

Paua Boat Logger



Technical Manual

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1. Introduction

The Paua Boat Logger is a self-contained deck unit that logs:

- Routine GPS position on a user set timed basis
- The time and location of each catch bag landed (on the push of a colour coded button) and the diver's identity
- Manually entered, catch weight, swell conditions, visibility, catch sampling tag number and whether a boat boy was used.
- The SITO code of each diver is recorded.

2. Paua Boat Logger Specifications

Position:	GPS Module: Fastrax P500
Routine GPS Logging Interval:	1 minute to 60 minutes
Batteries:	Lithium Ion Thermal and short circuit protection fitted
Memory:	4 megabytes: equivalent to about 100,000 routine position records or 100,000 catch bag logs. Data is retained even if the batteries go flat

3. Operating the Paua Boat Logger

Charging the Paua Boat Logger

To charge your Paua Boat Logger, **first switch off the Boat Logger**. Next plug the charger connector into the Paua Boat Logger charging connector. Then plug the charger into a mains power socket. The LED will be red when charging. It will change to green when the Paua Boat Logger is fully charged. Charging may take up to 4 hours.



NOTE!

Use only Zebra-Tech supplied charger. Use of any other type of charger may harm the Paua Boat Logger.

Once the batteries are fully charged, disconnect the charger from the mains and THEN disconnect the charging plug from the Paua Boat Logger. Replace the connector cap on the Paua Boat Logger.

Field Operation

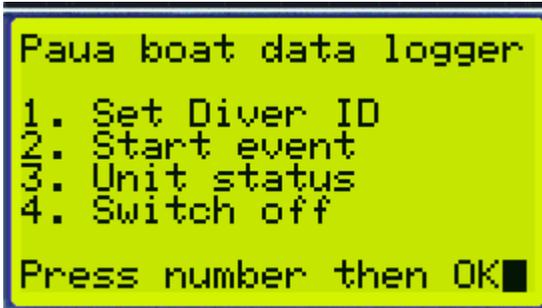
1. MAIN MENU

Simultaneously pressing the * and # buttons on the keypad switches on the Paua Boat Logger and brings up the Main Menu.



NOTE!

The keypad is pressure sensitive, so push with reasonable force.



2. SET DIVER ID

At the start of each dive event enter the SITO number for each diver and allocate them a colour (the unit can handle up to four divers). To do this push 1 on the MAIN MENU and then OK.



To allocate a diver to the colour RED, push the RED button and then move the cursor to the left hand side of the numbers by pushing the LEFT arrow (the yellow button). You can now type a diver's 6-digit SITO ID on the keypad. Push OK to accept. Enter the next diver's SITO ID, etc.

If a colour is not active (i.e. if you have fewer than 4 divers), do not enter any numbers next to it. Once you have entered all the divers' SITO ID's, push the OK button.

The Turtle ID screen will appear. Use the arrow keys to position the cursor to the right of the first diver and enter his Turtle serial number. Push OK to move to the next diver. When all the divers' Turtle ID's are entered, press OK.

The QMA ID screen will appear. Use the up and down arrow keys to scroll through the list of QMA ID's to select the QMA you are fishing in. Press OK to return to the MAIN MENU.

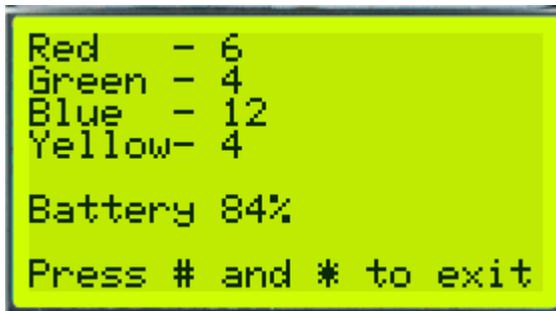
Issue each diver with a set of coloured tags that correspond to the colour they have been allocated and get them to attach one of these to each of their catch bags. These tags make it easy for the boat boy to ID the catch bag and push the same coloured button on the BOAT unit each time a catch bag is landed.

Write the name of the diver beside each of the coloured buttons (make sure you write with a whiteboard marker).

The previously entered SITO ID and colour allocation is retained each time so if your dive crew stays the same you will rarely need to re-set the DIVER ID.

