

Protocols for teachers undertaking Marine Investigations September 2002

Using the seashore as a classroom

- Ensure students have adequate weather safety gear and footwear (Sneakers or blundstones are best for climbing on rocks. Bring sunhats, sunblock, raincoats etc)
- Teachers need first aid kit and preferably a first aid certificate and bronze medallion and be in accordance with their school's Occupational Health and Standards (OH&S) requirements.

Set the rules regarding viewing/touching sea creatures

- Do not poke your fingers into crevices etc. where you cannot see.
- Don't touch or pick up any octopuses of any color
- Be careful of animals with spines (eg fish) or spicules such as sponges.
- If you want to see an animal close up place it in a shallow container of seawater so that it does not dry out before you pass it around the group
- When looking under rocks always replace the rock back the way it was – it is a home to animals
- If you pick up any animals always place them back where you found them – in the same rockpool
- Be gentle with the creatures and rocks
- Don't pull seastars, sea urchins or molluscs off the rocks if they are stuck – leave them there.

Collecting sea life for the classroom

If you want to take and possess certain fish (eg undersize) or other marine species for a marine aquarium in the classroom you will need :

- **A permit** issued under the *Living Marine Resources Management Act 1995* to hold marine life in the classroom for educational purposes.

You may also obtain legal size fish through authorised **commercial** fishers. Should you obtain any fish from anyone, you need to ensure that they are authorised to take that particular species. It is recommended you maintain a register to record the fisher's details such as name, licence and date. Some people prefer to operate a register to record details of all fish including origin, size, health, mortality etc.

To apply for a permit you need to lodge an "application for a permit" form. These are available from Primary Industries, Water and Environment at the contacts below;

Internet: <http://www.dpiwe.tas.gov.au/inter.nsf/FormPermits>

Phone contacts:

Rob Green (6233 6208), Rod Pearn (6233 6099), or Sally Williams (6233 3119)

Fax: 6223 1539

Mail or in person:

Developmental Fisheries Section,
Marine Resources and Permits
Dept. Primary Industries Water & Environment
GPO Box 44
Hobart 7001
(Marine Board Building, 1 Franklin Wharf, Hobart)

The permit will be for a set time period and will limit you to certain species. Attached is a copy of a “standard school aquarium” permit. The numbers and species authorised are considered the maximum that can be justifiably taken from the wild for school aquariums. You should also note that these are the maximum numbers and you should only take what your aquarium and your aquarium supervisor can maintain!

Display this permit beside your aquarium

Use the permit as a teaching tool to explain to students the need to look after our marine life and the reasons why we have permits:

To protect the fishing industry and maintain viable fish populations and biodiversity we have limits on fish sizes and fish takes. Undersize fish are not yet breeding age. Have rulers or charts to demonstrate fish size limits (DPIWE currently has these rulers available through fishcare).

At certain times of the year some species are breeding so it is important not to collect these at those times. Find out from DPIWE when these times are. It's the teachers responsibility if they wish to avoid action against them. This is particularly important in species that are under threat. Female crabs and crayfish should not be taken when they are carrying eggs. Check for this by looking under the telson or tail section of a crab.

Organise a suitable aquarium.

To hold marine organisms you will need:

- A reasonable -sized aquarium (at least 3 feet in length). The larger the aquarium, the less problems you will have maintaining salinity, temperature and pH levels. Intertidal animals such as those found on rock platforms and tide pools are generally very tolerant of fluctuating temperatures, salinity etc. However a closed system such as your marine aquaria is not an ideal longterm environment even for intertidal creatures.
- Keep the aquarium away from very hot places such as a window facing into the sun. Leave a cover on it to reduce evaporation and increasing salinity as well as reducing escapees.
- Provide hollowed bricks or rocks for creatures to hide amongst.
- Have an undergravel filter system as well as a suitable aerator.
- Regularly check the pH and nitrogen levels and temperature in your tank.
- Keep the tank in a quiet place in your classroom so it is not continually getting bumped or knocked into.
- Add about half a tank of new seawater every 1-2 weeks.

VITAL – Always tip old seawater from the tank down the sewerage system. **NEVER** return anything from your marine aquarium back into the sea. This includes any animals that you have collected. All sea creatures **MUST** be euthanased and then disposed off inside a sealed plastic bag onto a local tip.

