

# SeaTrack

A processing software that is used to create a position track using the data collected by SeaWatch. Using SeaTrack, the collected positions that are derived from the magnetic field intensity and noontime values can be refined by setting data parameters and filtering the outliers, thus producing measurable data.

**Unprocessed Log** — View and process a SeaDock log file.

**Daily Packets** —

**Log Info** — The Header Box contains the identification of the tag, when the log was downloaded, clock offset, and the firmware version. Below the Header Box, the Daily Packets and Sensor Packets are displayed.

**Sensor Packets** — The raw data that the SeaTag observed. The type of data collected will depend on the type of SeaTag you have. The sensors of the SeaTag take a snapshot every 4 minutes by default (known as the sensor sampling rate).

**Field Strength Map** — The tab section that is used to convert user logs into positions.

**Bounding Box** — The selected region of where the tracking took place is known as the bounding box. To open, or create a box, start from the upper left corner then left click and drag. Alternatively, to close the box, make a single left click. Draw the entire bounding box to the entirety of the map if positions do not appear. Be aware that when the entire map is selected there will be two similar magnetic strength zones in the bounding box and can distort data by reflecting the plotted points. The reason is that there may be two magnetic field lines of the same value in the Southern and Northern hemisphere.

**Settings** —

**Map Settings** —

**Atlantic Centered** — Selected tracking region of the Atlantic Ocean, depending on roaming area of user target.

**Pacific Centered** — Selected tracking region of the Pacific Ocean, depending on roaming area of user target.

**Filtering** — Set the parameters before plotting the data to remove any outliers and refine the position track.

**Average (days)** — To visualize clearly the animal's path enter the number of days to smooth the position track. Since the tag can have a possible error of 35 nautical miles, take the error and divide by the average distance of the animal's daily migration (35 nautical miles divided by the distance of the daily migration of 35 nautical miles equals the number of days). It is recommended to apply different averages with low standard deviation and compare each map for narrowing a reasonable conclusion.

**Distance** — Enter the limiting distance that the observed animal can travel in one day.

**End Date** — If selected, the endpoint is plotted where the tag was last on the animal, excluding data gathered from situations where the tag was floating on the surface or remained on a deceased animal.

**Longitude Confidence** — Larger value equals greater confidence of -60 to 60 and 0 being the default.

**Start Date** — If selected, data will include the first reporting positions of the tag.

**Latitude Calculation** —

**Daylength Based** —

**Daylength Offset** — Noontime offset in minutes. Does not count if using Magnetic Latitude Calculation.

**Magnetic Field Based** —

**Search Area** —

**End (Lat. / Lon.)** —

**Start (Lat. / Lon.)** —

**Fixed Values** —

**Clock Offset** — Applies a fixed value offset (in seconds) to all clock values before position calculation. Enter the clock offset. This is only necessary if the offset is 2 minutes or more. This offset can occur from PC synchronization error or the tag can experience a clock drift. To compute the offset compare the ARGOS time stamp to the tag's reported time located in the engineering packet. Enter a positive value for the offset if the reported tag time is earlier than the actual time. Enter a negative value for the offset if the reported tag time is later than the actual time.

**Default Settings** — these are the parameters that are suitable for most tagging expeditions

**Lat.** — Allows for user to select a fixed latitude.

**Lon.** — Allows for user to select a fixed longitude.

**Magnetic Offset** — Enter the magnetic offset to correct the reporting magnetic field. This selection applies a fixed value offset (in nT) to all magnetic field values before position calculation.

Determining the offset: Observe the reported magnetic and latitude/longitude of where the tag was deployed. Using NOAA's magnetic field calculator ([link](#)), enter the known tagging latitude/longitude to get the actual magnetic field of that location. Subtract the tag's observed value from the predicted value to get the offset. To verify the offset, repeat the procedure using the location of where the tag was released. This offset should be similar to the value at the start of the track, defining a constant.

**Processed Position Data** — The data that was processed through SeaTrack, and lead to the reation of the positional track.

**Green Fish** — Click the green fish (located near the bottom right of the window) to process data and compute positions, as well as abort data processing. Clicking the picture of the gear fish at the bottom of the window will start the log processing and generate positions using the default 10 day averaging, no distance filtering, and no magnetic offset. If you know your animal cannot travel more than a certain distance per day, or that the magnetic sensor in your unit needs an additional offset, then feel free to enable these options in the Filtering section of the Settings. If you decide you want to cancel the processing and change the settings after it has begun, you can click the gear fish again, or redraw the bounding box.