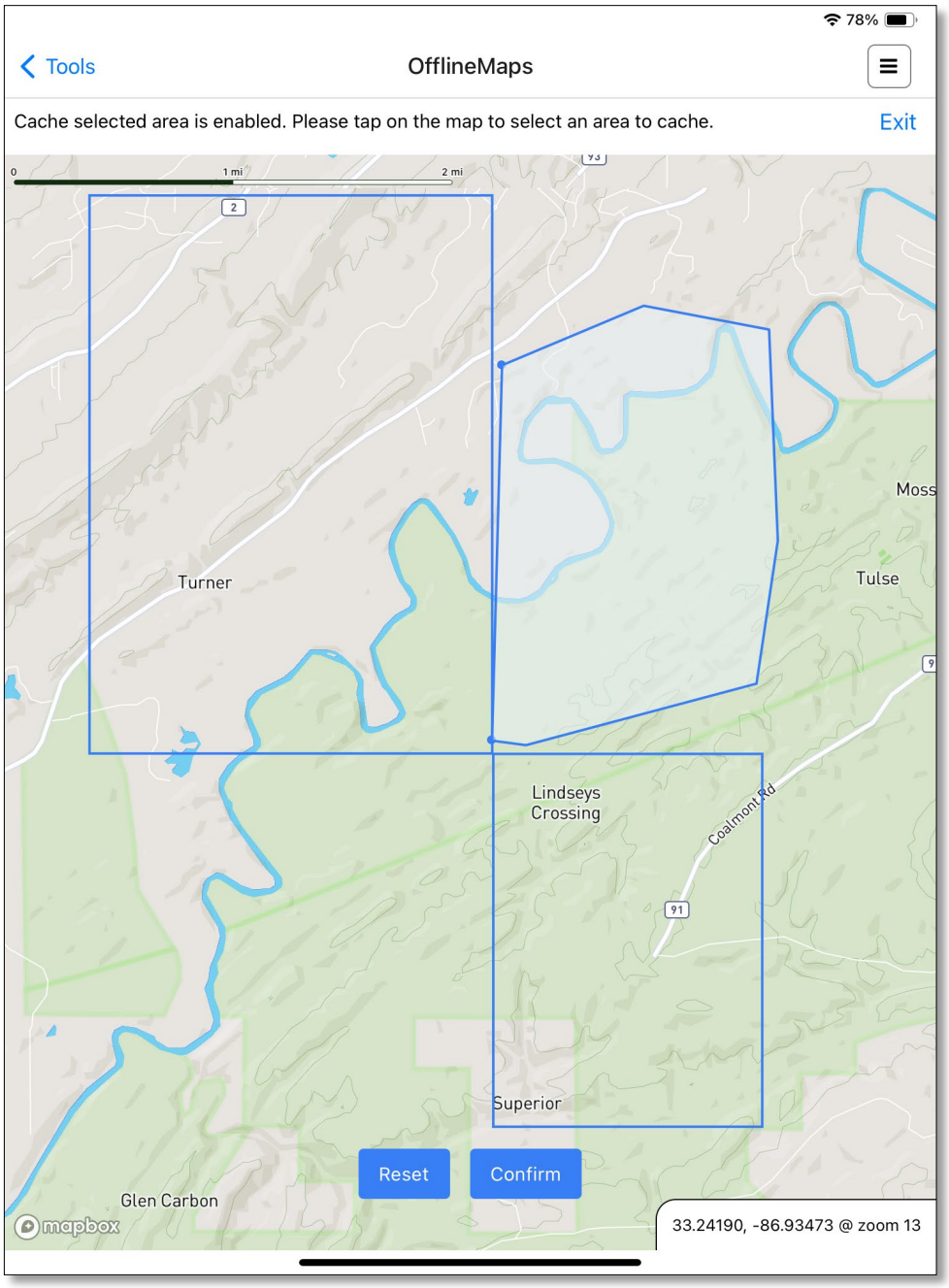


Figure 96: Cache Request Complete Window

Tap on the map to create polygons or unique shapes. There are no limits on the number of points for the shape. The shape can be reset by clicking the Reset button at the bottom of the screen. Once the shape is created, click Confirm.

