Corals

How to care for small polyp stony corals

Small Polyp Stony (SPS) corals are stony corals with small polyps. They are popular with aquarists due to their bright colours and interesting growth forms. SPS corals have various requirements and are best kept by more experienced aquarists. Always consult your OATA retailer before purchasing any SPS coral to ensure you can meet its requirements.

Water requirements

The water chemistry requirements to keep SPS corals are shown below. These parameters are a general guide for this group of corals, so it is important to check with your OATA retailer for any species-specific requirements before purchasing.

Salinity:	Between 1.023-1.026
Temperature:	Between 24-26°C
pH:	8.1-8.3
Ammonia:	Zero mg per litre
Nitrite:	Zero mg per litre
Nitrate:	Not to exceed 10 mg per litre
Carbonate hardness:	Hard (8-12°dkH)
Calcium:	Between 380-450 ppm
Magnesium:	Between 1250-1350 ppm
Phosphate:	Not to exceed 0.05 mg per litre

Biology

There is no scientific difference between Large Polyp Stony (LPS) corals and SPS corals: it is a broad categorisation to differentiate hard corals based on the size of their polyps. As a rough guide, the polyps of SPS are under 5mm. There are many different species of SPS corals. Popular genera include *Acropora, Montipora* and *Stylophora.* These are available in different branching and plating growth patterns in various colours. SPS corals have a skeleton made of calcium carbonate. In wild environments this contributes to the physical structure of the reef itself. Because of this, it is especially important to monitor and correct carbonate hardness, calcium and magnesium.

SPS corals vary in size, with no real size limit on fully grown colonies. SPS corals generate most of their nutrition through photosynthesis. This is achieved through algae called zooxanthellae which live inside the coral. Most species will also consume food items from the water column, which will increase their growth rate. As they can be fast growing,

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many SPS corals are cultured commercially and there are many specific colour morphs available.

Since SPS corals are invertebrates, copper is toxic to them and care should be taken when using treatments in the aquarium or introducing fish from retailers that use copper in their systems. SPS corals have developed stinging cells to damage nearby corals. These are not as powerful as the sweeper tentacles found in LPS corals, but they will damage any corals within reach, therefore there should be a small gap between SPS corals and other species.

Aquarium requirements

SPS corals are sessile and do not move, therefore they do not have a minimum tank size requirement to allow for activity. As a general rule, you should within reason, buy an aquarium as large as possible. It is recommended that an aquarium of at least 30 litres is used for keeping SPS corals, as sizes smaller than this may experience rapid changes in water chemistry. Whatever the size, **a filter is essential**. For marine set-ups this can be in the form of live rock with sufficient water flow, an internal or external filter, or a sump-based filter. A protein skimmer can also be beneficial for maintaining water quality as it will help to remove dissolved organic waste before it can break down into more harmful substances.

SPS corals do not have décor requirements. However, artificial or live rock will need to be present so that they can be placed in a suitable location (see "Feeding" below). Most corals come on a frag plug or a small piece of rock and are easy to position. In some instances, putty can be useful to secure the plug or rock in place.

A heater is required to maintain a suitable temperature all year round. To minimise fluctuations in water temperature, the aquarium should not be situated near any draughts or heat sources. It should also be out of direct sunlight and away from loud noises, vibrations and sudden movements.

Overhead tank lighting is required to provide nutrition. Most SPS corals require high light conditions (see "Feeding" below), so it is important to ensure there is sufficient light in the aquarium. Ask your OATA retailer for advice on suitable lighting for SPS corals. These corals will also require strong, chaotic water flow (see "Feeding" below), and so extra circulation pumps are likely to be required to create appropriate flow patterns. As these species utilise carbonate hardness, namely calcium and magnesium from the water, these minerals will need to be replenished. Calcium reactors and dosing pumps can help meet this need but speak to your OATA retailer for more guidance on these pieces of equipment.

Water testing kits are essential so that water quality can be checked on a regular basis (once a week) to ensure it does not slip below the water requirements stated above.

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Introducing your coral

Before adding any coral, seek advice from your OATA retailer to make sure that your aquarium is appropriate for the SPS coral you would like to keep. Check that the water quality in your aquarium is suitable i.e. levels of ammonia and nitrite are zero. Only increase the number of livestock you have in your aquarium slowly as the population of beneficial bacteria established when maturing your aquarium filter need to increase every time more livestock is added and feeding increases. Overstocking or stocking your aquarium too quickly can result in 'new tank syndrome'. This occurs when there are not enough nitrifying bacteria to cope with the increased waste from the livestock, leading to unhealthy levels of ammonia and nitrite, which may cause corals to become ill or die.

