

# PhytoTank Set-Up Guide



[www.poseidonreefsystems.com](http://www.poseidonreefsystems.com)

# Safety, Care & Maintenance

## **\*DO NOT SUBMERGE THE PHYTOTANK\***

The LED lighting system is NOT waterproof

Correct use of the disposable culture bags will prevent contamination of your PhytoTank.

If cleaning is needed, then do not wash in water. Instead, wipe the PhytoTank with a damp cloth.

As with all electrical aquarium equipment keep the power supply and power cords away from water. Create a drip loop with your power cord to prevent water from getting into the electronics

## **PhytoTank Placement:**

Avoid placing the PhytoTank in an enclosed area with limited airflow as this may lead to elevated culture temperatures that may inhibit phytoplankton productivity

For more information visit [www.poseidonreefsystems.com](http://www.poseidonreefsystems.com)  
or email us at [info@poseidonreefsystems.com](mailto:info@poseidonreefsystems.com)



## Poseidon Reef Systems Product Lines

### PhytoTank Systems



Phytoplankton

Copepods

Macroalgae

### Individual PhytoTanks



3.5 L

### Accessories



Culture Pack

Air Filters

Fertilizer

Dosing Cap

### Phytoplankton



## Copepod Systems

### Start with a PhytoTank-CL System



- One PhytoTank for phytoplankton
- Second PhytoTank for Copepods
- Everything you need to harvest pods

### Add On to your order!

#### Starter Cultures



#### Air Pumps



#### Culture Packs



#### Add 1-2 Additional PhytoTanks



Grow additional Phytoplankton or Copepod Species Simultaneously

#### Additional PodNests



## Phytoplankton Systems

### Start with a PhytoTank System



Grow 1 Phyto Species

### Add On to your order!

#### Starter Cultures



#### Air Pumps



#### Culture Packs



#### Add 1-3 Additional PhytoTanks



Grow several Phytoplankton Species Simultaneously

## Phytoplankton Storage

### Seal Phytoplankton in storage pouches to backup your cultures



### Storage Pouches Sold in 10 Packs



## Macroalgae Reactor



- Grow macroalgae to lower phosphate in your display tank
- Start with a small clump of macroalgae
  - Pump water from your sump through the reactor
  - Macroalgae will grow and absorb phosphate
  - Periodically remove macroalgae to make room for new growth



## Buy Now & Expand Your System Later!

### Add PhytoTanks



+



**Power Supply**  
(1 for every 4 PhytoTanks)

+



**2 & 4 Way Power  
Supply Splitters**

### Convert a PhytoTank to a Copepod Reactor



### Convert a PhytoTank to a Macroalgae Reactor



## Culture or Dosing

### Culture Caps: Grow Phyto



Aeration &  
Vent  
Bulkheads

### Dosing Caps: Dose Phyto



Aeration, Vent  
& Dosing  
Pump  
Bulkheads

### Phytoplankton Systems are sold with Culture Caps

- Select a Dosing or Culture Cap When You Add Additional PhytoTanks
- Grow Phytoplankton in one PhytoTank & Dose Phytoplankton from Another PhytoTank

## Supplies



Fertilizer



### Culture Packs:

- 10 Culture Bags
- 10 Aeration Tubes
- 10 Air Vent Tubes
- 10 Disposable Pipettes

### Air Filters





## Self-Sustaining Copepod Cultures

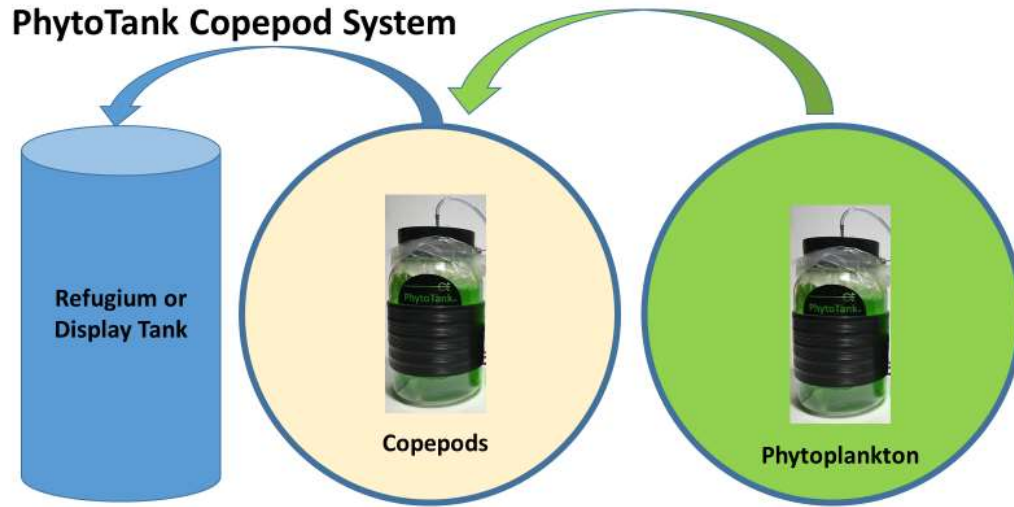
Copepods are an essential food source for a wide variety of reef tank inhabitants, especially mandarin gobies and other dragonettes. In addition, Tisbe pods will consume detritus and contribute to a cleaner reef tank.

