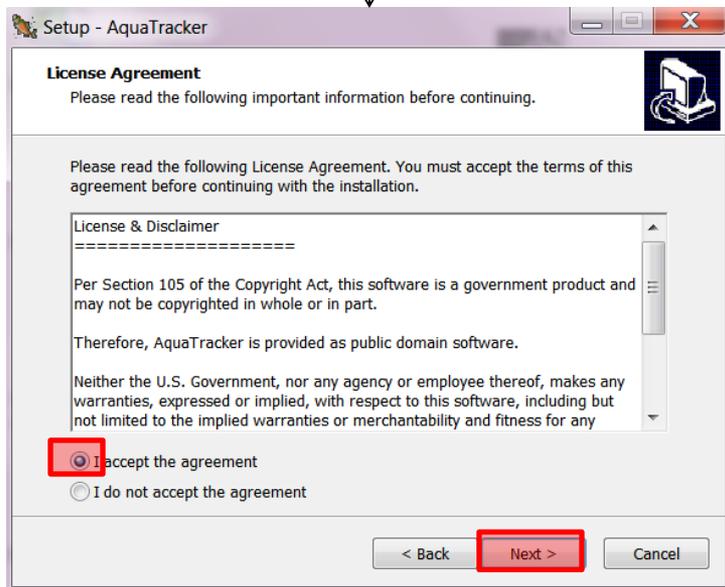
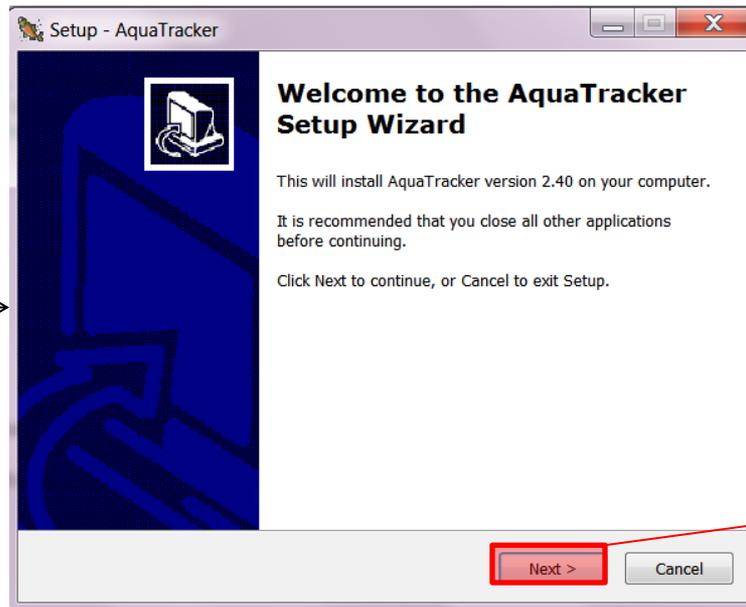


# Installing AquaTracker



The next prompts will ask where you want AquaTracker to be installed. Make sure you remember where you installed it.

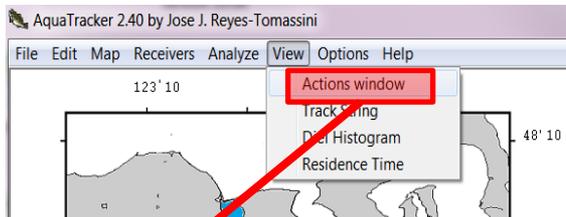
(There has been occasion when a user has installed it somewhere else and can't find the location of the AquaTracker.exe program. I suggest you install it in its default directory and that you allow a shortcut on your desktop menu.)

Once the installation is completed, you should see the following folder shortcut on your desktop:



We will be using the sample files in this folder throughout this guide. Thus, before you continue, make sure you know where the *AquaTracker Documents and Samples* folder is located on your computer!

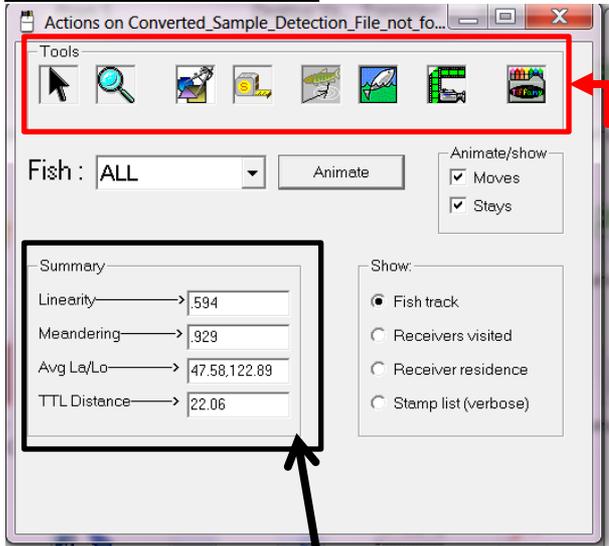
# Quick guide to the Program Interface



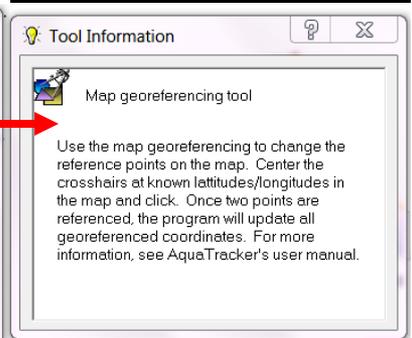
1

**Do this first:** If you have no data loaded, you need to go to **View**→**Actions window** to see the **Actions window** shown here.

## Actions Window



## Tool information/help



Using the right mouse button to click on a receiver will bring the receiver context menu.

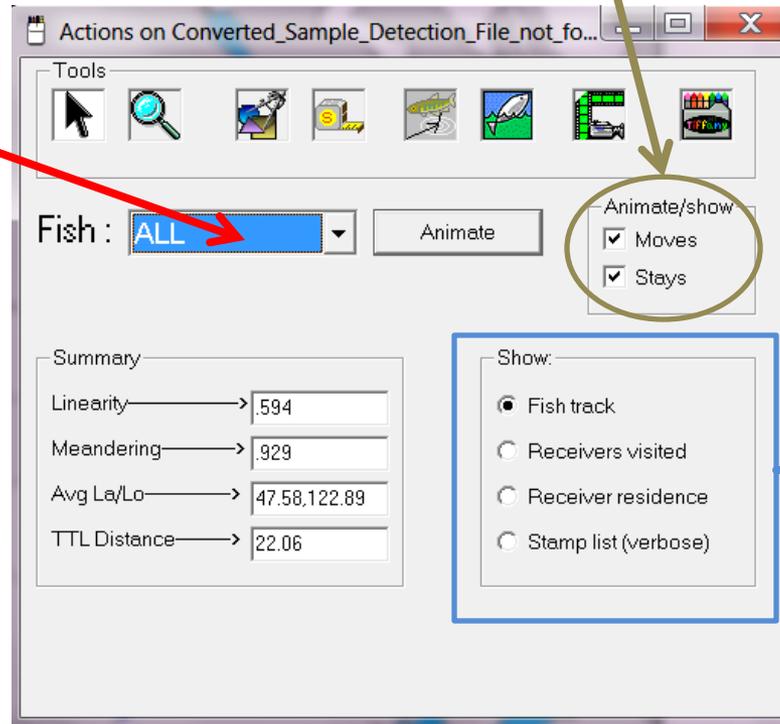
Averages for all tracks or the track selected

**Moves:** Shows track.

**Stays:** Shows receivers visited.

Can be used to “filter” detection histograms

Select fish from pull-down menu



**Fish track:** Graphs fish path thru receivers

**Receivers visited:** Shows receivers where fish was detected

**Receiver residence:** Heat-map and table of time spent at receivers

**Stamp list:** Shows “raw” detection data

If ALL is selected, some of the actions from the Show section will not work.



Together with the context menu for the receiver, the selection tool is used to obtain information about receivers and to select multiple receivers into a receiver group or draw a “geotag” zone.



The zoom tool allows you to focus on a particular area of the map to better visualize receivers and tracks.



Map calibration tool is used in AquaTracker only to geo-reference a map or canvas



The tape measure tool is used to find the distance between two points in a map or canvas



Fish track reference tool is used to draw a reference track for analysis or to analyze a reference track already selected



Fish corridor tool is used to draw fish corridors in the map. In combination with land-avoidance, it allows you to force the path of the fish so that it “stays in the water”



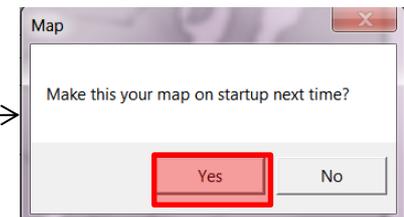
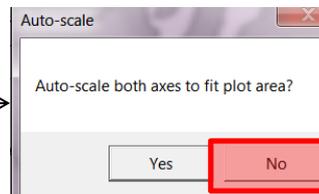
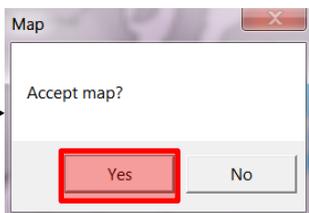
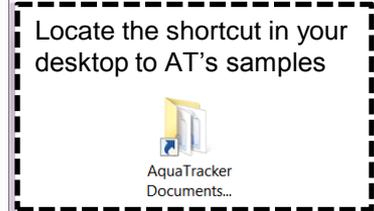
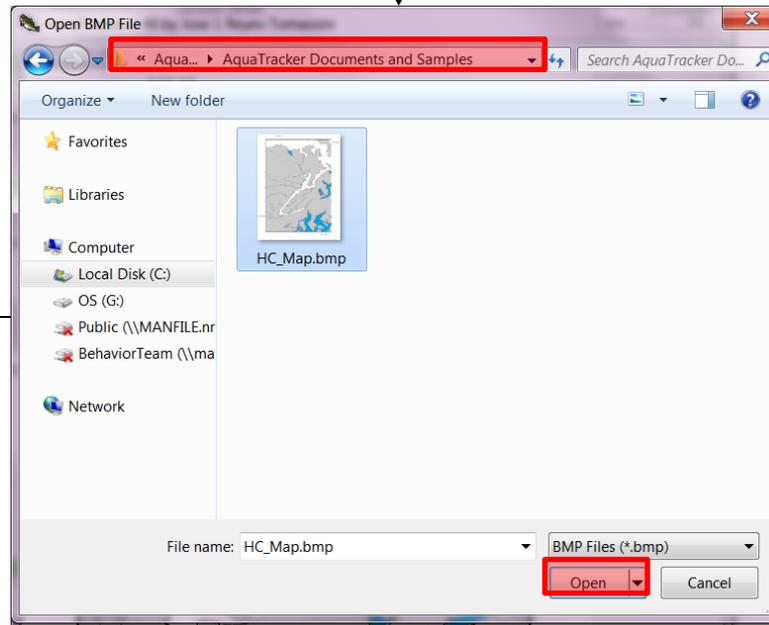
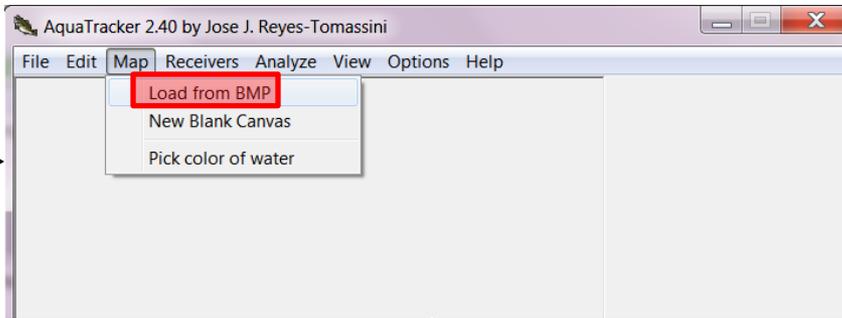
Animation/canvas capture tool. For computers with available codecs (most computers with stock versions of Windows), creates an AVI file that can be played as part of a scientific presentation. An example demo AVI is included in the installation package



