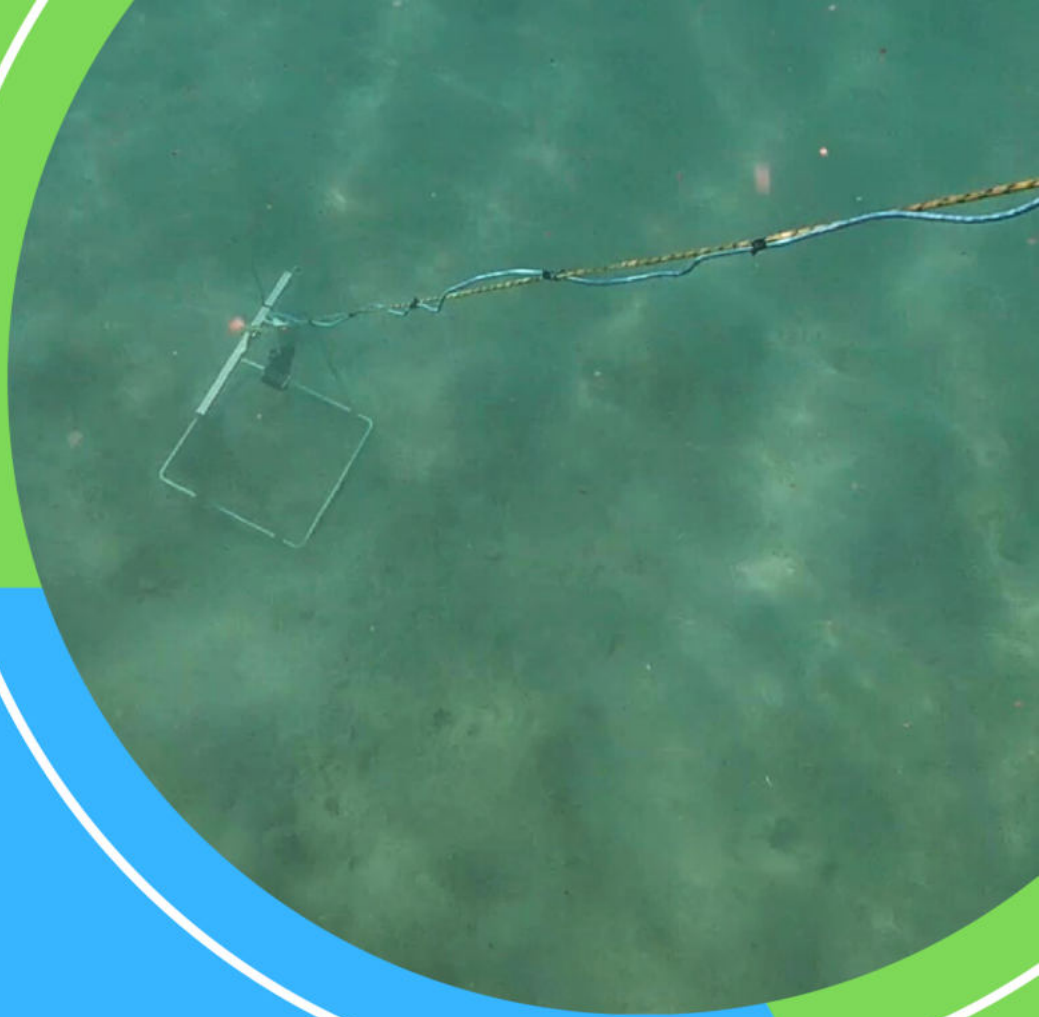


SEAGRASS-WATCH **SUBTIDAL SPOT -CHECK**

Quick guide to mapping subtidal seagrass using
drop-camera





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Disclaimer

Information contained in this manual is provided as general advice only. For application to specific circumstances, please contact Seagrass-Watch HQ.

Seagrass-Watch HQ, has taken all reasonable steps to ensure the information contained in this publication is accurate at the time of publication. Readers should ensure that they make appropriate enquires to determine whether new information is available on the particular subject matter.

This manual is designed to offer information on how to monitor seagrass resources to stakeholders and participants of the Global Seagrass Observing Network, for seagrass conservation.