3. START EVENT

Once the DIVER ID is set you can start recording the DIVE EVENT. To this do this push button 2 and then 'OK' on the MAIN MENU. This keeps a running total of the catch bags that have been landed into the tender boat by each diver.



When a catch bag is landed press the corresponding coloured button for the diver ID and then press the OK button to confirm this.

Alternatively, push the coloured button for the diver ID and then push it again and again to register 10 kilogram increments of the predicted catch bag weight. So, for example, if a red tagged catch bag is landed that weighs approximately 20 Kg, press the red button twice, so that 20kg is displayed, and then press the OK button, so that the weight is logged. This method will likely be useful only when

partly filled catch bags are the norm, in which case it may result in more accurate data.

When you have finished the dive event, i.e. the divers are out of the water (for lunch, etc.) or you are moving, press the # and the * buttons simultaneously to exit. This will take you to the CATCH DATA screen.



Enter the catch from that dive event for each diver and then push the OK button. The cursor will drop down to the next diver so enter their catch. If necessary you can use the RED button to arrow back up to redo a diver's catch figures.

When you have completed entering the catch for each diver, push 'OK'. This takes you to the CONDITIONS menu.



Enter the SWELL height (in centimeters), the VISIBILITY (in meters), whether you used a BOAT BOY (push * for YES or # for NO) and then enter the tag number for your Catch Sample (red sack). Press OK to accept.

This takes you to a screen that allows you to alter any of the above. If you are satisfied that everything has been entered correctly then push '3' and 'OK'. The unit will then switch off.

4. Communicating with the Paua Boat Logger

To communicate with Paua Boat Loggers and Turtle Diver Loggers, the windows software Paua Logger v3.4 is required. This is freely available from the Zebra-Tech web site:

www.zebra-tech.co.nz/downloads

Paua Logger will operate on XP, Vista and Windows 7 computer operating systems. It will not run on a Mac.

Once installed, it has the Paua shell Icon:



Only this software should be used from now on.

Old versions of TurtleCom



and BoatLog



software should be uninstalled from your PC.

Installing Paua Logger Software

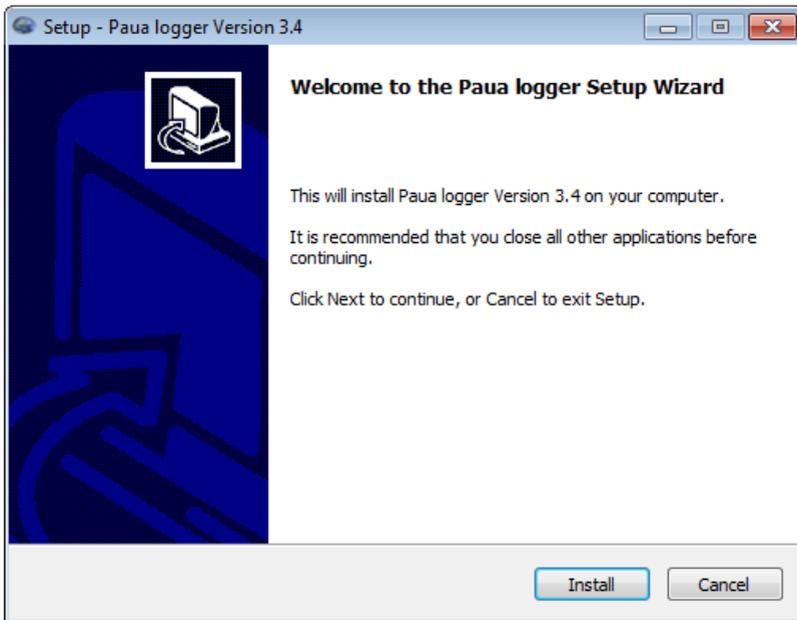
Installation and operation of Paua Logger has been designed to be as simple as possible. Unfortunately, computers are complicated and vary greatly, due to differing ages and operating system versions. As a result, there may be variations in the installation procedure.



NOTE!