The color selector tool is used to select a track color for the selected fish track

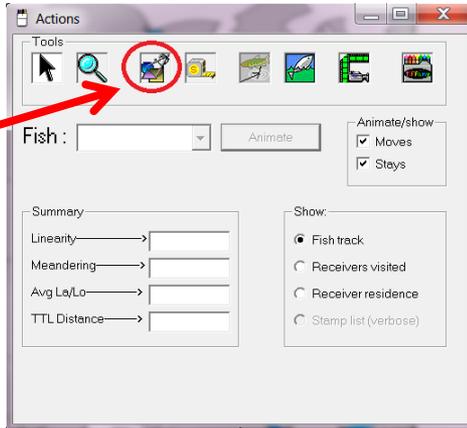
---

Loading a map

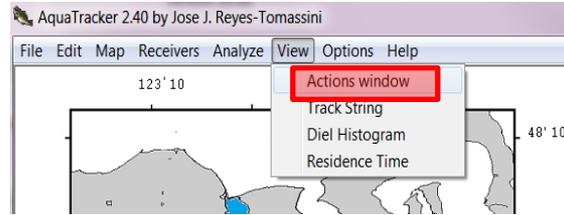


# Georeferencing a map

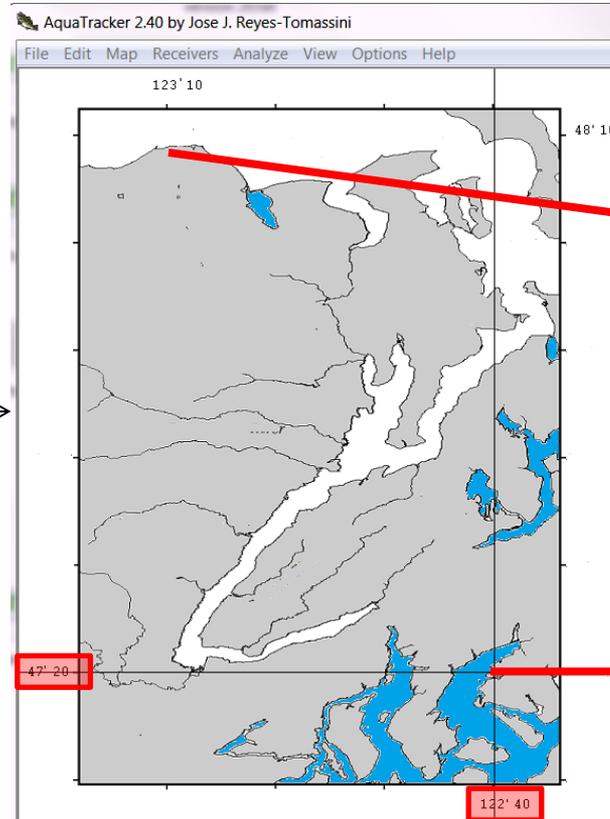
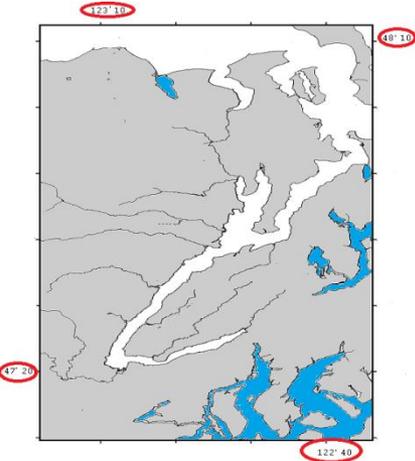
Click on the map geo-referencing tool



If this window is not displayed, go to **View→Actions window**

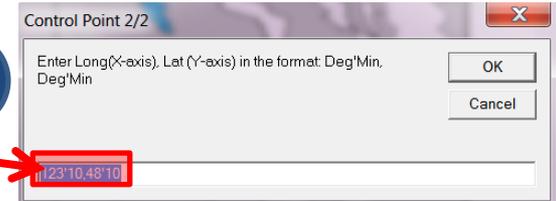


Notice:



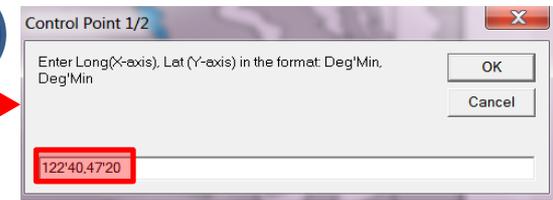
Enter the coordinates

2



Enter the coordinates

1

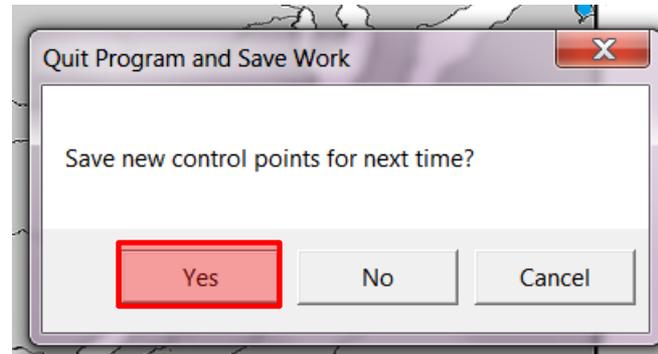


Move cross hair to coordinates



Note that you only have to do this once. However, if you change your map or decide to use a blank canvas, you may lose your control points.

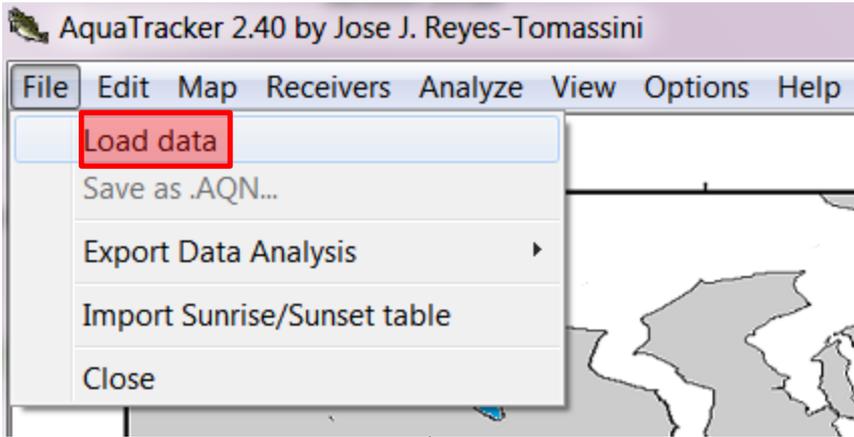
AquaTracker gives you a chance to save the geo-reference information just before you quit the program



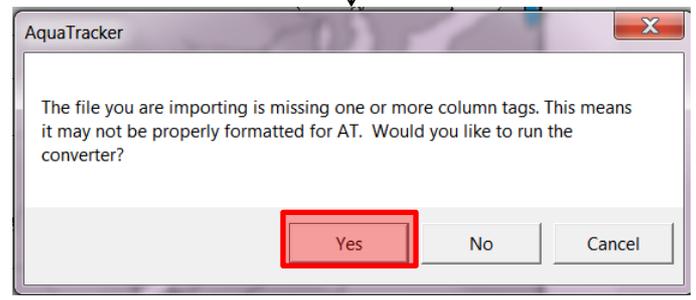
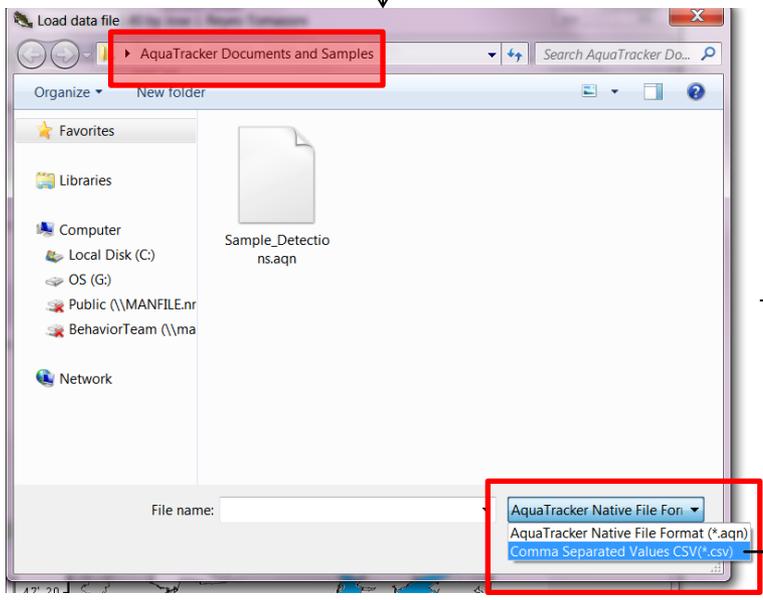
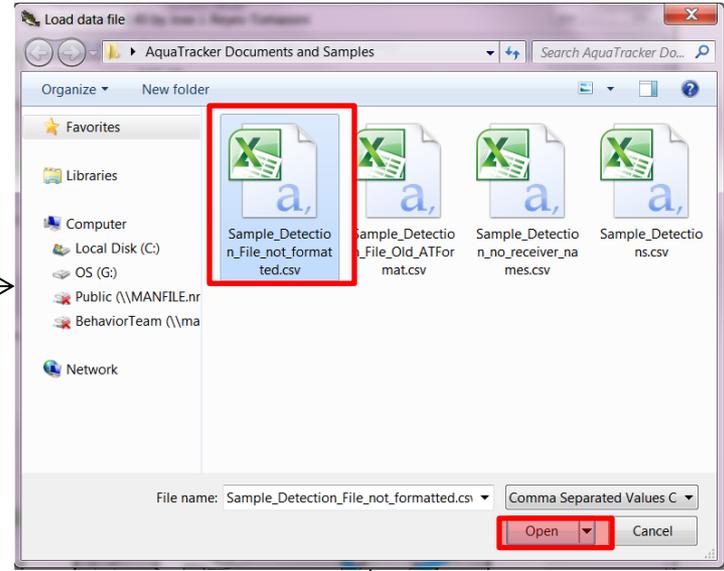
# Loading data that is not AT formatted