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ABOUT SEAGRASS-WATCH

Seagrass-Watch is a not for profit, which established the Global Seagrass Observing Network in 1998. The network is currently working across 26 countries, monitoring the status and trends in seagrass condition.

Seagrass-Watch is one of the largest long-term seagrass observing programs globally and is highly recognised for its scientific rigour.

Participants are from a wide variety of backgrounds. All share a common interest in marine conservation and

Participants are associated with universities & research institutions, government (local & state) or non-government organisations.

Research

Seagrass-Watch has a strong scientific underpinning with an emphasis on consistent data collection, recording and reporting. Scientific, statistical, data management, data interpretation and logistic support underpins all monitoring efforts.

Aims

Seagrass-Watch raises awareness on seagrass ecosystems globally. The Program involves collaboration/partnerships between scientists, community and data users (environment management agencies).

Participants

Seagrass-Watch partners scientists with citizens, as people involved in the program develop a deep sense of custodianship and understanding of their local marine environments that reaches throughout the wider community.



WHAT ARE SPOT-CHECKS

Spot-checks are where the field validation is conducted at a specific point in the Area Of Interest and observations of benthic variables are measured in situ or post hoc.

Field measures can be collected using photoquadrats, quadrat observations or sampler observations. Spot-checks can be conducted: in person by foot, diving (free or SCUBA), or drone; remotely using drop camera, ROV; or via a sampler, such as a grab, rake, sled.

This guide will detail subtidal drop-camera spot-checks



EQUIPMENT NEEDED

To conduct sub-tidal seagrass spot-checks you will need the following equipment:

Drop-camera frame



Action camera



Underwater housing



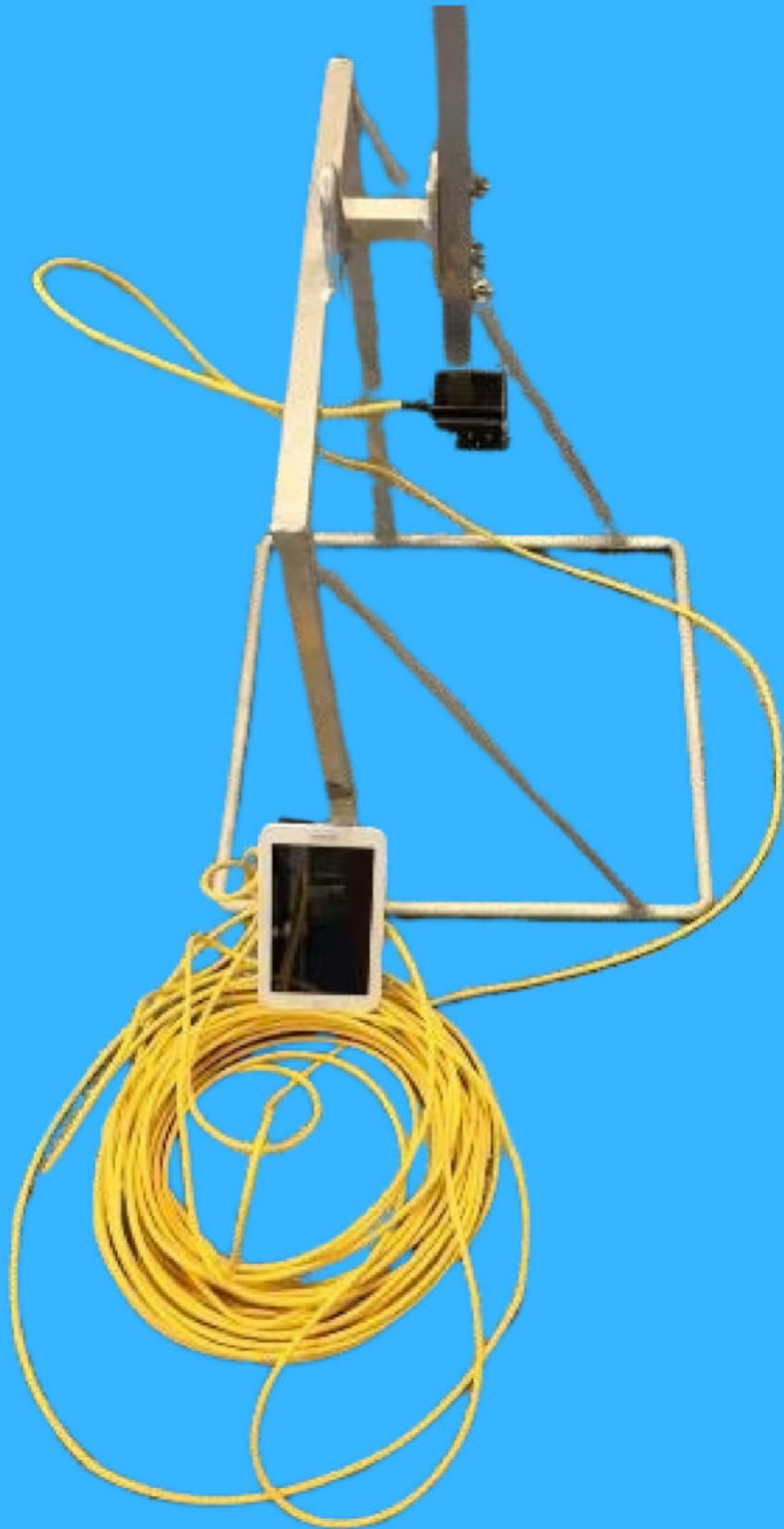
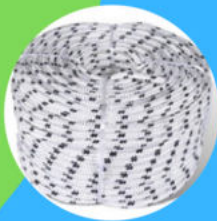
WiFi extension cable