Your OATA retailer will usually sell your coral to you in a plastic bag, try not to keep them in this for too long. Once purchased, take your new coral home as quickly as possible because they are easily stressed by changes in water chemistry, extreme temperatures, and rough handling.

Once home, your coral will need to acclimatise to their new environment and a common method of doing this is known as the 'floating bag' method. Switch off the aquarium lights and take the bag containing your new coral out of its outer wrappings carefully, avoiding exposure to bright light. Float the bag in the water of your tank to ensure the temperature in the bag is the same as the aquarium water. After 10 minutes, slowly introduce small amounts of aquarium water into the bag containing the coral for up to an hour. Corals will struggle with changes in water chemistry more than fish and so good care should be taken during the acclimation process. Once complete, carefully place the coral into the aquarium whilst introducing as little bag water into the aquarium as possible. After this, dispose of the bag and any excess water appropriately.

For very sensitive species, a better method might be the use of drip acclimation. This could be achieved by keeping the coral in the container in which it is sold and a small airline siphon started to drip water into the container, slowly changing the water parameters to that of the aquarium. Ensure that the temperature does not fall too low during this procedure. Once conditions match, carefully remove the coral from the container and place it in the aquarium. Dispose of the water in the transport container appropriately. Some aquarists may use coral dips to remove any pests which can be found on corals. This should be performed according to the manufacturer's instructions before the coral is placed into the display aquarium.

If you are unsure as to where to place your coral, it is best to place it in an area of lower light and slowly move it into the position you think is appropriate over the course of a couple of weeks. If the coral starts get lighter, it is in too much light and if it starts to go brown or darker, it is not in enough light. Monitor your new coral carefully for the first week, paying particular attention to water quality. If in doubt, contact your OATA retailer for advice.

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If possible, quarantining new livestock in a separate aquarium for at least a week before they enter the main tank can help reduce any risk of disease spread from new inhabitants. Ask your OATA retailer for advice on this topic.

Maintenance

At least once every week, a partial water change of 25% is strongly recommended (a siphon device is useful to remove solid waste from the gravel). Filters should be well maintained, with regular checking and cleaning to prevent blockages. If the filter needs cleaning, do not run it under the tap because any chlorine or chloramine present may kill the beneficial bacterial population that has established in the media. Instead, it should be rinsed lightly in the tank water which is removed during a partial water change as this reduces the amount of bacteria which are lost. Protein skimmers should be regularly cleaned to maintain their performance.

Good husbandry is essential as corals can be stressed by even the smallest amounts of ammonia and nitrite which may then cause them to develop various diseases or die. Test the water to monitor the ammonia, nitrite and nitrate levels, together with pH and carbonate hardness every week, especially during initial set-up and after adding extra livestock. It is also important to regularly monitor salinity and use reverse osmosis water to replace any water lost through evaporation. Stony corals are sensitive to phosphate as it will reduce their growth rate and increase undesirable algae growth. Phosphate should be monitored regularly and removed using specialist resins or a refugium, so ask your OATA retailer for guidance.

What to watch out for

All animals will have slight variations in their behaviour or appearance, but keeping an eye on any changes in the following will help to identify any potential problems before they become a real health issue:

- behaviour – reduced polyp extension or not opening at all
- colour – darkening of colour, bleaching or presence of brown dead tissue
- tissue recession – reduction of size or skeleton exposure in hard coral species
- feeding – reduced intake or regular expulsion of stomach contents
- pests – presence of algae or pests such as flatworms, red bugs and *Acropora*-eating flatworms

If you are concerned about the health of any of your livestock, then test your water quality and contact your OATA retailer for further guidance.

Feeding

SPS corals generate most of their nutrition through photosynthesis. Therefore, it is important that lighting levels are correct in the aquarium. Generally, SPS corals

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require moderate to high light, but this varies by species. It is important to ask your OATA retailer for guidance on placing corals in the correct light.

SPS corals will also consume food items, and feeding can lead to increased growth rates. It is important that appropriately-sized food is selected for the size of the species being fed. SPS corals have smaller mouths and so will need very small food items. These include powdered or liquid coral feeds, or small frozen items such as rotifers or copepods. When food items are given, take care not to overfeed as this can lead to a build-up of uneaten food which breaks down releasing toxic waste into the water. Feeding twice a week is a useful starting point for most species. If in doubt, ask your OATA retailer for advice on appropriate feeding levels.