Using the sample file:

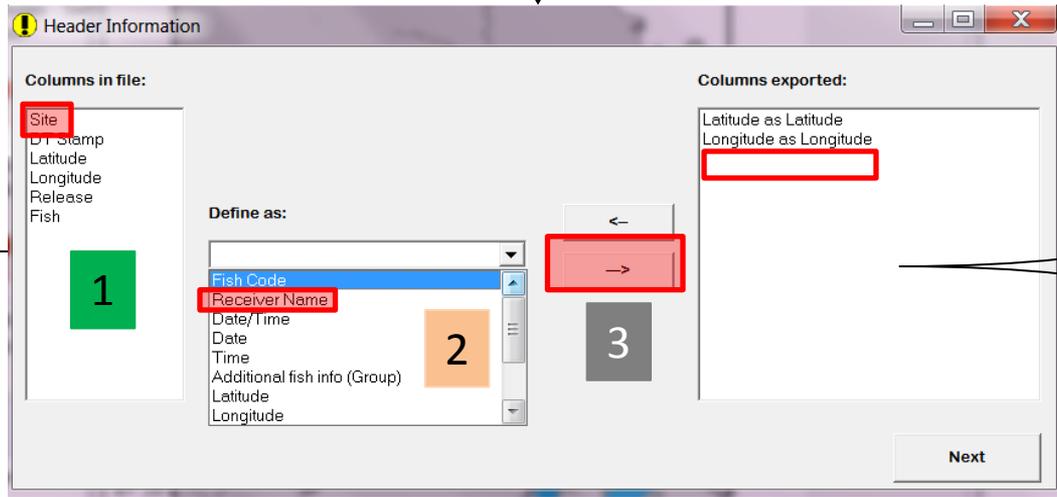
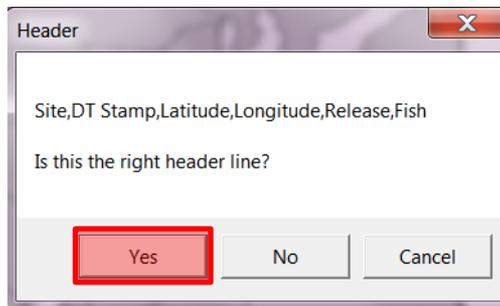
Sample\_Detection\_File\_Not\_Formatted.CSV



Sample\_Detection\_File\_Not\_Formatted.csv



After you click **Yes** on the last window, the Converter program will run. See next page.



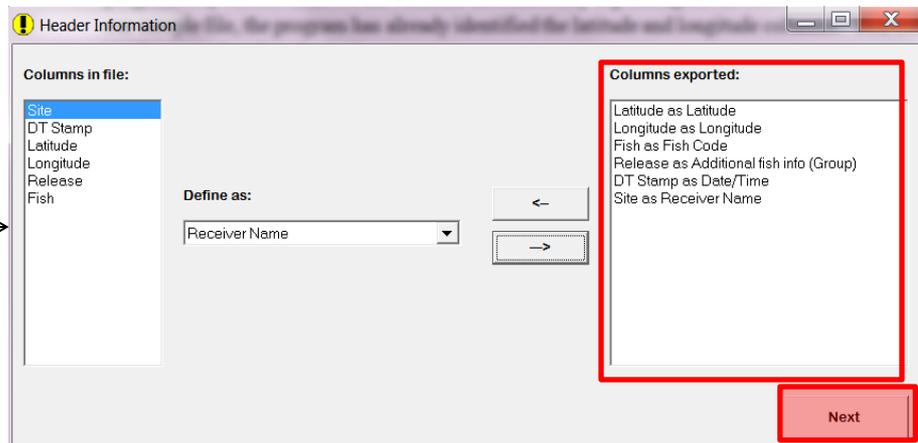
Site as Receiver Name

Fish as Fish Code

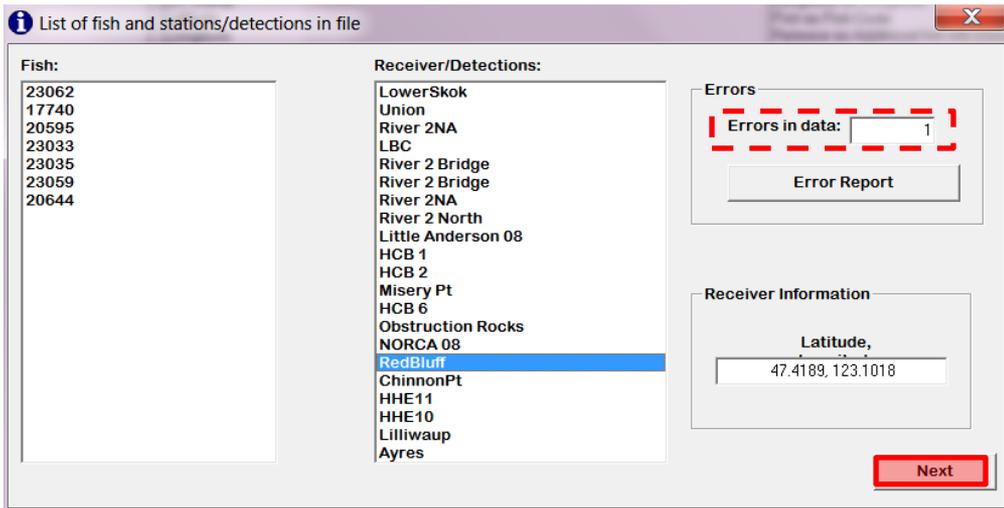
Release as Additional fish info (Group)

DT Stamp as Date/Time

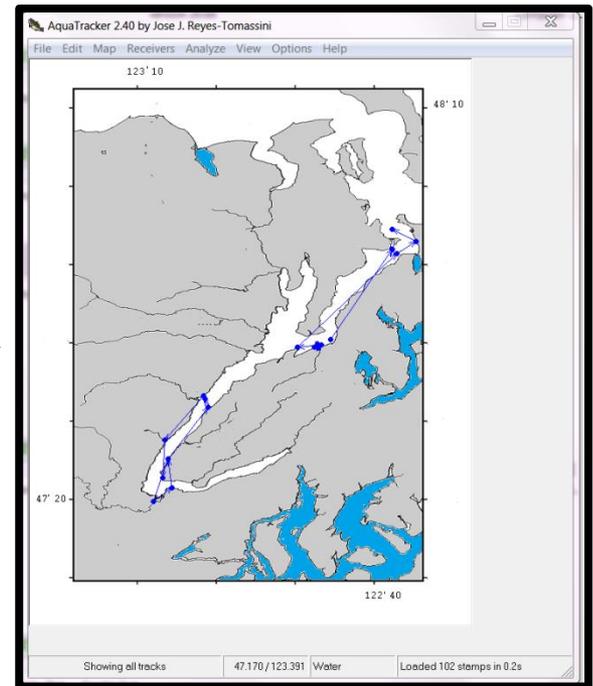
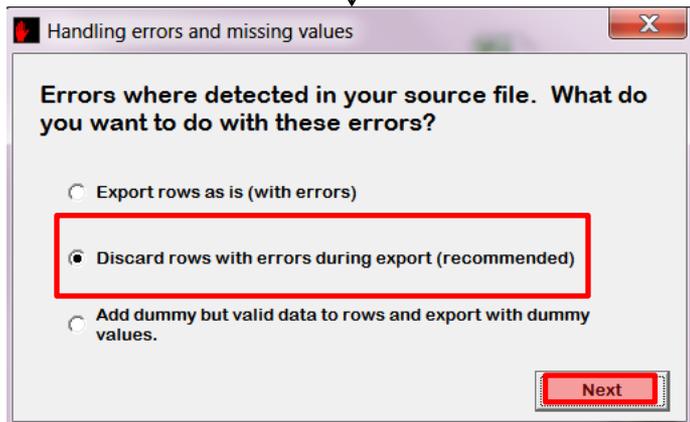
Use pull-down menu and arrow to generate the exported column assignments



When done, click Next



The sample file has an error to illustrate how errors are handled.



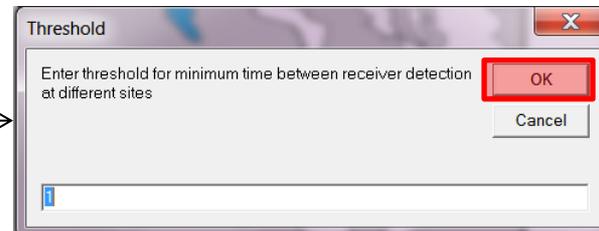
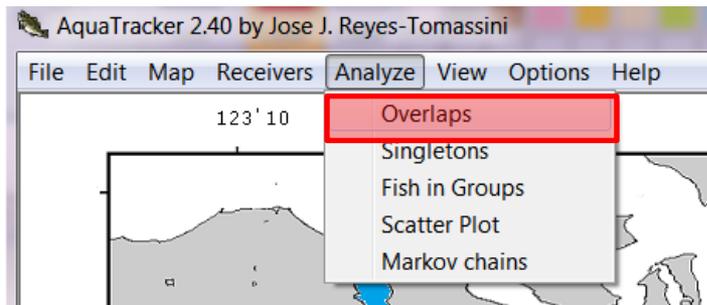
NOTE: The converted file is now in the same folder but with the name ***Converted\_Sample\_Detection\_File\_Not\_Formatted.csv***

# Data QC and Filters

Singleton detections and Overlapping Receivers

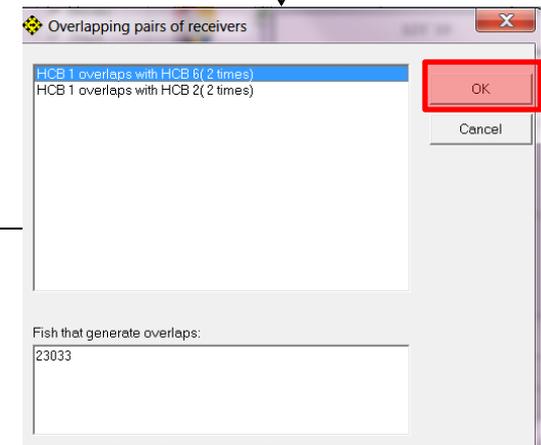
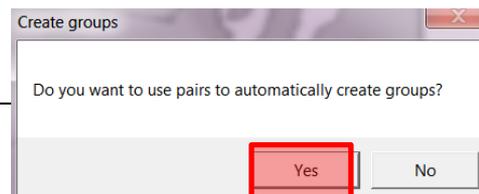
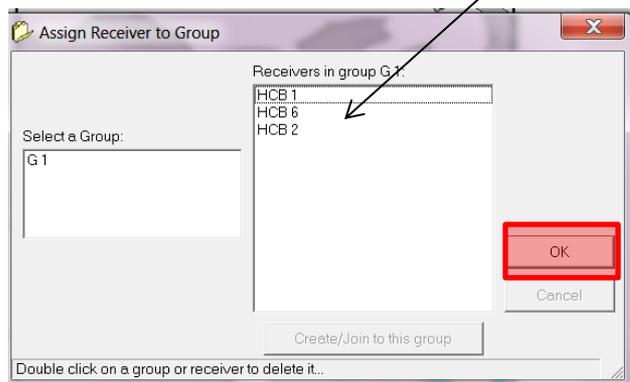
**Note:** I suggest you group receivers with overlap analysis BEFORE deleting any singletons...