Tablet/Smart phone



Rope



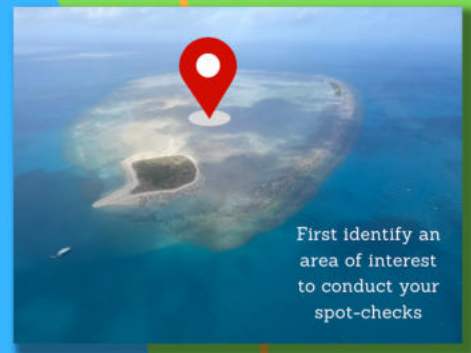
STEPS TO FOLLOW

1

Area of Interest

First, define the extent of the Area of Interest (AOI). This also determines the scale of the exercise.

Alternatively, an area can be mapped using a grid pattern or a combination of transects and spots. When mapping a region of relatively homogenous coastline between 10 and 100 km long, it is recommend that transects should be no further than 500-1000 m apart. For regions between 1 and 10 km, it is recommend transects 100-500 m apart and for localities less than 1 km, it is recommend 50-100 m apart. This however may change depending on the complexity of the regional coastline.



7

****You should be able to do 30-50 spot-checks per day**

2

Step up your equipment

Ensure you have all the necessary equipment to conduct your subtidal spot-checks.



1. Insert Action camera into waterproof housing and click closed

2. Attach Action camera dive housing (with WiFi Extension Cable) to frame assembly



3. At the dry end of the WiFi Extension Cable, attach the WiFi extension interface to the back of the Tablet using velcro or double sided removable mounting squares.



4. Adjust height of Action camera to ensure the 0.25m² quadrat is in field of view.

3 **Check field of view**
The field of view will change when camera is immersed, so place camera and frame in water and inspect image on Tablet. Adjust camera height as required.



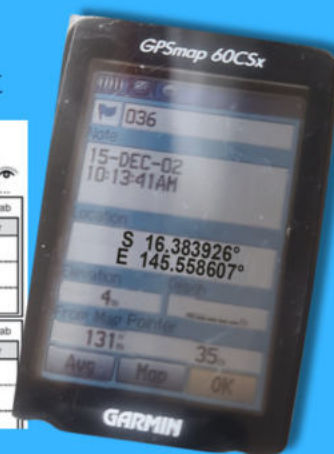
4 **Fill in your datasheet**
Fill in details on top of datasheet

