





# FIELD BOOK





This project was developed in partnership with the CSIRO through funding from the National Environmental Research Program.

#### **Doing Turtle and Dugong Transects**

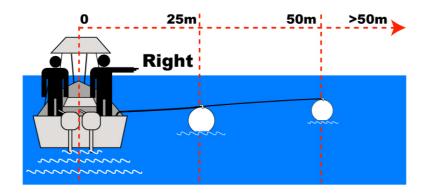
This project is designed to assist Indigenous land and sea managers to regularly monitor local turtle and dugong populations from a boat by completing regular surveys.

The primary focus of the survey is to complete targeted transects. However, off transect sightings are also recorded as additional presence-only information. The surveys involve using an I-Tracker application created using CyberTracker software to collect the information on a PDA (Personal Digital Assistant). It takes at least 4 people to do the survey (2 observers, 1 recorder & 1 boat driver).

The main features of the transect survey are:

- One observer is stationed on each side of the front of the boat.
- Observer height above water is recorded and the observers call out all sightings of turtles and dugongs.
- A recorder uses the PDA loaded with the I-Tracker Turtle & Dugong Survey application to record all sightings of turtles and dugongs called out by the observers.
- The boat travels slowly at about 5-8 knots (10-15km/h) along transects approximately 1.0 -2.5km long.
- Environmental conditions are recorded at the beginning of each transect, including: Sea state; Cloud cover; Wind strength; Glare; Water clarity; and Tide conditions.

- Whenever possible, turtles are recorded individually and a GPS point is taken after each sighting (see Figures i & ii):
  - O The left observer calls out individuals seen to the left of an imaginary line drawn through the middle of the boat, and the right-hand observer calls out individuals seen to the right of the line.
  - Distance from the boat is recorded as a choice of three 'bands':
    - 0-25m away from the boat; 25-50m away from the boat; and more than 50m away from the boat.
  - o The species of the turtle is recorded.
  - o Turtle size is recorded as Juvenile; Subadult; Adult; or Unsure.
  - Behaviour is recorded as Surfacing or diving; Underwater; At surface;
     or Mating.



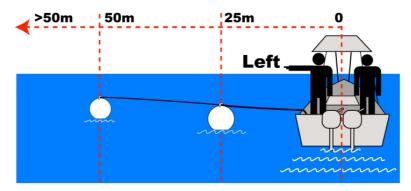


Figure i: The three distance 'bands' that observers place all turtle and dugong sightings in.

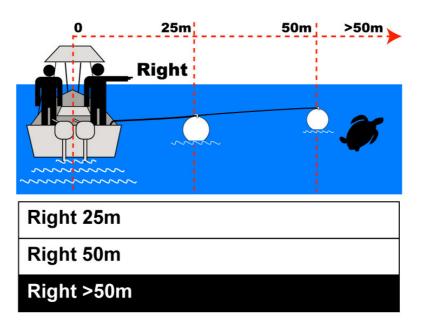


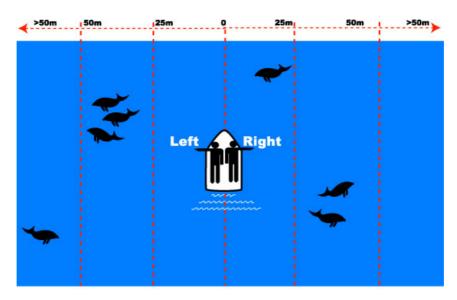
Figure ii: Example of how a turtle sighting more than 50 metres away from the right side of the boat should be recorded by the right observer.

of the above information (in other words, the transect is going through a very 'high density' area), the **Green Turtle Counter** can be used to record multiple individuals (see Figure iii). However, this only captures the distance of the turtle from the boat and size, not which recorder or behaviour. It is also assumed that all individuals counted are Green turtles. In addition, a GPS point is taken after all Green turtles in the high density area have been recorded (so each individual does not have a unique GPS location recorded).

GREEN TURTLE Counter		
Distance		
-25 JUVENILE	0.	
-25 MEDIUM	0.	
-25 BIG ONE	0.	
-50 JUVENILE	0.	
-50 MEDIUM	0.	
-50 BIG ONE	0.	
-50+ JUVENILE	0.	
-50+ MEDIUM	0.	
-50+ BIG ONE	0.	