WHY? – There are two very important reasons for **NEVER** returning anything kept in an aquarium back into the sea:

- **Firstly: a marine aquarium is an un-natural environment and likely to promote DISEASE amongst the creatures living in one. If they or their water is then returned to the sea they will spread diseases killing local sea life. For example a diseased crab would spread the disease to other crabs in the area they were returned to.**
- **Secondly: Returning seawater or live creatures to the sea can also SPREAD MARINE PESTS. This is a HUGE threat to our marine environment. One introduced seastar can produce up to 16 million eggs! If you have an introduced seastar, green crab or Japanese seaweed even just tipping the water in which they lived back into the sea could be a disaster for local environment. Stopping the spread of marine pests is basically the only thing we can do to limit introduced marine species. NEVER return introduced pests to the sea. Some of these marine pests are really hardy and could survive out of water or even in quite freshwater, so it is vital that they are killed and sealed in plastic bags and disposed of at tip sites.**

Animals/plants to collect.

Bearing in mind that you can never return your creatures to the wild, please try to be selective in what you put in the aquarium. Some animals do much better than others in marine aquariums and could last for most of a school year or even longer if properly maintained. The best types of animals to collect are:

- Sea snails – these are generally quite hardy animals.
- Small crabs
- Small seastars or biscuit stars
- Shrimps
- Small fish such as blennies or gobies or small leatherjackets
- Sea lettuce – this is a good source of food for amphipods which in turn are food for small fish
- Sea anemones

Try to avoid these animals in tanks

- **Filter feeders** – unless you had circulating seawater it is unlikely that filter feeders would survive very long in a tank. This includes sponges, sea squirts, bryozoans, corals etc.
- **Large predators** – these will eat everything else and also require lots of food. For example large leatherjackets will chew the fins off other fish. Large crabs and large seastars can also be a problem.

- **Seahorses, sea dragons or pipefish** – these animals are very hard to keep. They require a live food source consisting of tiny crustaceans. All Syngnathids are prohibited to be taken from the wild and some species are also threatened. The Big-bellied seahorse, *Hippocampus abdominalis*, is available commercially.
- **Sea slugs and sea cucumbers** – these will often dirty the tank very quickly and do not survive long in tanks.
- **Threatened species** – animals which are very rare or restricted in location should never be collected. It is in fact **illegal** to collect threatened species without a special permit which you would need to get from the Resource Management Conservation branch of DPIWE. Some threatened marine species include the weedy seadragon, the live-bearing seastar *Patiriella vivipara* and the spotted handfish.
- **Introduced marine pests** – animals such as the European green crab, the Japanese seaweed, *Undaria* and the North Pacific Seastar, *Asterias amurensis* all pose as serious a threat to the marine life and aquaculture industry as does the fox to terrestrial wildlife and the agricultural industry. It is also illegal to have introduced marine pests in your possession without a very special permit from DPIWE. Just like land weeds some marine pests are declared as noxious or pest species. To find out more about noxious marine pests go to the CSIRO website and download their marine pest sheets.
- **Neither threatened nor introduced species would be allowed under a normal marine permit.**

Feeding your marine creatures

Read up on the creatures in your aquarium to find out what types of food they eat. Some seasnails are herbivorous or plant eating and they will need plants such as sealettuce to feed upon. A good check for herbivorous seasnails is to turn the animal upside down and check its shell shape. If it has a rounded shell opening underneath then it is likely to be herbivorous (a bit like a round salad bowl shape). If its shell opening is more pointed or elliptical then it is likely to be a carnivore and feed on other snails and meat.

Mussels are a good source of food for meat eating sea creatures. Break open the mussel and place a small piece on each sea anemone. Leave the rest of the mussel for fish, shrimps, seastars, crabs and carnivorous seasnails to eat.

If you are collecting extra seawater or live mussels, amphipods or sealettuce to put into your tank make sure you **clean your collecting gear after each trip**. Wash any buckets or nets that you have used in the sea in bleach to rid them of marine pests eggs and larvae which are microscopic in size. Rinse thoroughly in freshwater and leave in the sun to dry before using them again.

Disposing of water and marine life

Always dispose of any seawater from your tank into the sewerage system or treat with bleach and tip well away (200 m) from any waterway.

Euthanase sea creatures at the end of your tank's life.

Place dead animals in a sealed plastic bag and dispose of at a registered tip site.

Involving students in a marine pest project

- If you want to collect or catch marine pests in traps you will need to get hold of a special marine pest permit form Robert Green, Marine Bd Bldg DPIWE
- Protocols are being set up by the CSIRO to involve schools in a marine pest project. A kit is in the process of being developed.
- Any marine pests caught in traps under permit should be euthanased and their bodies sealed in plastic bags and disposed of at a registered tip site. Remember any leakage from this bag into a waterway could spread microscopic eggs and larvae and would be a disaster for the local marine environment.
- Never transport live specimens of marine pests from one place to another.
- Always wash any gear that has been in the sea with chlorine or bleach to kill any microscopic larvae or eggs, then rinse well in freshwater and leave in the sun to dry.

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