



We hope you are able to participate, the information will be invaluable to assess the conservation status of the weedies! <http://seadragonresearch.com>

Citizen Science Weedy Seadragon Surveys

Background

Weedy seadragon's occur along Australia's Great Southern Reefs (GSR) and span from the central coastline of NSW (Port Stephens), Tasmania, Victoria, South Australia and half of Western Australia. This project relies heavily on citizen scientists to work alongside marine scientists, to raise awareness and improve our understanding of the weedy seadragon. Weedy seadragons are protected under Commonwealth Law (1999) so please no harming or handling is allowed. Citizen surveys are to **observe, count** (for abundance) and **photograph** (for individual ID) and/or video the animals.

We hope to:

- (1) Measure **abundance** of seadragons at different localities and how it changes over time
- (2) Monitor individual seadragons to learn how far they move, and when they hold babies (eggs hold by males).

Seadragons are poor (slow) swimmers so easy to photograph and they have also high site fidelity (small home range). Once a population is found you should be able to locate them again on your next dive. Please also ensure that they are **not moved** in any way especially **vertical**, they cannot equalize fast enough and as a result the swim-bladder will burst and the weedy dies.

Survey Methods

- Monitor forecasts and local conditions to ensure it is safe to conduct a survey.
- Choose an area to survey where weedy seadragons are likely to be found; ideally a known or historic population.
- Using SCUBA gear, search for weedies in the selected area, focusing the search on **high-probability areas such as the seaweed/kelp-sand interface**. A torch may be used to assist the search.
- Once weedies are found, note the location and depth so you can estimate the GPS coordinates or mark the location on a map later (this will allow follow-up and continued survey). Note landmarks so you can mark the search area on a map (ideally a GPS fix on any seadragon you see). You may wish to return to the same area several times over one year (this will help in weedy abundance estimates and record seasonal movement).
- Take **several photographs** of each weedy; initially one wide shot of the weedy in its local environment then 2-3 close-up shots of each side of the animal, square-on, preferably with a strobe and fast shutter speed. These should be high enough resolution to allow each animal to be photo-matched in our software.
- Take a **photograph of your dive computer** after each animal, to act as a marker in the photo files and record depth.
- Weedy seadragon surveyors are encouraged to include a kelp/seaweed survey (e.g. % cover) as part of your dive (or a series of habitat photos), please contact us for more information on doing kelp surveys (perhaps by the second diver in a buddy pair (also by taking photographs).

- If possible also **record** if you saw any **mysid shrimp swarms** (main food source, they are quite obvious). This will inform you if the location is a 'healthy' area/region for weedies.
- Record general conditions including temperature, time of day and how long you searched for.
- Once home, transfer your data to the Weedy Seadragon spreadsheet (example below), label it and your identification photos (jpg) and submit or dropbox them to O. Selma Klanten: osklanten@me.com
- Equipment: Temperature logger, underwater camera preferably with strobe, SCUBA gear including protective clothing.

Table (e.g. excel spreadsheet):

| Date | Location (Depth in m) | Weedy photo information (jpg file) | Male/ Female (if unsure leave blank) | Eggs (Yes No) | Other information |
|------|--------------------------|--|--|---------------------|----------------------|
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Information on taking **photo's** for individual seadragon ID:

Tips for taking Photos of the weedy seadragon that can be used for pattern matching software (I³S) to uniquely identify the weedy seadragon.



Take shots at **right angles** as best as possible to the flank (side on) and get close as possible to get good resolution of the spot patterns (without touching the animal or chasing it too much). The spot patterns need to have clear outline in the photo when zoomed in so they can be software 'finger printed' adequately.

The higher the quality of the pictures the better

the software will work for matching. Take shots of both sides of the weedy. The two flanks (sides) of each weedy have different spot patterns.



(Close up- zooming into above photo to see patterns)

Take shots of the entire weedy seadragon as it's good to get a record of other distinguishing features such as missing fins. It is also good to have a photo record of the

whole animal to record whether it has eggs and the quality of those eggs but also to have a record of the health of the animal in general (e.g. visible infections etc). It doesn't matter if you need to take this as an extra photo.

Label the photos to identify the weedy, repeat photo # of same animal. It's not absolutely necessary but also good to add detail to the original photo label with site, date the photo was taken, **initials of person who took the photo, temperature and depth**. At the very least please ensure that each individual weedy is discernable from the photo label with an underscore figure.