Water flow is important to bring food to your coral and help remove waste from feeding and photosynthesising. As with light, different species will require different flow rates, however, SPS corals will appreciate high energy, turbulent flow. This is best achieved through the use of multiple powerheads or wavemakers facing each other. Ask your OATA retailer for guidance on placing corals in the correct water flow.

Compatibility

SPS corals can be targeted by some fish that graze on corals, such as butterflyfish. It is important to check if fish are considered "reef safe" before introducing them to SPS corals. As previously stated, SPS corals should not be placed too close to other corals as they will sting and damage them.

Breeding

SPS corals are unlikely to spawn in captivity. In the wild environmental cues prepare corals to spawn and members of the same species will take part in mass spawning events. Once egg and sperm meet, a larva (called a planula) is produced. This spends time in the plankton before it settles and produces a young coral, which is very vulnerable until it has grown. The cues required for spawning are not present in the home aquarium, and if planula were to be produced, they would likely be damaged in pumps, filters and skimmers.

The most common method of reproduction in captivity is through asexual reproduction. This involves the direct replication of an individual coral. This is achieved through "fragging" and involves making a clean cut through a section of the coral and attaching it to a rock or plug. This can be relatively easily achieved in SPS species. Fragging can be a useful method to prevent individuals from overgrowing and stinging other corals.

Checklist

Before purchase make sure:

1. You have the appropriate equipment and position for the aquarium.

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2. You have researched all the species in which you are interested and your final choices are all compatible.
3. You are familiar with how to transport and release your fish.
4. You are aware of the daily, weekly and monthly maintenance your aquarium will require.
5. You are prepared to look after your fish properly for the duration of their life.

Shopping List

- Glass or acrylic aquarium
- Filter*
- Heater*
- Lighting*
- Gravel or sand
- Aquarium salt and a hydrometer or refractometer
- Access to reverse osmosis water or a reverse osmosis unit
- Water testing kits (ideally ammonia, nitrite, nitrate, pH and water hardness)
- Gravel cleaner/siphon cleaning device (recommended)
- Aquarium decorations
- Bucket for water changes
- Live or artificial rock
- Protein skimmer* (optional but recommended)
- Ultraviolet steriliser (optional but recommended)

*may be included in branded aquarium sets but can be purchased separately.

Before purchase make sure:

- The aquarium is of a suitable size that ideally can accommodate the fish once they are fully grown
- Water parameters are as advised in this leaflet.
- Aquarium is cycled and ready to receive your fish.

Always buy...

test kits and regularly check the water for ammonia, nitrite, nitrate and pH. This will allow you to make sure the water in your aquarium is not causing welfare problems for your coral.

Maintain...

the water in the aquarium within the accepted parameters highlighted above. You

Establish a routine...

for testing the water in your aquarium. Record your results to enable you to identify fluctuations quickly. Also check the temperature of the water.

Always wash your hands...

making sure to rinse off all soap residues, before putting them into your aquarium, or use long sleeved rubber gloves. Wash your

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may need to do regular water changes to achieve this.

Never siphon by mouth...

A fish tank can harbour bacteria which can be harmful if swallowed. Buy a specially designed aquarium gravel cleaner which can be started or primed without the need to place the siphon in your mouth

hands again afterwards and certainly before eating, drinking or smoking.

Five Welfare Needs Checklist:

The Animal Welfare Act 2006 states that all pet owners have a legal duty of care to their pets. Anyone who is cruel to an animal or is found not to be providing the five animal welfare needs, as listed below, can be prosecuted.

- A **suitable environment** e.g. appropriately sized tank (with water heater if tropical set up) within a suitable location in your home.
- A **suitable diet** which meets the needs of your chosen fish.
- **Behaviour** - Fish are able to exhibit their normal behaviour e.g. hiding places for timid fish, enough room for fish to swim freely.
- **Companionship** - Ensure you know whether your chosen fish need to be kept with, or apart from, other fish.
- **Health** - Protected from pain, injury, suffering & disease e.g. you are aware of the daily, weekly and monthly maintenance that your aquarium will need.

- **Water quality test kits are a necessity not an optional extra**
- **You must be prepared to look after your corals properly for the duration of their life and provide an aquarium which can accommodate all fish when fully grown**

*Never release your aquarium animals or plants into the wild
It is illegal and for most fish species this will lead to an untimely and possibly lingering death. Any animals or plants that do survive might be harmful to our native countryside. Take care to properly dispose of any soiled substrate (e.g. sand or gravel) or decorations so that non-native organisms do not enter natural watercourses.

Visit ornamentalfish.org to find a full range of how to guides and species-specific care sheets to help you look after your fish successfully.

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