By switching to offline mode, you can check to see if the needed map tiles have been cached for use later. Wherever map tiles are missing, the map screen will show gray background (Figure 97). Switching back to online mode will allow you to download any additional tiles needed.

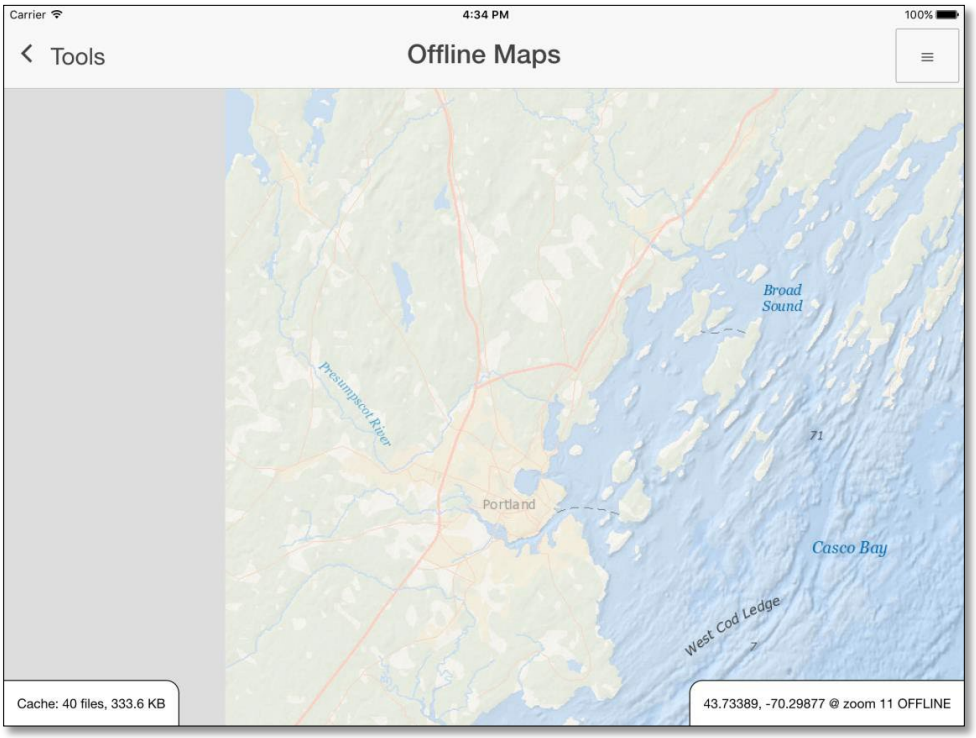


Figure 97: Offline Map viewing missing (gray) map tiles

By selecting “Show cache contents” you can see the list of cached map tiles and go to a cached map tile by clicking the blue “Go” button next to the tile you want to pan to (Figure 98).