# Overlap Analysis



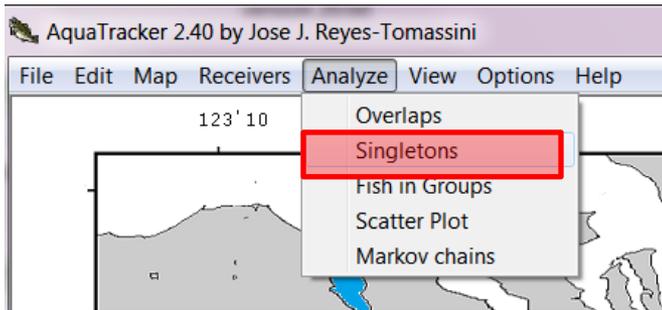
Default threshold is 1 minute. Do not change for this example...

These receivers will become one (G1)

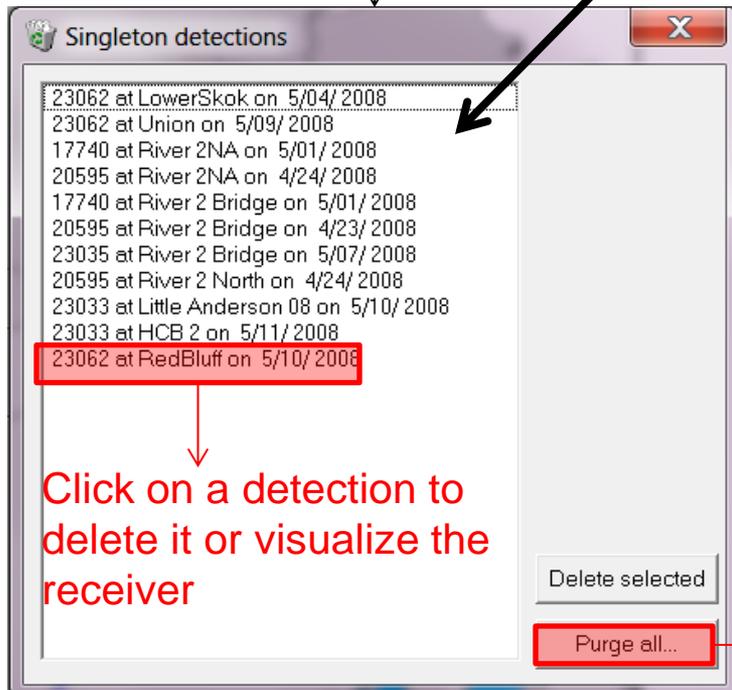


**NOTE:** When using overlap analysis, you don't need to click on **Create/Join to this group**. However, if you manually define groups, you will need to join them first before clicking **OK** on this window.

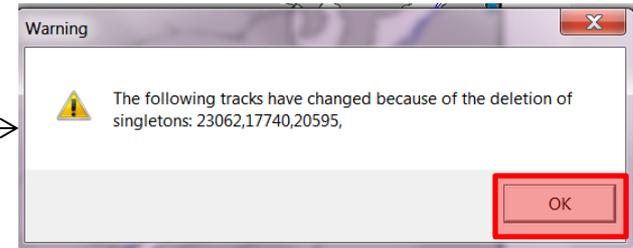
# Singletons



This are singleton detections. In each instance, the fish XXXX was detected at receiver YYYY once in a 24hr period.



Click on a detection to delete it or visualize the receiver

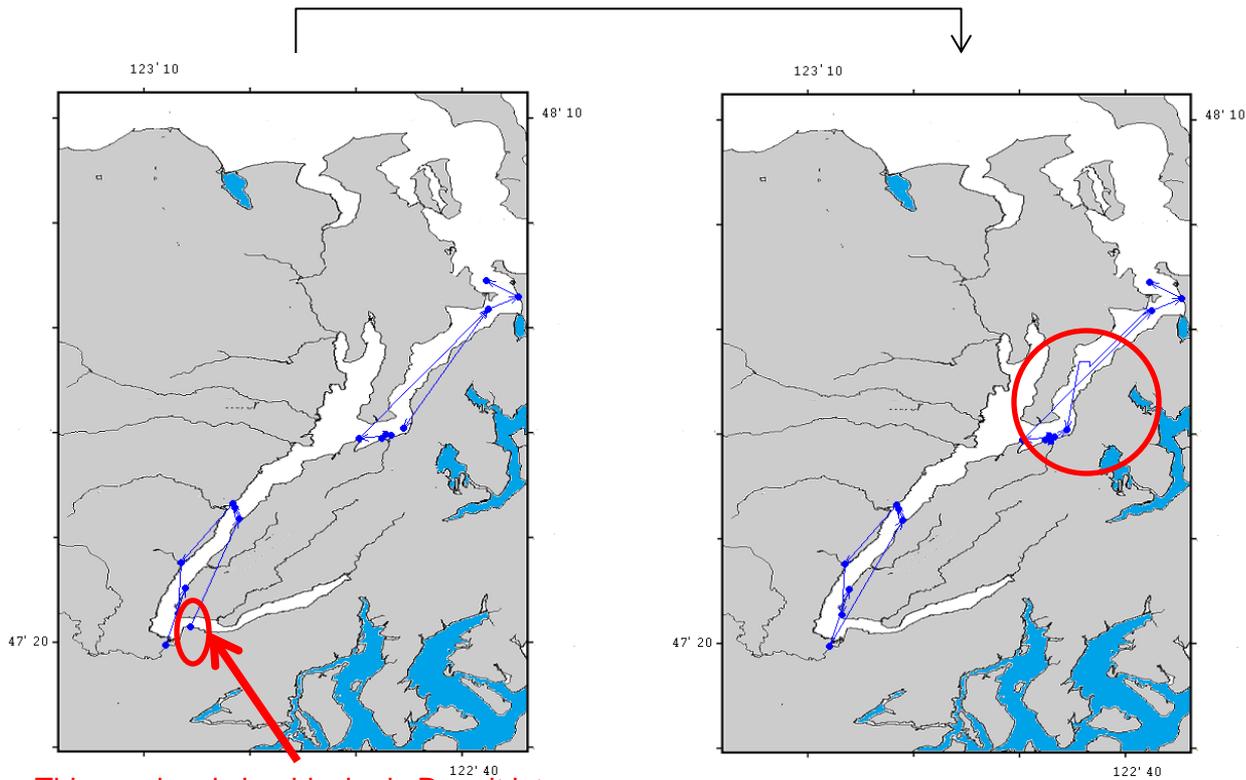
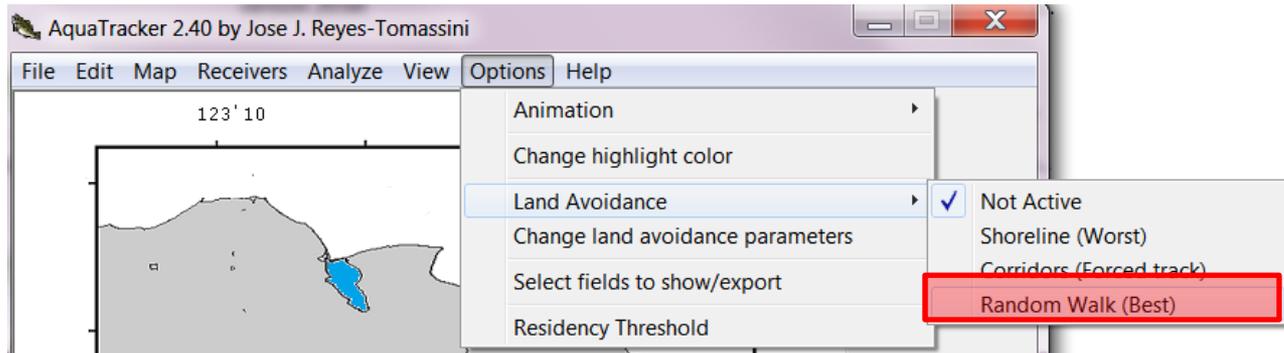


AquaTracker will issue a warning if a track changes due to deletion of singletons.