SEAGRASS-WATCH MAPPING - SPOT-CHECKS

Recorder: John Citizen GPS#/Vessel: Deep Blue Date: 15/12/02

Point#	Location	<input type="checkbox"/> in situ observation	<input type="checkbox"/> Drop-camera	<input type="checkbox"/> Orab
Lat	Long	% cover	Species / % composition of cover	
Time	hrs Depth	m Observer		
Sediment	Algae (%)			
Algae (app./comp)				
Comments:				

Point#	Location	<input type="checkbox"/> in situ observation	<input type="checkbox"/> Drop-camera	<input type="checkbox"/> Orab
Lat	Long	% cover	Species / % composition of cover	
Time	hrs Depth	m Observer		
Sediment	Algae (%)			
Algae (app./comp)				
Comments:				



1. Recorder, vessel, date

5

Position vessel at the spot-check location

Recorder: John Citizen	GPS#/Vessel: MV Deep Blue	Date: 15/12/02..
Point#: 036	Location: Low isles-west	<input type="checkbox"/> In situ observation <input checked="" type="checkbox"/> Drop-camera <input checked="" type="checkbox"/> Grab
Lat: 16.383926 S	Long: 145.558607 E	
Time: 10:13	Depth: 51 m	Observer: James
Sediment:	Algae (%):	% cover
Algae (sp./comp):		Species / % composition of cover
Comments:		



Disengage propeller/s and let the vessel drift

Mark a waypoint on the GPS and enter waypoint number (point number), location, position (lat and longs), and time onto datasheet.

Record the water depth from the vessel depth sounder, or estimate, onto datasheet.

Tick Drop-camera box and Grab box (if grab is taken)

6

Activate camera and note point

Activate Action camera by pressing record button or using Tablet app, and start recording image



Place slate showing point number, within camera field of view and record details

7

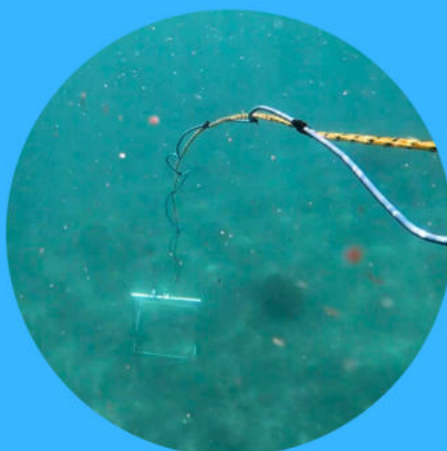
First mapping point Get ready for your first drop



Lower the frame (drop-camera assembly) over side of vessel into the water using the rope.



Control the decent of the frame to the seabed, allowing it to sit vertically (action camera looking down)



Once on the seabed, allow the frame to sit for at least 2-5 sec to capture a clear and steady image of the quadrat (*beware of stirring up sediment*).

Image is continually being recorded by the action camera and viewed on Tablet at the surface.

Although only one observation (sample) is necessary at a spot-check, it is recommended to take replicate samples spread within the point (e.g. 3 observations) to ensure the variation of point characteristics are well represented. This is done by haphazardly dropping your drop camera frame/quadrat within an area of an approximate 1-3 metre radius around you, and recording the quadrat measures each time.



8 Record data

If seagrass is seen in the image on the Tablet, record on datasheet



ENTER HERE

SEAGRASS-WATCH MAPPING - SPOT-CHECKS

Recorder: _____ Date:/...../.....