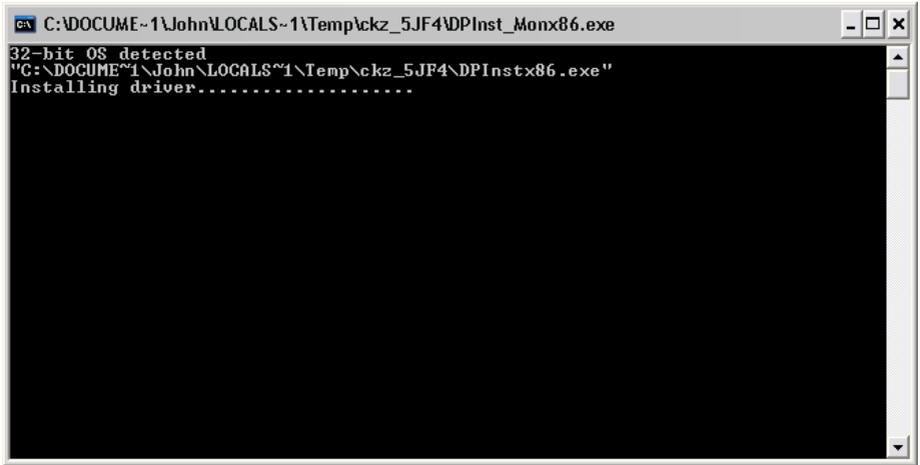
Do not connect the Paua Logger to your computer until you have installed the software.

- 1) Go to www.zebra-tech.co.nz/downloads and click on Paua Logger software v3.4 to download. Locate “Install Paua Logger” file, and double click it.



- 2) Clicking the install button should complete installation.

After installation, a separate install window will open whilst the necessary serial drivers are installed. If the window doesn't automatically close after 30 seconds, then it should be closed manually by clicking the close button in the top right hand corner.



Operating Paua Logger Software

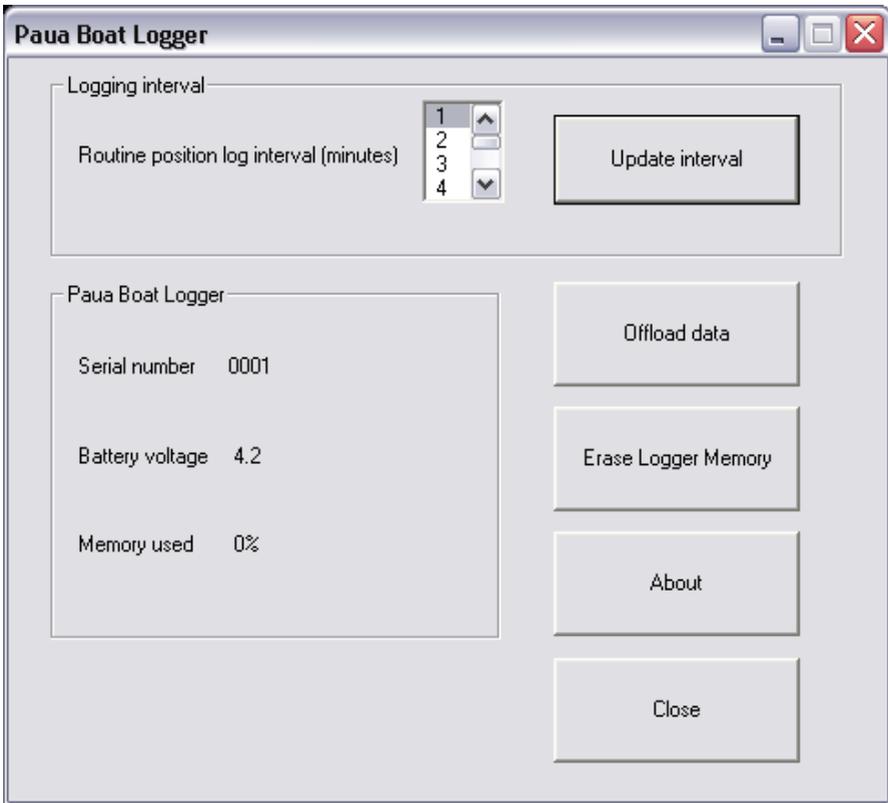
Once Paua logger software has been installed on your computer, connect the Paua Logger to the computer using the communication cable. Wait a few seconds while the computer detects the Boat Logger.

Locate Paua Logger. There should be an icon on your desktop. Double clicking the icon should start Paua Logger.



Paua Logger Icon

Alternatively, Paua Logger can be started from your program list in the usual way. (Click on 'start', then 'All Programs' and open 'Paua Logger' in your list of programs.)