Click here to delete all detections in the singleton list

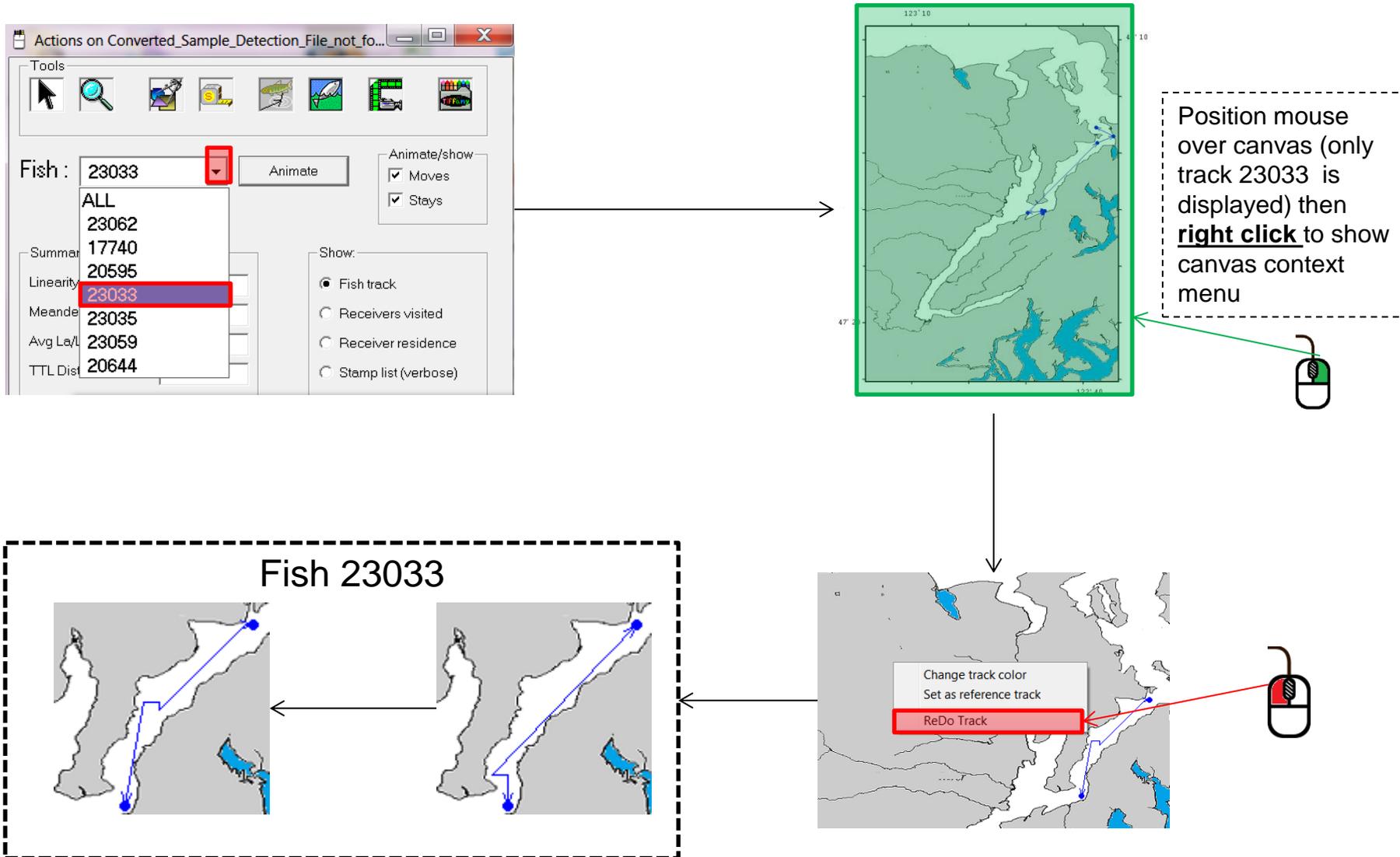
# Land-Avoidance

Random Walks



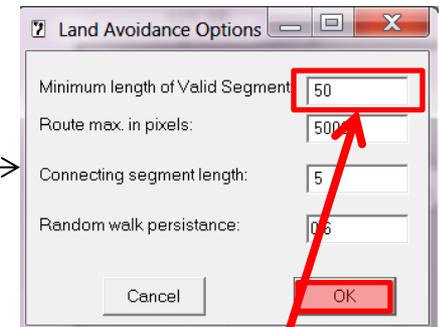
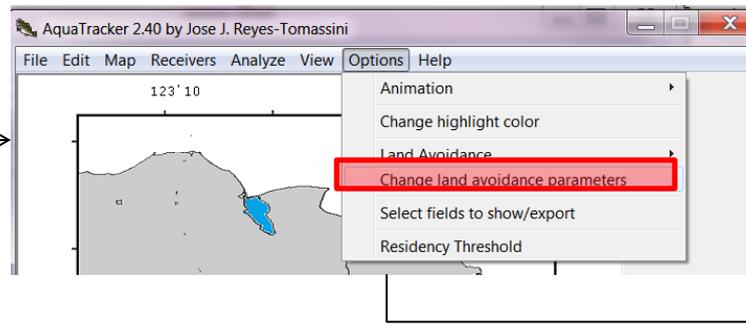
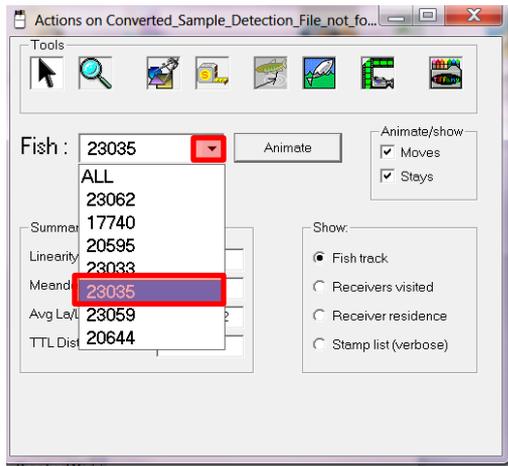
This receiver is land-locked. Drag it into the water to enable Land-Avoidance on this track.

# Re-plotting random walks

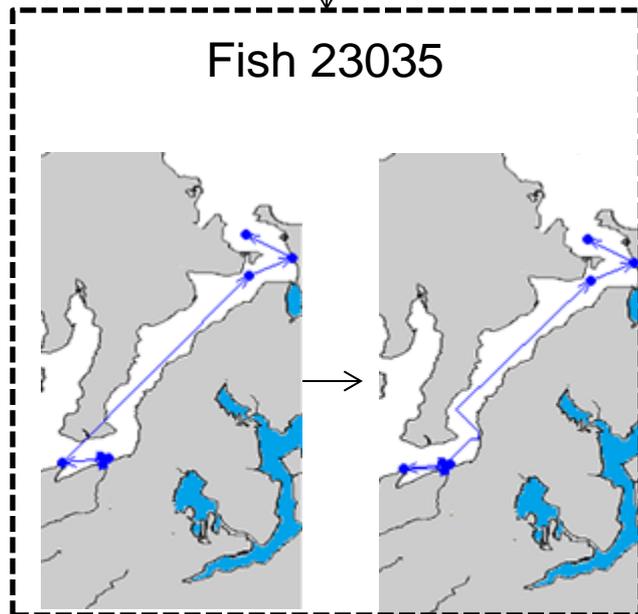


Note that because this is a randomized algorithm, the track will look different in your system

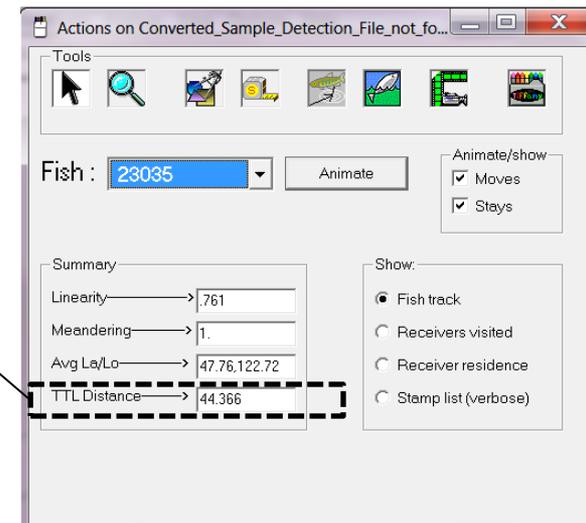
# Land-Avoidance Threshold



Change from 50 to 5, then hit OK.

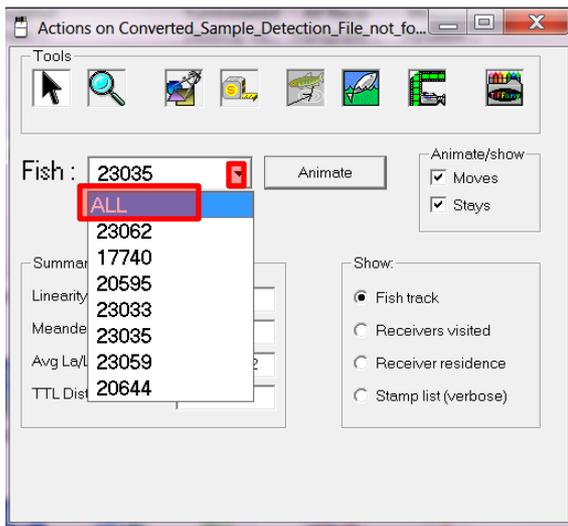


This number changes as the distance is now different.

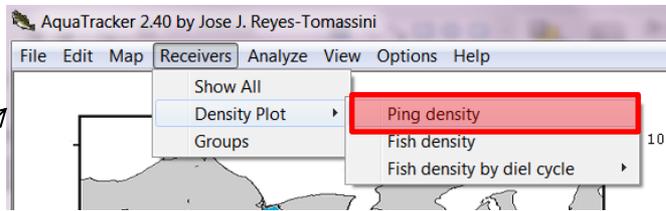


# Visualizing detections

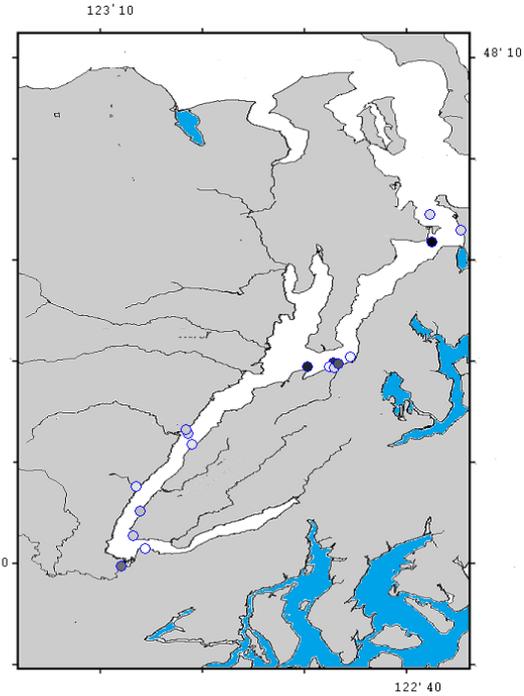
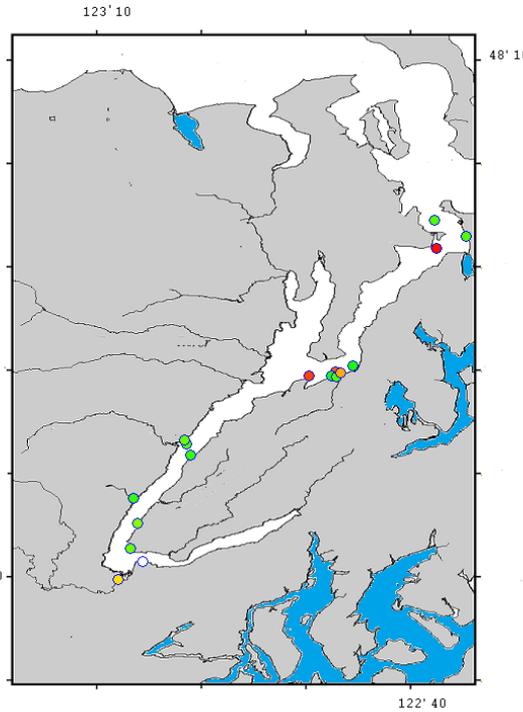
Detection densities



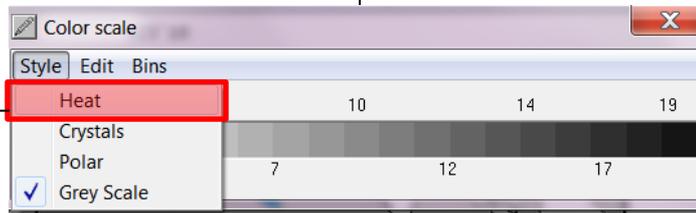
Click on the pull-down menu and select ALL



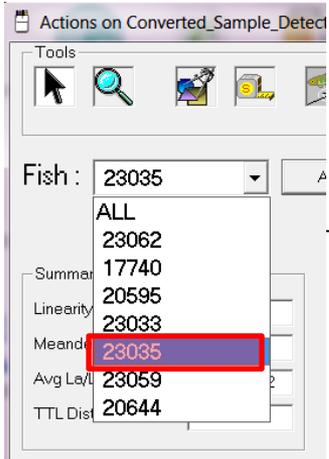
Ping density = Total number of detections



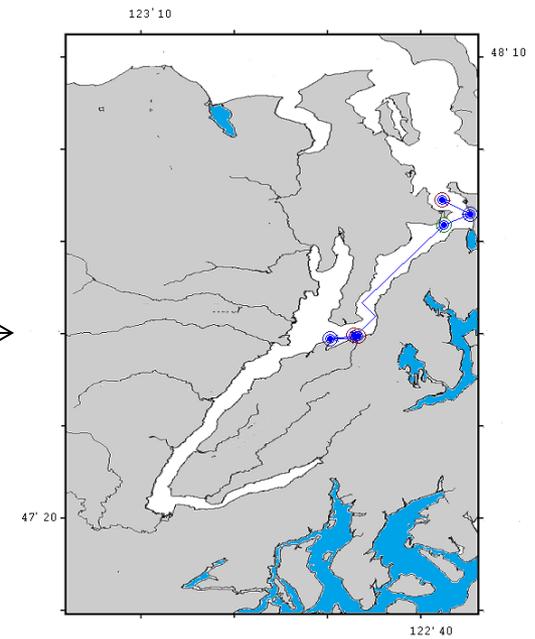
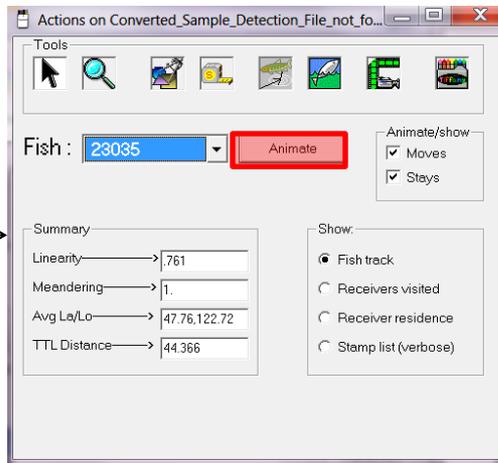
You can disable (not show) receivers with the bin value by right-clicking on the bin and selecting **Disable bin**.