PhytoTanks make it fast & easy:

Grow phytoplankton in one PhytoTank and then feed it to copepods growing in a second PhytoTank.

- No need for fluorescent lights
- No cleaning or disinfecting between cultures
- Spend less time fussing with improvised culture systems and more time enjoying your reef tank!

## PhytoTank Copepod System



## PhytoTank Copepod System



## PhytoTank Copepod System: Pod Nest



The Pod Nest is designed to provide a substrate for copepod infestation and simultaneously provide aeration and filtration

## Dosing Recommendation

- Start with 5ml per 10 Gallons of aquarium water per day\*
- Monitor coral growth & water parameters
- Increase dosing as needed to optimize coral growth
- Phyto will be rapidly cleared by filter feeders and extracted by protein skimmers so the dose may need to be optimized for your reef tank.

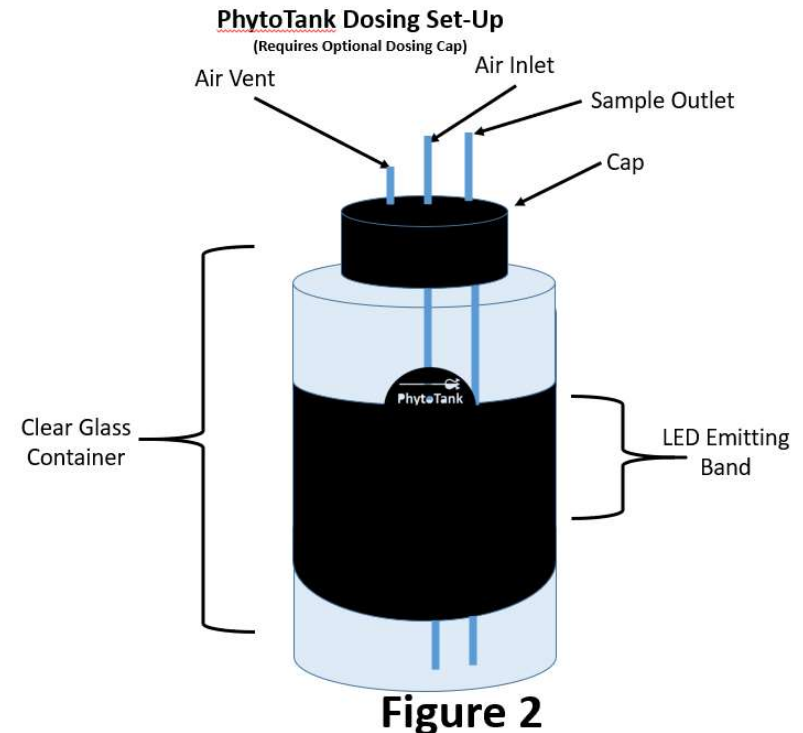
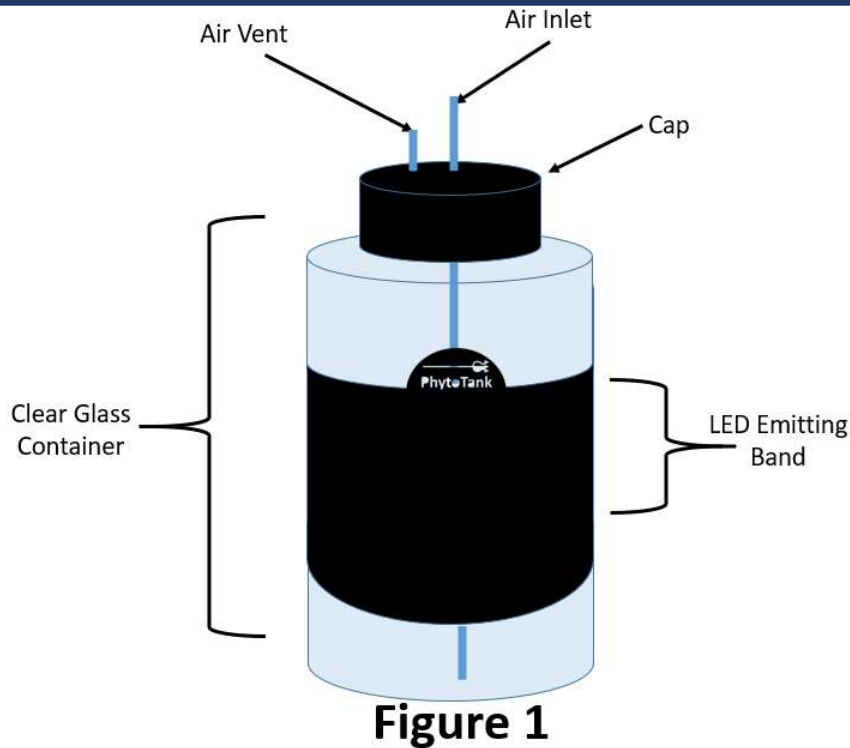
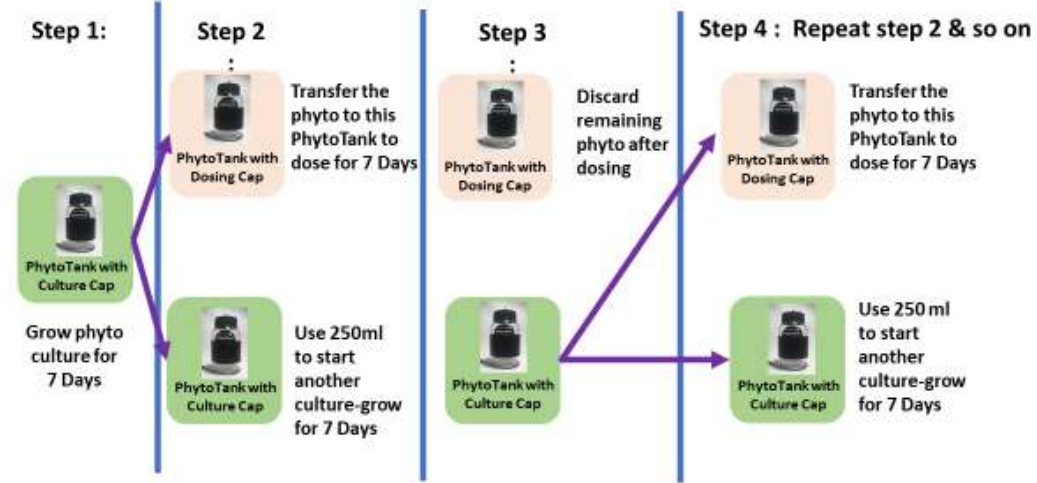