Figure iii: Green turtle counter

Dugongs are recorded as a group to reflect the expectation that dugongs will
often be sighted in groups rather than as individuals. If a dugong is sighted,
the boat is stopped and all individuals visible in the group are recorded in
their relevant distance bands (see Figure iv).



How many dugongs?		
Distance HELP EXAMPLE		
Left 25m	0.	
Left 50m	3	
Left >50m	1	
Right 25m	1	
Right 50m	2	
Right >50m	0	
15s	<b>•</b>	

Figure iv: Dugongs are recorded as a group, rather than individually, but still by the left and right observers and in the three distance 'bands'.

'Help' screens that can be accessed at the time of sighting on the PDA are located throughout the application. Figures i, ii and iv are examples of the help screens.

From the start to the finish of the survey, all turtles and dugongs sighted are to be recorded. When systematic transect surveys are not being undertaken (such as when travelling to survey areas), sightings are recorded as 'off transect' to aid mapping distribution. The features recorded are identical to the above, although environmental conditions are not recorded.

Using CyberTracker software to record data on the PDA also allows effort data to be recorded with no extra work. As long as the PDA is turned on at the beginning of the survey and turned off at the end of the survey, the software automatically records:

- the number of patrols completed;
- the distance covered during the day;
- total hours spent between the start and end of the patrol; and
- average speed.

# **Equipment Checklist**

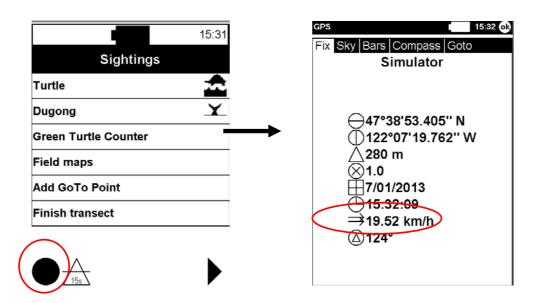
#### Remember to take with you on surveys:

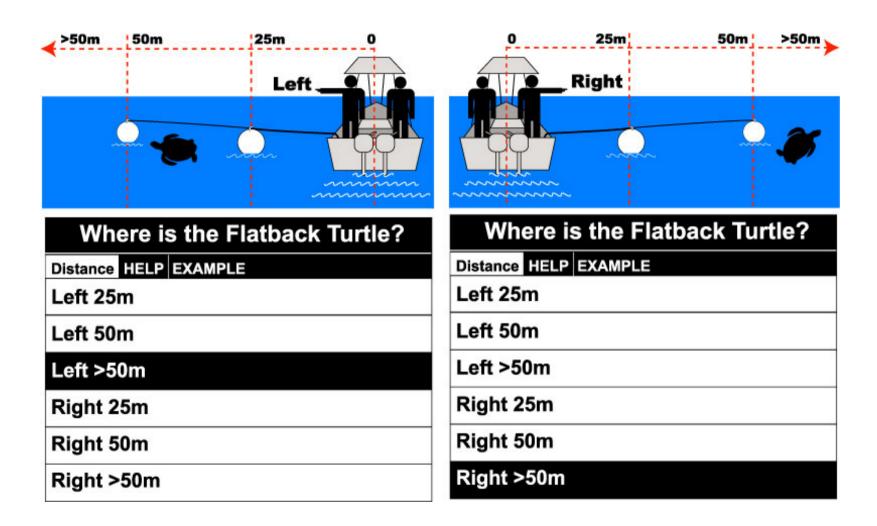
At least 2 PDAs (one for the recorder, one for the skipper)
2 large floating buoys and 50m of rope
Grip rope for the observers
Tape measure with sinker attached to zero end (to measure observer height)
Printed maps of the area (for discussion and marking areas)
Camera
Radio
Safety equipment
Satellite phone
First Aid Kit
Food and water
Laptop if possible (to download and view data each night and update field maps)
USB download cable

#### **Helpful Tips**

#### These can make your surveys better:

- Always **check the tides** when you plan to do surveys:
  - Surveys are generally better at neap tides
  - Surveys are generally better at incoming or outgoing tides (when the tide is changing)
- Make sure all turtle and dugong sightings are called out loudly by the observers and acknowledged by the recorder
- Make sure that the boat driver can communicate with the observers and that hand signals are understood by everyone
- Always have at least TWO experienced survey crew on board, including at least one person who did the last survey
- While on transect, the boat should travel about 5-8 knots or 10-15km/h,
  depending on how good the conditions are. You can check current boat
  speed on your PDA by clicking on the triangle on the lower left of any screen.
  This will give you all GPS information, including current speed:





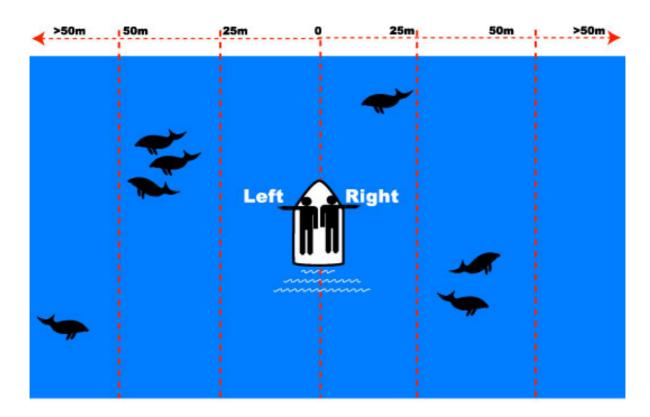
Where is the Turtle?		
Distance HELP EXAMPLE		
Left 25m		
Left 50m		
Left >50m		
Right 25m		
Right 50m		
Right >50m		
15s		

What species?		
GREEN		
HAWKSBILL		
OTHER		
UNSURE		
158		

What species?				
List	Flatback	Loggerhead	Olive Ridley	Leather
Fla	tback			
Lo	ggerhea	ad		
Oli	ve Ridle	ey		
Lea	atherba	ck		
	15s			

Turtle Size		
Juvenile		
Medium (Subadult)		
Big One (Adult)		
Unsure		
15s		

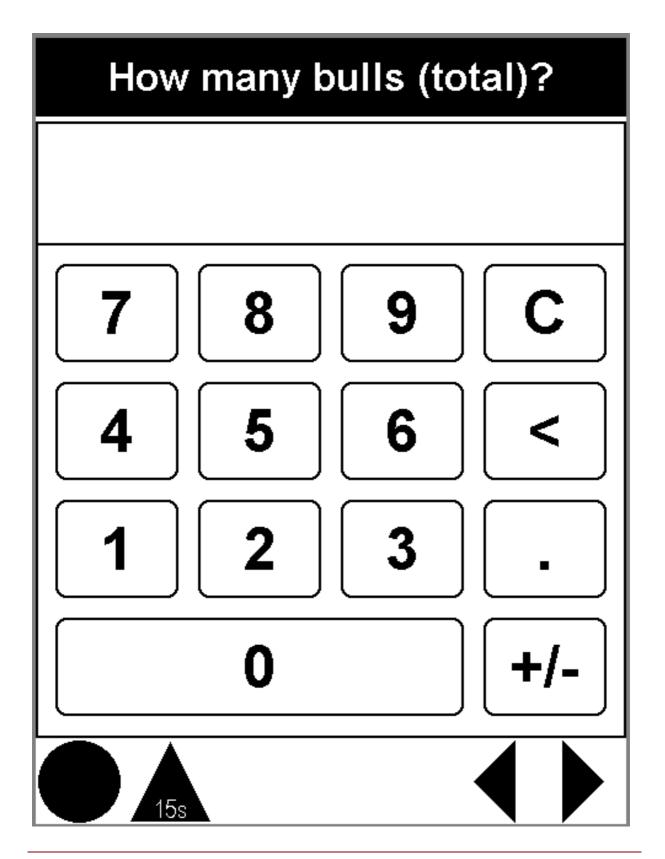
Behaviour?
Surfacing or diving
Underwater
At surface
Mating



How many dugongs?	
Distance HELP EXAMPLE	
Left 25m	0.
Left 50m	3
Left >50m	1
Right 25m	1
Right 50m	2
Right >50m	0
15s	

How many dugongs?		
Distance HELP EXAMPLE		
— Left 25m	0.	
— Left 50m	0.	
— Left >50m	0.	
— Right 25m	0.	
— Right 50m	0.	
—Right >50m	0.	
15s		

How many calves (total)?			
7	8	9	C
4	<b>5</b>	6	<
1	2	3	•
	0		+/-



# **Dugong Behaviour?** Resting at surface **Feeding** Travelling

# Need Help?

Email the I-Tracker team on: itracker@nailsma.org.au

or try Micha's mobile 0467 777 553