# Visualizing fish tracks



Fish 23035



Animation begins...

Fish Track Details

Receiver: NORCA 08  
Date: 5/11/2008  
Time: 05:59 AM

Current Track Point

Fish ID	TTL Distance (km)	Total Time (D)	Travel Rate (m/h)	Range (km)	Linearity	Meandering	***Stay Site***	Stay Ti
23035	44.366	5.745139	321.768	33.755	0.761	1.	River 2NA	0

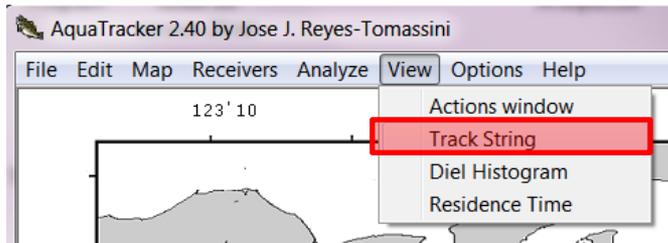
Export as... Close

When it ends, you can see all the track parameters

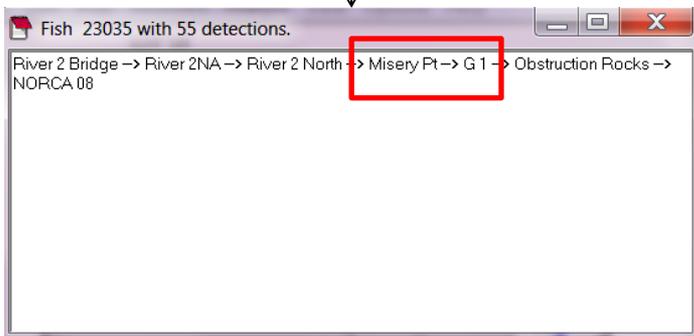
More parameters!

# More track visualization...

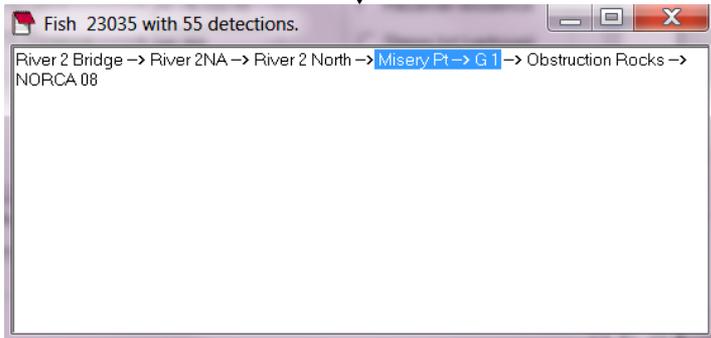
Fish 23035



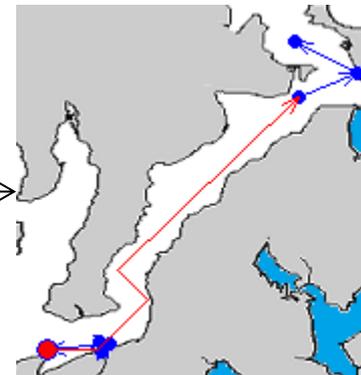
Show track string



Select Misery Pt → G1

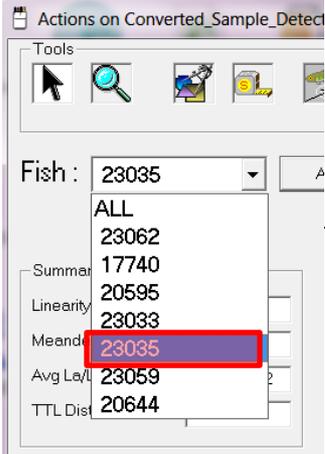


This effectively "highlights" the track segment between Misery Pt and G1

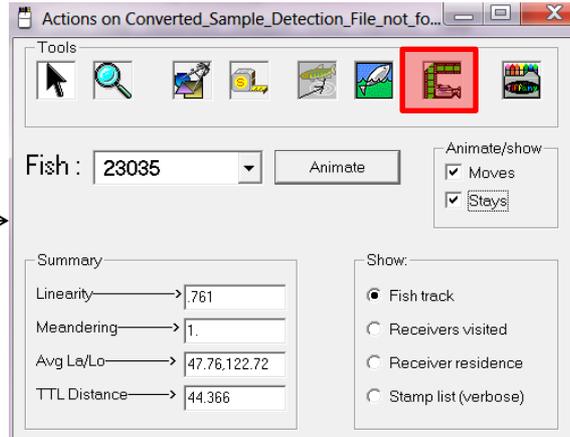


# Capturing animations for export

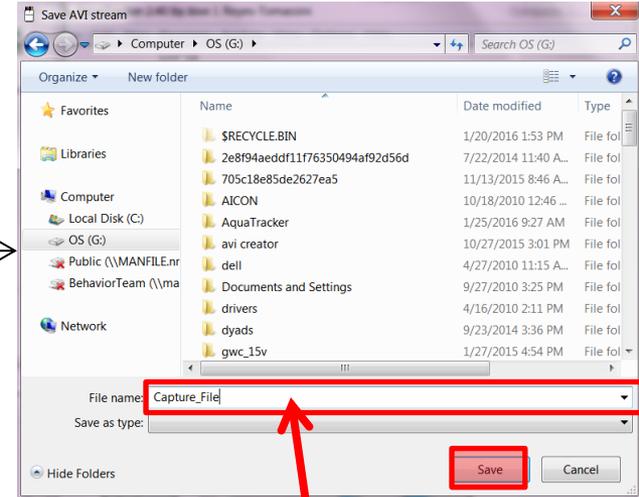
Select folder to place file...



Fish 23035



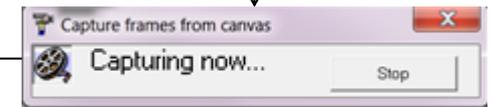
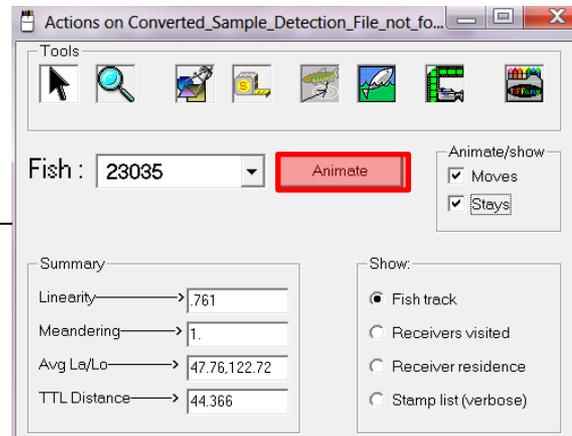
Click on Canvas Capture tool



Write here the file name you want to use for this video



Wait until animation finishes, then click **Stop**



When you see "Capturing now..." on the capture window, capture has started. Anything you display on the canvas will be recorded, until you hit **Stop**.

# Diel phases and tracks

Actions on Converted\_Sample\_Detect

Tools

Fish: 23035

ALL

23062

17740

20595

23033

23035

23059

20644

AquaTracker 2.40 by Jose J. Reyes-Tomassini

File Edit Map Receivers Analyze View Options Help

123' 10

48' 10

Actions window

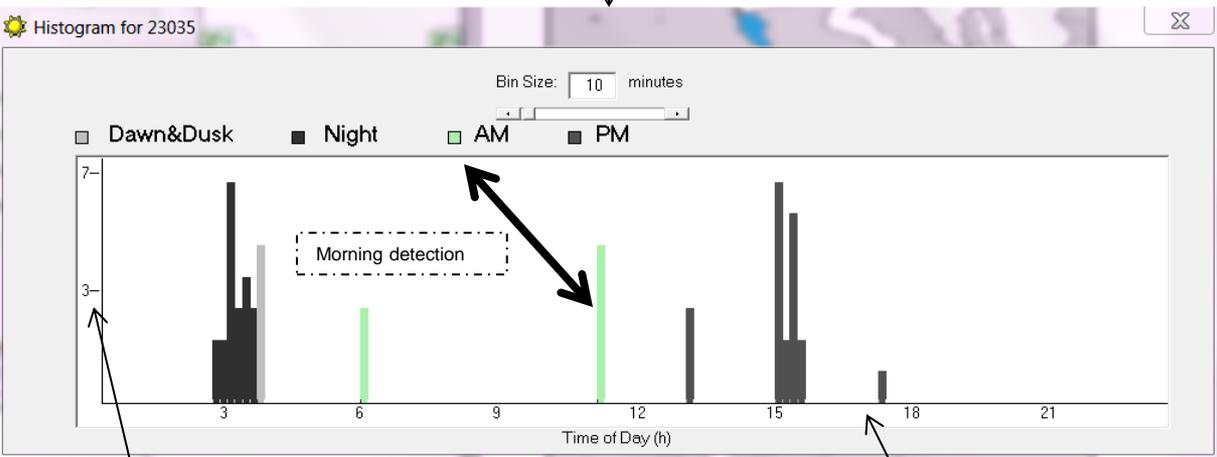
Track String

Diel Histogram

Residence Time

Fish 23035

Select or Deselect to see the effect



Number of detections

Time of day

Actions on Converted\_Sample\_Detection\_File\_not\_fo...