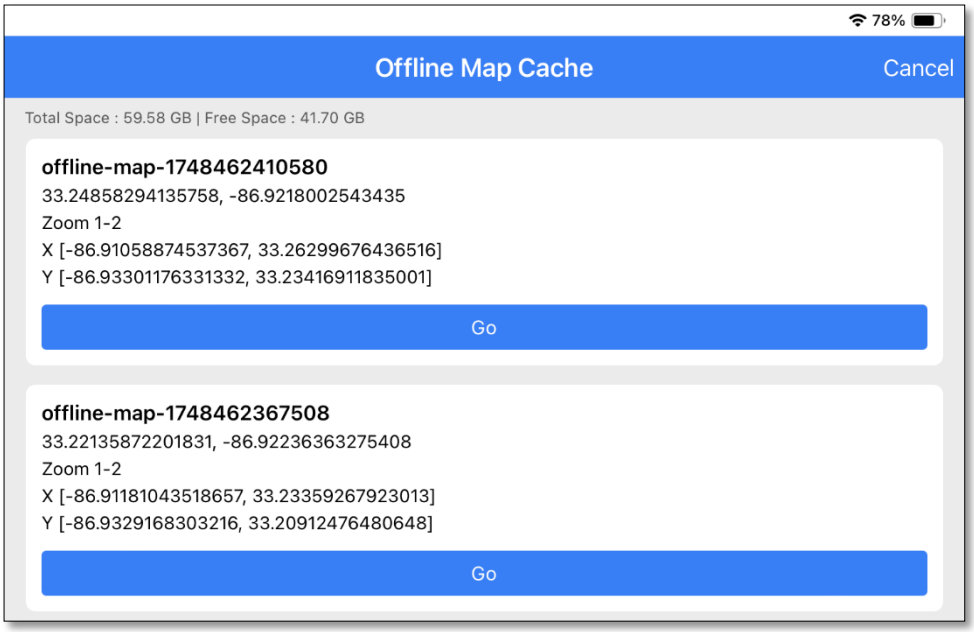


Figure 98: Offline Map Cache List

Map tiles will be available until you clear the cache. Note that continuing to cache map tiles uses up storage on the device which will only be released when the map cache is cleared. You will be asked to confirm cache clearing (Figure 99).

Figure 99: Confirm Cache Clearing Window

Once confirmed the cache cleared dialog box will display. Click **Ok**. Clicking help will give guidance about the processing of caching tiles.

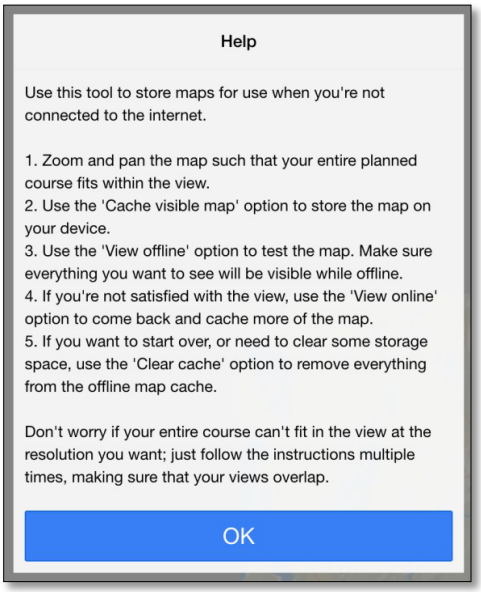


Figure 100: Cache Clearing Help Window

GPS test

This tool allows the user to test GPS functionality and returns the latest 10 entries when enabled. Three options are available: get location now, start/stop interval collection, and start/stop positional collection (Figure 101).

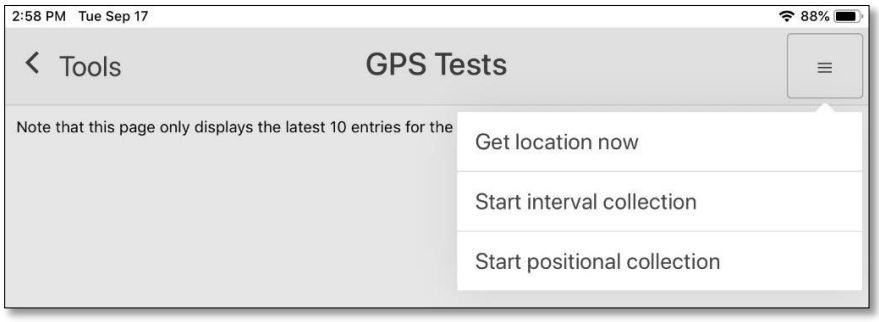


Figure 101: GPS Test options dropdown menu

This is mostly used for internal development testing but can be used to determine if you are acquiring GPS locations using either the positional or interval GPS settings. If not, position unavailable errors are given (Figure 102).

Figure 102: Positions unavailable during the GPS Testing

Application errors and enhancement requests

Currently SeaScribe undergoes annual maintenance and upgrades to keep it working properly with the newest OS upgrades and add enhancements to the application. However, it is still possible that the user will encounter errors (bugs) in the software or want to make enhancement requests.

All errors and enhancement requests should be directed to BOEM at boemseascribe@boem.gov. It is hoped that annually all bugs and enhancement requests will be considered and addressed.

Feel free to direct all comments positive and negative to this address as well. We hope that SeaScribe will benefit the marine survey community for years to come.