PAUA BOAT LOGGER MAIN WINDOW

Boat Logger serial number

This is a unique number allocated to each Boat Logger.

Battery voltage

When fully charged, the Paua Boat Logger battery voltage is around 4.5 volts.

When the voltage is around 3.3 volts, the batteries are getting low and should be charged. The Boat Logger stops functioning at around 3 volts.

Memory used

This displays the percentage of memory currently used.

After offloading data from the Paua Boat Logger to your computer, check to ensure the offloaded data file is present on your computer. Once you are sure the data has been successfully offloaded, erase the Paua Boat Logger memory by pressing Erase Logger Memory, to avoid offloading duplicate data next time round.

Update Interval

To change either the surface logging or dive logging intervals, select the required interval and then press the 'Update intervals' button. Note that the logger memory has to be erased before this can occur. Once set, the update interval settings will always be retained, even if the battery runs flat.

Offload data

Press the 'Offload data' button to offload data from the Paua Boat Logger to your computer. The format of the data file is ASCII text, comma separated.

Erase Logger Memory

To avoid completely filling the Paua Boat Logger memory, erase the memory after you have offloaded the data.

About

This displays the current version of Paua Logger and the firmware version running on the Paua Boat Logger

Radio Linked Turtle Diver Logger and Paua Boat Loggers

A radio module can now be optionally fitted to the Turtle Diver Logger and Boat Logger. This allows data to be transferred easily from the Turtle to the Boat Logger.

How do you know if a Turtle or Boat Logger is Radio capable?

Radio capable loggers have a lightning bolt engraved next to the serial number on the top face.



How to offload data

The Boat Logger initiates the radio download. There are two places where this can be done: Main menu and at the end of the fishing trip.

How many Turtles will the Boat logger download?

The Boat Logger will search for and download up to four Turtles during each download event. If all Turtles are not downloaded, you can repeat the download process.

Will the Boat Logger offload any radio Turtle?

Yes, any radio Boat Logger will offload any radio Turtle dive logger within range. All Turtle data values are Turtle serial number linked. So even if different Boat Loggers offload a single Turtle, the data will be re-assembled by the Dragonfly database.

What is the range?

The Turtle needs to be less than 4 meters away the Boat Logger for a reliable radio link, although this may vary with conditions.

Is the data secure?

Yes, only Paua Boat Loggers can offload the data from Turtle Diver Loggers. Other devices such as smart phones cannot access the data.

Is the battery life of the Radio Turtle Diver Logger reduced?

The radio system is ultra-low power, so the battery life of radio capable Turtles and Boat Loggers should not have noticeably changed.

What data is offloaded?

Only a statistical summary of new dive data is offloaded via the radio link. This includes:

- the start position of each dive
- the dive duration
- average dive depth
- maximum dive depth

Only new data that has been collected since the last radio download is off-loaded. The more detailed dive data is retained on the Turtle as previously and can be offloaded onto a PC in the usual way at any time.

Trouble Shooting

During the download, an Error occurs.

This may occur if:

- the distance between Turtle and Boat Logger is too great
- there is excessive interference from other devices
- there are too many radio Turtles within range
- the battery on the Turtle is getting flat

The Boat Logger doesn't detect any Radio Turtles

If you know there are Radio Turtles within range, try again.

The Turtle batteries may be getting too flat.

The data download takes a long time

The data rate of the radio link is slower than the PC data download method. If there is a lot of data, this could take many minutes. To avoid long downloads, download the Turtle regularly, ideally after every fishing trip.

5. Google Earth

When data is offloaded from the Paua Boat Logger, in addition to the data file, a file is created containing the geographical positions of all the catch bags logged (only latitude and longitude; there is no date, time or diver ID included). This file can be displayed using Google Earth if installed on the PC.

The Google Earth data file can be found in the same location on the computer as the data file. It has the same name as the data file, but the extension is .kml. Simply double clicking this file should cause it to open in Google Earth, provided Google Earth is installed on the computer and the internet connection is working.