Tools

Fish: ALL

Animate

Animate/show

Moves

Stays

Summary

Linearity → 681

Meandering → 52

Avg Lay/Lo → 47,58,122.9

TTL Distance → 229.7

Show:

Fish track

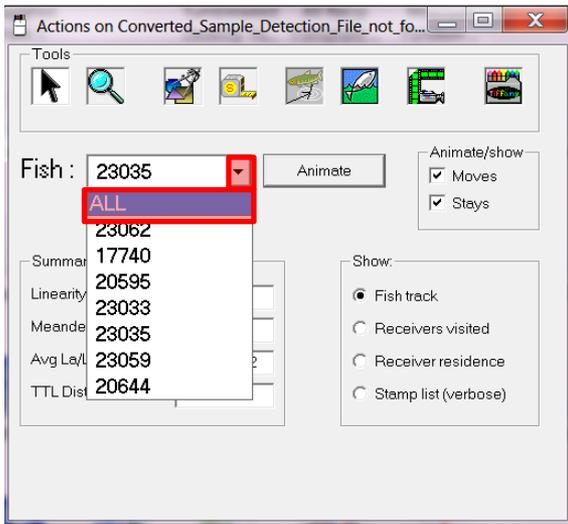
Receivers visited

Receiver residence

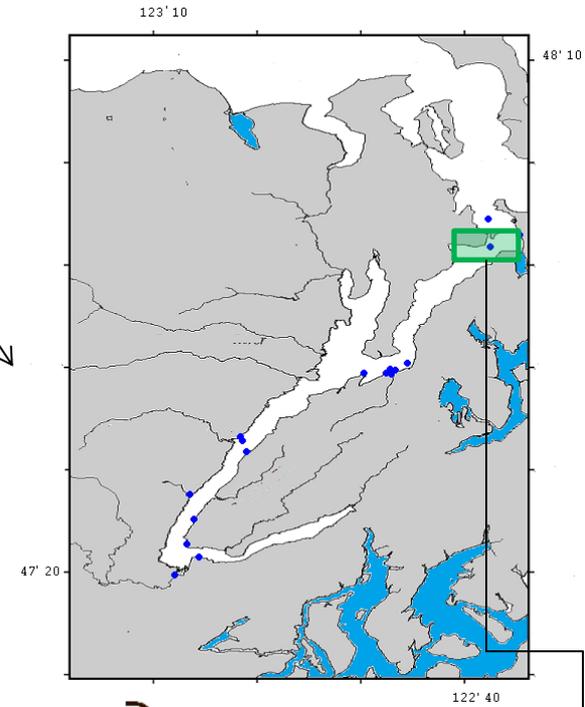
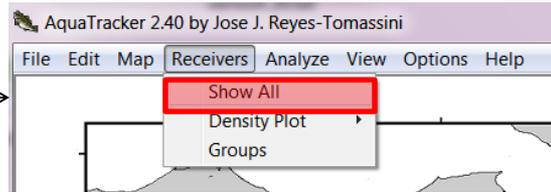
Stamp list (verbose)

Change to all or change to another fish!

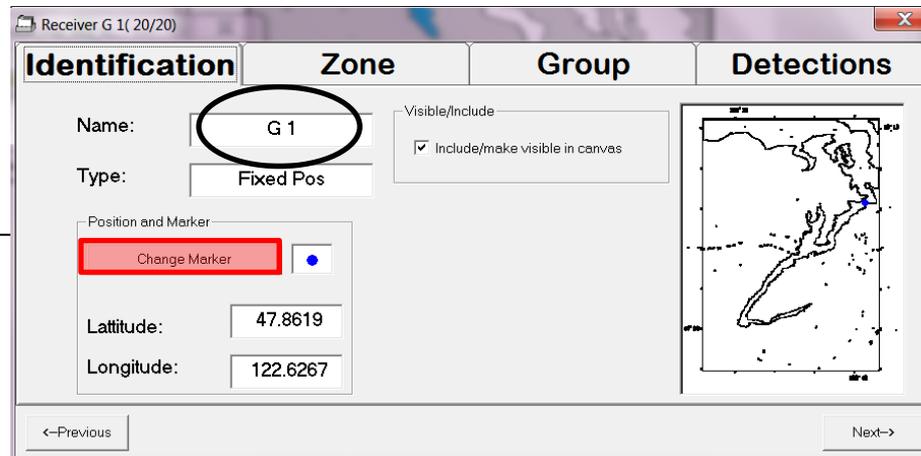
# Changing Receiver Marker Color



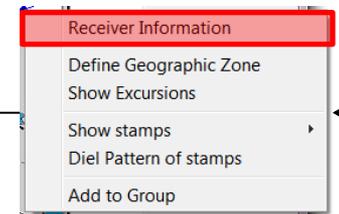
Click on the pull-down menu and select ALL



Place mouse pointer over **G1**, then **right-click** to reveal canvas context menu

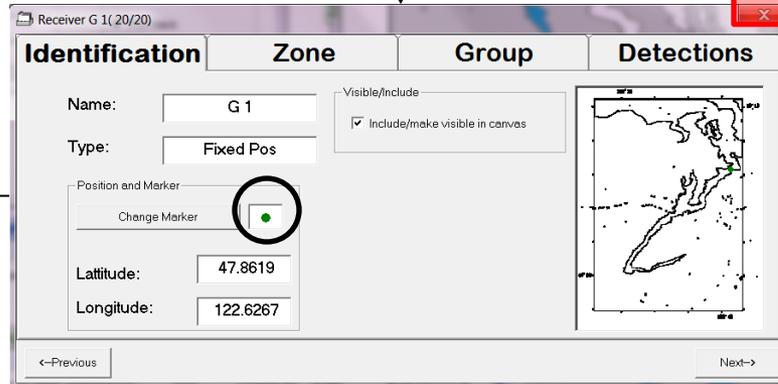
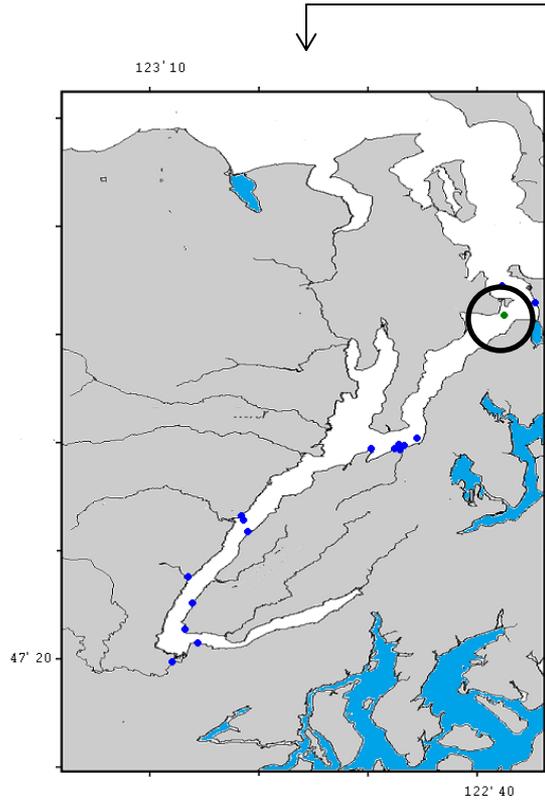


Continue on next page... ←



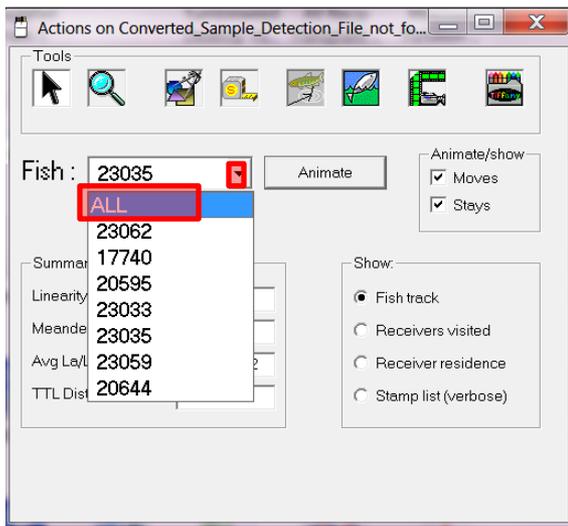


You can change the marker shape

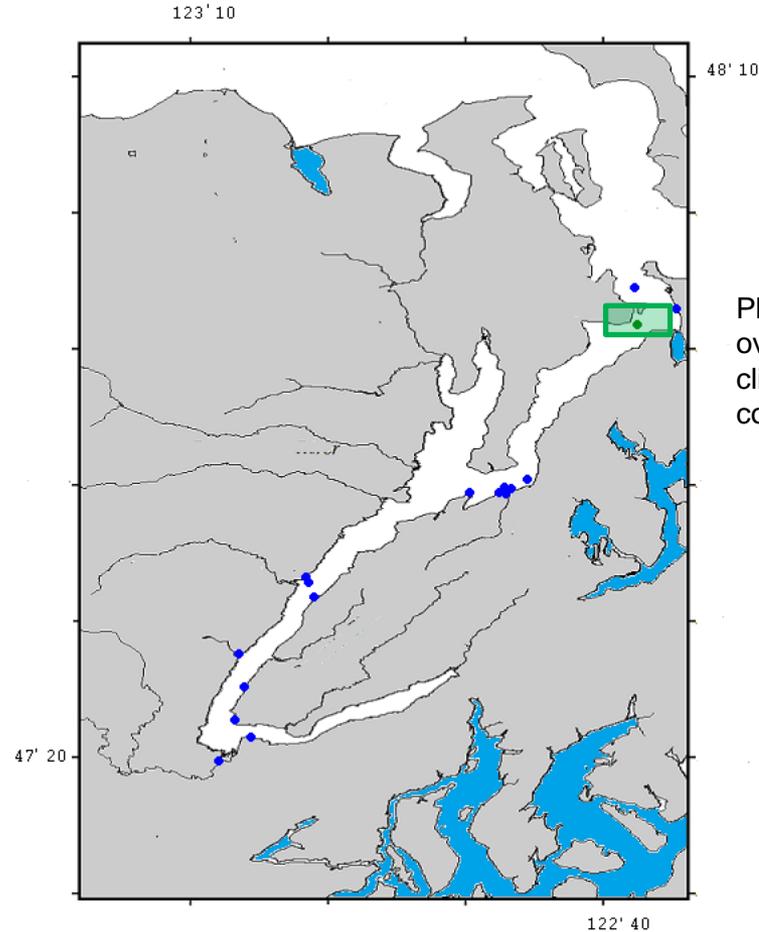
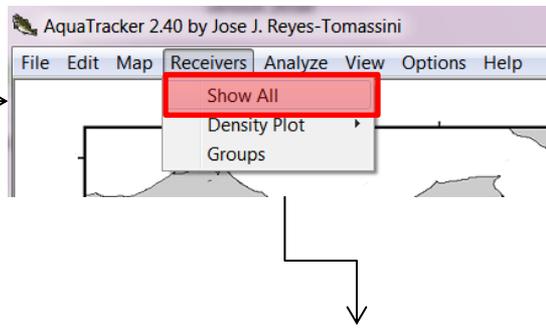


Click on the X to exit this window

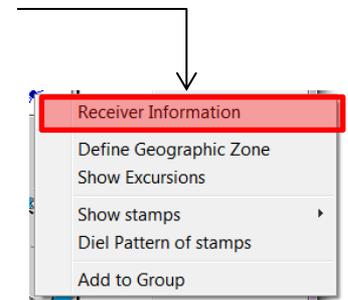
Visualizing fish going thru a  
particular receiver



Click on the pull-down menu and select **ALL**



Place mouse pointer over G1, then right-click to reveal canvas context menu



Continue on next page...

