

SEAN Sea otter monitoring SOP 4: Synchronizing GPS and camera

Revision History Log:

Previous SOP version	Effective Date	Revised By	Changes Made	New SOP version
-	September 2018	Jamie Womble	Initial version	1.0

Summary

The camera and GPS must be synchronized to the same hour, minute and second in order for the georeferencing software (RoboGEO) to properly assign locations to observations. The exact procedure for syncing the GPS and camera differs depending on the make and model of the equipment. This process must be completed before EVERY aerial survey, otherwise it will not be possible to geocode the photos.

Detailed steps

1. Review the GPS unit setup and be sure everything conforms to specifications in Appendix SOP4.1.
2. Acquire accurate time on GPS.
 1. Turn on the GPS and wait for it to acquire a signal and location from the satellites.
 2. Confirm that the time zone for the GPS is set to Alaska daylight time (ADT) (Alaska, Daylight savings = Auto/On). Verify that the time displayed by the GPS is about the same as other clocks in sight and is not in some other time zone.
 3. Bring up the GPS screen that displays the hour, minute and seconds in large font.



Figure SOP4.1 GPS showing time screen

3. Set digital camera time to match GPS.
 1. Turn on the digital camera and go to the date/time section under the system settings menu.
 2. Confirm the year, month and day.
 3. Enter a time slightly in the future. For example, if the GPS is reading 10:22:10, change the camera time to 10:22:40 and wait to press the confirm/set/enter button when the GPS time hits 10:22:40.
 4. This photo of the GPS time will confirm that the camera and GPS are synced.

Appendix SOP4.1: Garmin GPSmap 76CS(x) checklist

Removable Accessories

- Batteries – replace before every survey. It's preferable to not have to change batteries mid-flight, but bring spares along (2-AA) just in case.
- External Antenna – tape the plug connector in place to ensure it doesn't disconnect during flight. Secure antenna to window with most unobstructed, upward view. Strong, uninterrupted satellite reception is critical!
- USB/Serial Cables – use for connecting GPS to laptop or camera

Main Menu Settings

- Tracks:
 - Track Log = ON
 - Clear the memory before each survey
- Setup:
 - Record Method = Time
 - Interval = 00hrs 00min 01sec
 - Color (tracklog) = user preference
- System:
 - GPS = Normal
 - WAAS = Enabled
 - Battery Type = Alkaline
 - Text Language = English
 - External Power Lost = Stay On
- Display:
 - Display Mode = Auto
 - Daytime Color Scheme = user preference (Diamond = default)
 - Nighttime Color Scheme = user preference (Sapphire = default)
 - Backlight Timeout = 15 Seconds (to extend battery life)
 - Backlight Level = 0% (increase if screen is too dark)
- Interface:
 - Serial Data Format = GARMIN (unless connected to a camera, then NMEA In/NMEA Out)
- Time:

- Time Format = 24 Hour
 - Time Zone = US – Alaska (UTC Offset = -09hrs 00min)
 - Daylight Savings Time = Auto
- Units:
 - Map Datum = WGS 84
 - All other Unit settings are user preference
- Altimeter:
 - Auto Calibration = ON (elevation is corrected by GPS)
 - Barometer Mode = Variable Elevation
 - Pressure Trend Recording = Save When Power On

Other Settings

- Press the Find button and select Waypoints. Make sure you have the most updated list of waypoints for your route loaded onto your GPS.