GPS# /Vessel: _____

Formal Location: _____

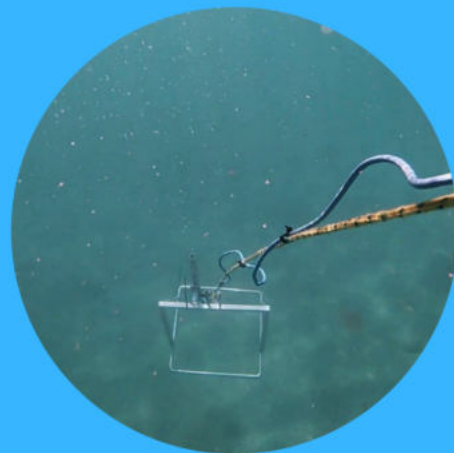
Lat. _____ Long. _____

In situ observation Drop-camera Grab

% cover Species / % composition of cover

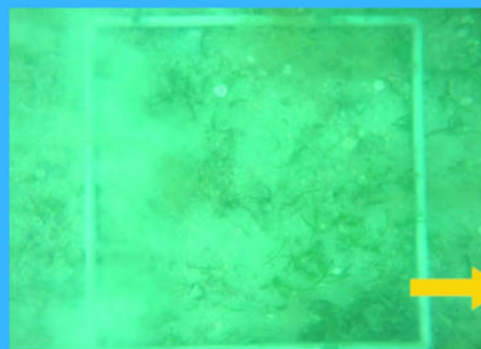
11	HU/100
----	--------

Verify species with a Van Veen grab sample (if necessary). You may need to do several grabs to verify



When a suitable image has been captured, lift the frame off the seabed (only a metre or so is sufficient).

Hold for 3-5 seconds (depending on drift speed), before dropping back to the seabed.



SEAGRASS-WATCH MAPPING - SPOT-CHECKS

Recorder: _____ Date:/...../.....

GPS# /Vessel: _____

Formal Location: _____

Lat. _____ Long. _____

In situ observation Drop-camera Grab

% cover Species / % composition of cover

11	HU/100
14	HU/100
13	HU/90, HO/10

Repeat raising and lowering the frame to record clear images of the seabed for 2 more drops. Each camera drop needs to be separated by 1-2m. Record observations on datasheet.

When the last camera drop has been completed, record the water depth.

9

3 drops at first mapping point

3 drops and all relevant data recorded



Return drop-camera to vessel and stop recording and turn Action camera off from Tablet



Use the van Veen grab to sample the sediment using the visual / tactile assessment (*NB: samples do not need to be retained*) and record on datasheet. Tick that a grab sample was taken



If seagrass was collected using the Van Veen grab, identify the species using the guide provided, and photograph a clean specimen (showing leaves, rhizomes and roots) on the sheet provided. Seagrass samples do not need to be retained unless it is a new species for location or images may not be clear

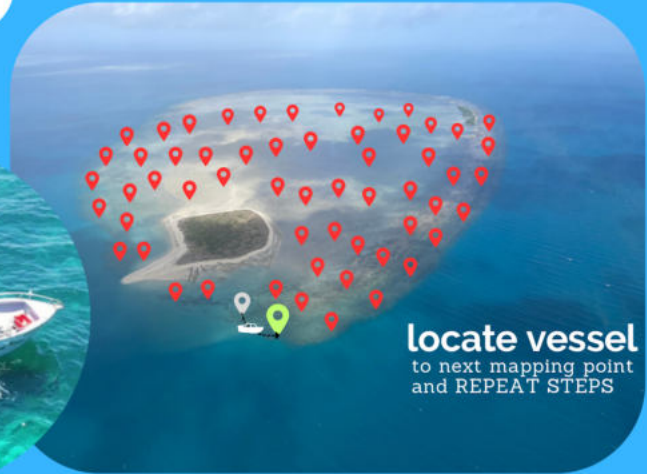
Check the Action camera has recorded the drops, data sheets are filled in correctly and fully.

Note: The speed the vessel drifts during sampling is important. The faster the vessel drifts, the more difficult it is to obtain a clear image of the seabed. Also, keep track of the distance between the vessel and the waypoint, and do not drift >10m from the waypoint.

10

Move to the next point

Relocate to next point



locate vessel
to next mapping point
and REPEAT STEPS

Relocate to next point for
and repeat steps 4 to 9

11

Completion of mapping

Wash & pack gear



Rinse all gear with
freshwater and let dry.

Review supplies for next
sampling event and
replenish as required

Press any voucher seagrass specimens if collected

- The voucher specimen should be pressed as soon as possible. Do not refrigerate longer than 2 days.
- Wash specimen in freshwater and layout on a clean sheet of white paper (include label)
- Lay another sheet of paper over specimen and place within several sheets of newspaper
- Place assemblage of specimen+paper within two sheets of cardboard and then into plant press
- Allow to dry in press for a minimum of two weeks. For best results, replace the newspaper after 2-3 days.



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