6. Appendix

Boat Logger Data File

An example section of the data file is shown below:

```
101,23:35:14,8/7/2010,,,,,5.1
101,23:36:14,8/7/2010,,,,,5.1
103,123456,0,651239,0,987654,0,456789,0
104,100,10,1,54321
105,23:36:32,8/7/2010,5.1
103,123456,0,651239,0,987654,0,456789,0
104,100,10,1,54321
105,4:35:35,12/7/2010,5.1
101,4:35:50,12/7/2010,,,,,5.1
102,123456,4:35:55,12/7/2010,,,,,
102,651239,4:35:59,12/7/2010,,,,,
102,987654,4:36:2,12/7/2010,,,,,
102,456789,4:36:17,12/7/2010,,,,,
101,4:36:30,12/7/2010,-41.2594, 173.28307,1,4.7,5.1
101,4:37:20,12/7/2010,-41.25944, 173.28313,1,.9,5.1
101,4:38:20,12/7/2010,-41.25949, 173.2831,1,.9,5.1
101,4:39:20,12/7/2010,-41.2595, 173.28307,1,.9,5.1
101,4:40:20,12/7/2010,-41.25944, 173.28307,1,.9,5.1
```

The data file is saved as ASCII text, with comma separated values. Each data record (row) has a record identifier as the first entry (0 to 5). This identifier signifies the record type:

Record ID:

Description:

100

Paua Boat Logger details

101

Routine position log

102
Catch bag landed

103
Total catch

104
Condition data

105
Shut down

QMA Codes

1
PAU1

2
PAU2

3
PAU3

4
PAU4

5
PAU5A

6
PAU5B

7
PAU5D

8
PAU6

9
PAU7

The following tables provide details of the data values for each record type:

Record ID 100: Paua Boat Logger Details

Data:	Description:
1	Data Record ID 100
2	Serial Number
3	Firmware version
4	Hardware Version

Record ID 101: Routine Position Log

Data:	Description:
1	Data Record ID 101
2	Serial number
3	QMA
4	UTC Time (H:M:S)
5	UTC Date (D/M/Y)

6

Latitude (Degrees. Decimal degrees)

7

Longitude (Degrees. Decimal degrees)

8

Fix indicator (1 = valid, 0 = invalid)

9

HDop (see below)

10

Battery voltage

Record ID 102: Catch Bag Landed

Data:

Description:

1

Data Record ID 102

2

Serial number

3

QMA

4

Catch bag weight (kg)

5

Turtle ID

6

UTC Time (H:M:S)

7

UTC Date (D/M/Y)

8

Latitude (Degrees. Decimal degrees)

9

Longitude (Degrees. Decimal degrees)

10

Fix indicator (1 = valid, 0 = invalid)

11

HDop (see below)

Record ID 103: Total Catch

Data:

Description:

1

Data Record ID 103

2

Serial number

3

QMA

4

SITO code 1

5

Turtle ID

6

Catch weight for SITO 1

7

SITO 2

8

| 20 |

Turtle ID
9
Catch weight for SITO 2
10
SITO 3
11
Turtle ID
12
Catch weight for SITO 3
13
SITO 4
14
Turtle ID
15
Catch weight for SITO 4

Record ID 104: Condition Data

Data:
Description:

1
Data Record ID 104

2
Serial number

3
Swell (meters)

4
Visibility (meters)

5
Boat boy (0 = no 1=yes)

6
Catch TAG number

Record ID 105: Shut down

Data:
Description:

1
Data Record ID 105

2
Serial number

3
UTC Time (H:M:S)

4
UTC Date (D/M/Y)

5
Battery voltage

The following records are only applicable to Radio Capable Boat Loggers

Record ID 106: Turtle calibration data

Data:
Description:

1
Data Record ID 106

2
Turtle Serial Number

3
Depth calibration offset

4
Depth calibration multiplier

Record ID 107: Turtle dive data

Data:
Description:

1
Data Record ID 107

2
Turtle Serial Number

3
Dive time (UTC)

4

5

6

7

8

9

Dive date (UTC)

Dive start position latitude

Dive start position longitude

Dive depth – maximum (m)

Dive average depth (m)

Dive duration (seconds)

Record ID 108: Transmission error code

Data:

Description:

1

Data Record ID 108

2

Turtle Serial Number

3

Error code

Error codes

1 = Turtle data file not properly processed

2 = Turtle data transmission broken

7. Further Assistance

For further assistance with this or any other **Zebra-Tech** product, please contact:

Zebra-Tech Ltd
PO Box 1668
Nelson 7040
New Zealand

Tel: International 0064 3 548 0468

Fax: International 0064 3 548 0466

Email: enquiry@zebra-tech.co.nz

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