Receiver G 1 (20/20)

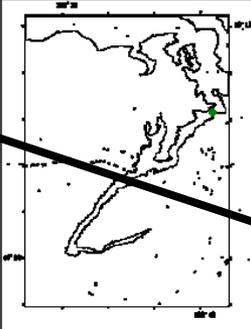
**Identification**   **Zone**   **Group**   **Detections**

Name: **G 1**   Visible/Include  
 Include/make visible in canvas

Type: **Fixed Pos**

Position and Marker

Latitude: **47.8619**  
 Longitude: **122.6267**



←-Previous   Next-→

Click on this tab

You should be on G1

Receiver G 1 (20/20)

**Identification**   **Zone**   **Group**   **Detections**

**Total Detections: 19**   **Fish detected: 2**   **Days active: 2**

**Fish detected:**   **Dates Active:**

23033	5/11/ 2008
23035	5/10/ 2008

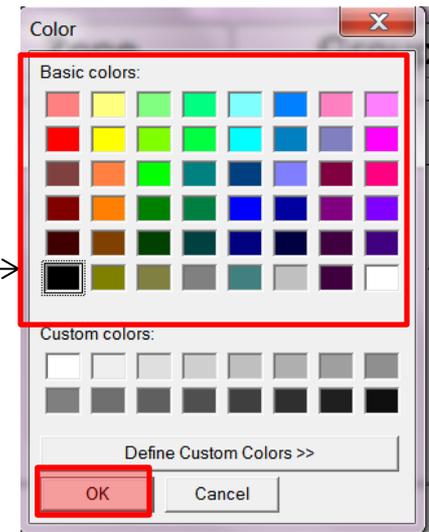
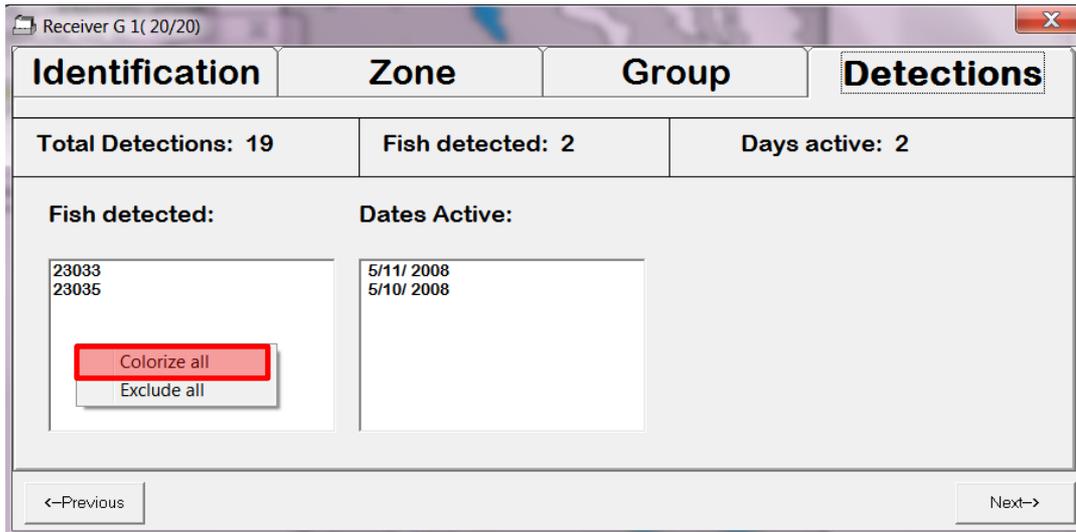
 

←-Previous   Next-→

Right-click anywhere in the **Fish detected** list

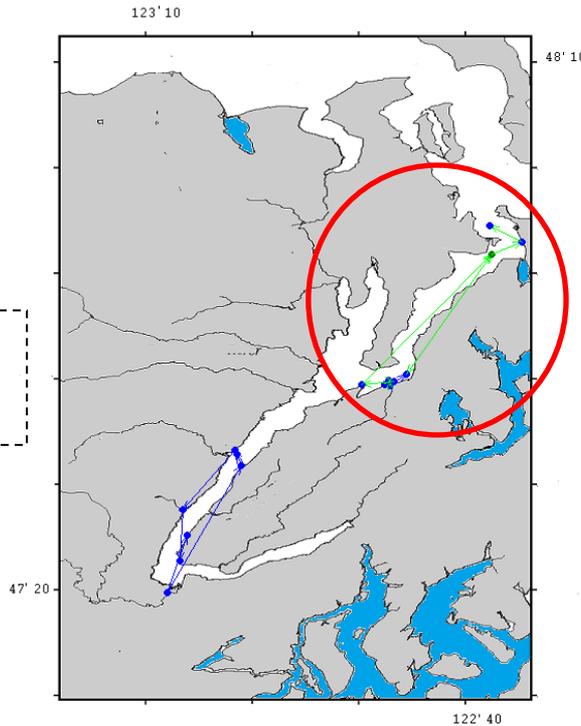
Continue on next page...

On this context menu, click on **Colorize all**

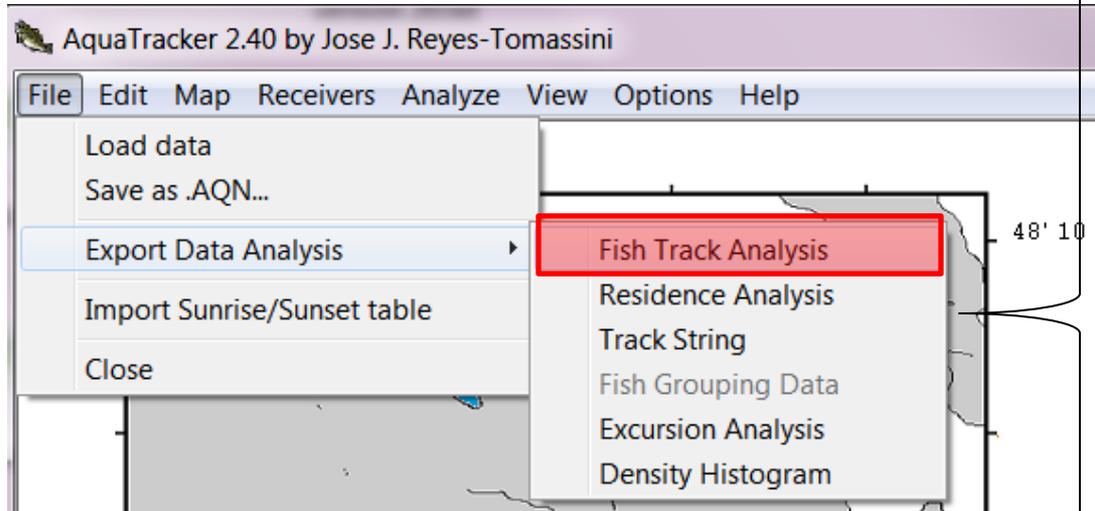


Choose any color you want, then click **OK**

Tracks from Fish detected at G1 are now colored green!



Exporting data analysis



**Fish track analysis:** Exports fish track parameters ([this example](#)) to CSV file

**Residence Analysis:** Exports the time spent at each receiver by each fish to CSV file

**Track String:** Exports the track strings for each fish seen in track string window

**Excursion Analysis:** See manual

**Density Histogram:** Exports the detection totals for each receiver

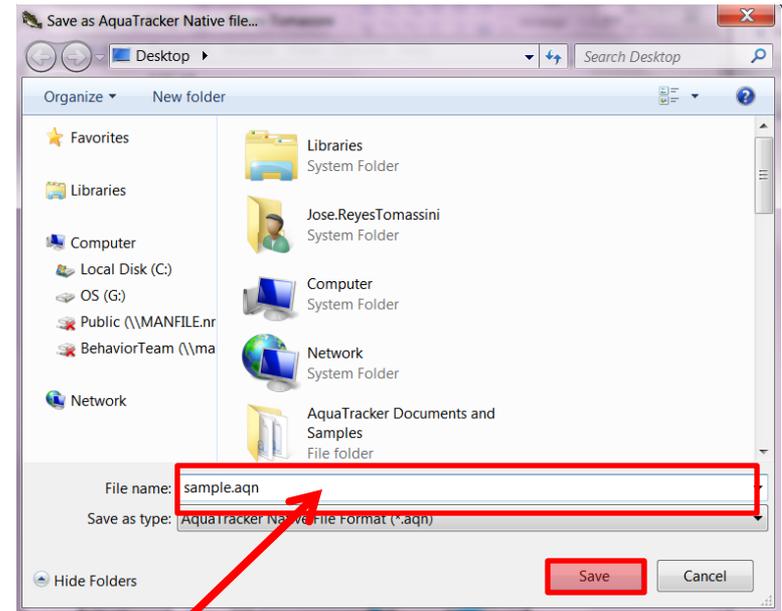
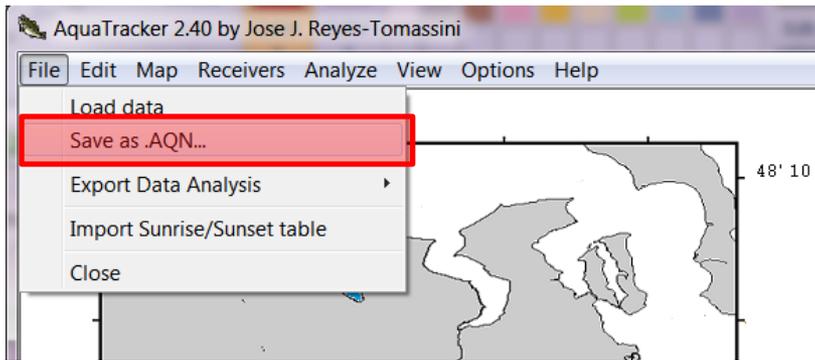
Continue on next page...

Use a spreadsheet program to look at the analysis of the file

Fish ID	TTL Distan	Total Time	Travel Rate	Range (km)	Linearity	Meanderir	***Stay Si	Stay Time (hrs)	Avg (La)	Avg (Lo)	%R. Active	Release Site
23062	48.824	9.647223	210.871	26.463	0.542	1	Lilliwaup	1	47.446	123.078	40.00%	A
17740	1.719	0.431944	165.828	1.078	0.627	1	Lilliwaup	1	47.659	122.789	15.00%	B
20595	1.451	1.619444	37.327	1.017	0.701	1	Lilliwaup	1	47.66	122.784	15.00%	A
23033	55.036	1.665278	1377.051	23.296	0.423	0.667	G 1	0	47.799	122.671	10.00%	B
23035	44.368	5.752083	321.393	33.755	0.761	1	River 2NA	1	47.755	122.717	35.00%	B
23059		0.016667				1	River 2NA	1	47.328	123.133	5.00%	A
20644	10.409	0.479167	905.168	10.409	1	1	River 2NA	1	47.373	123.117	10.00%	B

The meaning of the parameters calculated by AquaTracker is explained in the glossary at the end of the manual!

Saving your data as an AQN file



Select a file name

After you exit AquaTracker, the next time you run it, the program will ask if you want to load the last AQN file you work with...