## Continuous Phytoplankton Culture

- Grow phyto for 7 days
- Retain 250 ml of the phyto as a backup starter culture (store in the refrigerator-shake weekly)
- Use 250 ml of the phyto to start a new culture
- Remaining phyto is for feeding coral, copepods etc.

\*This dose delivers a final concentration of about 1,000 cells per ml aquarium water, which is a typical level of phytoplankton in reefs

## PhytoTank: Grow & Dose Set Up



### Attach Hose Barb to the Cap

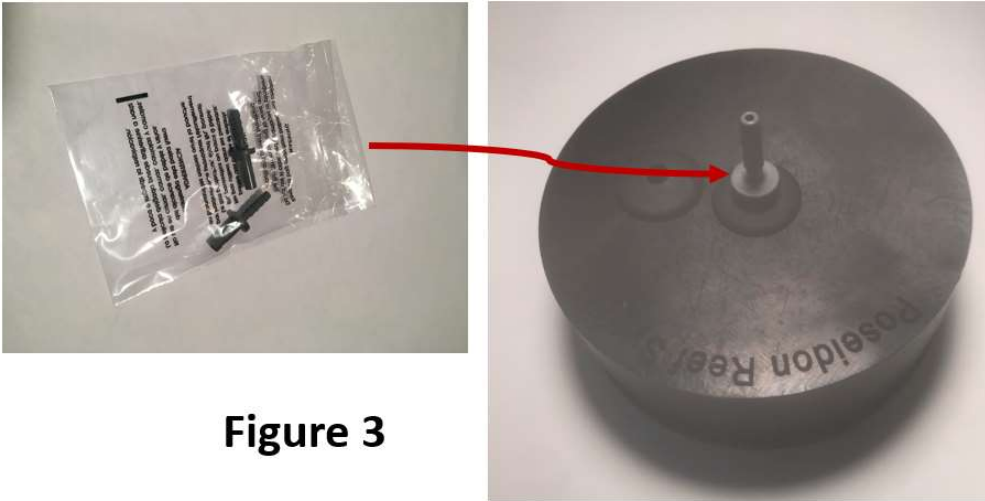


Figure 3

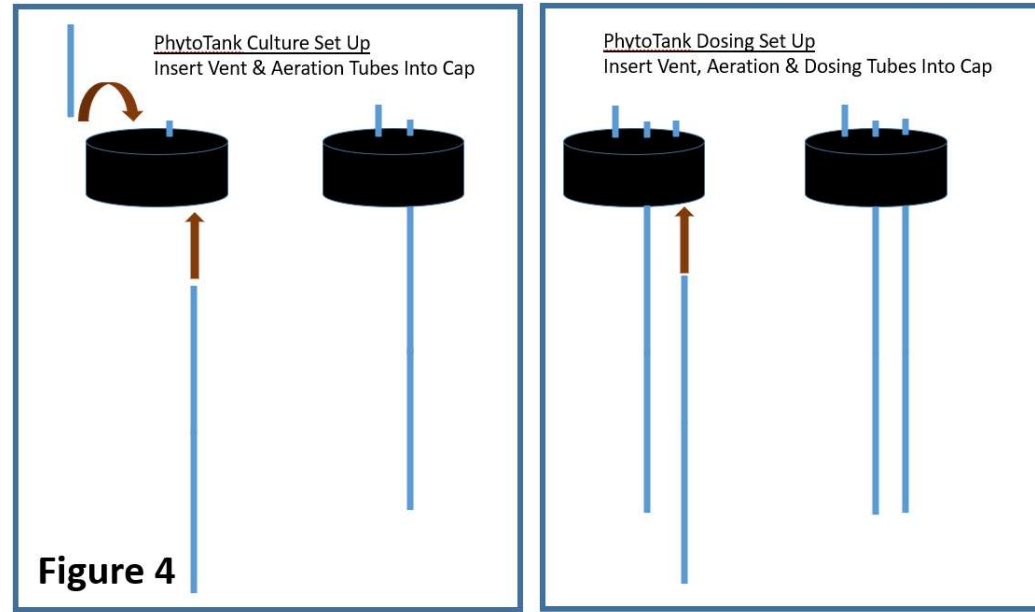


Figure 4

### Figure 5



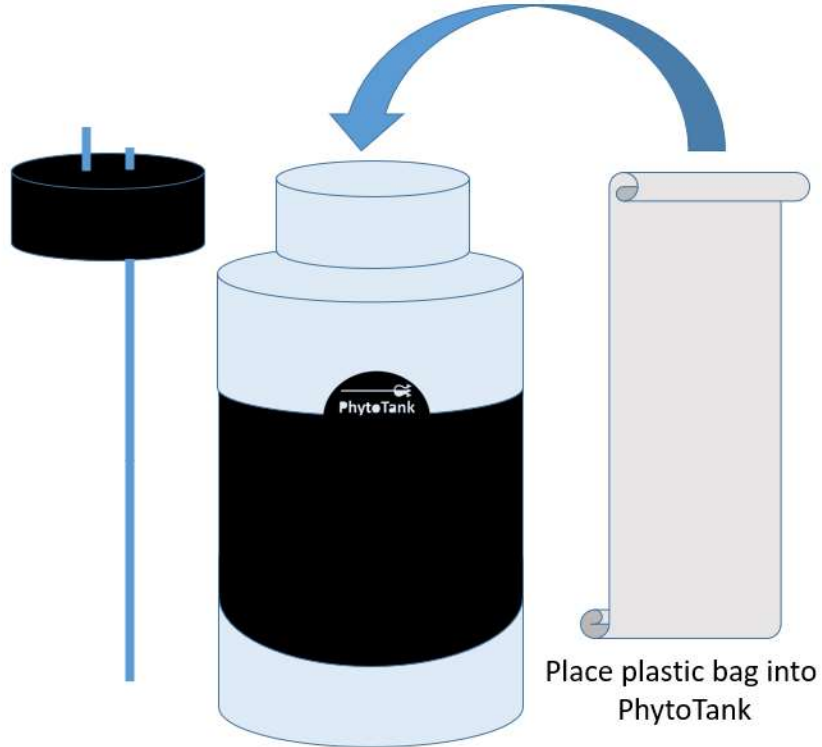
Firmly insert the tubes into the fittings to ensure adequate air flow

Clean your workspace & hands with rubbing alcohol  
clean cap & tubes with rubbing alcohol

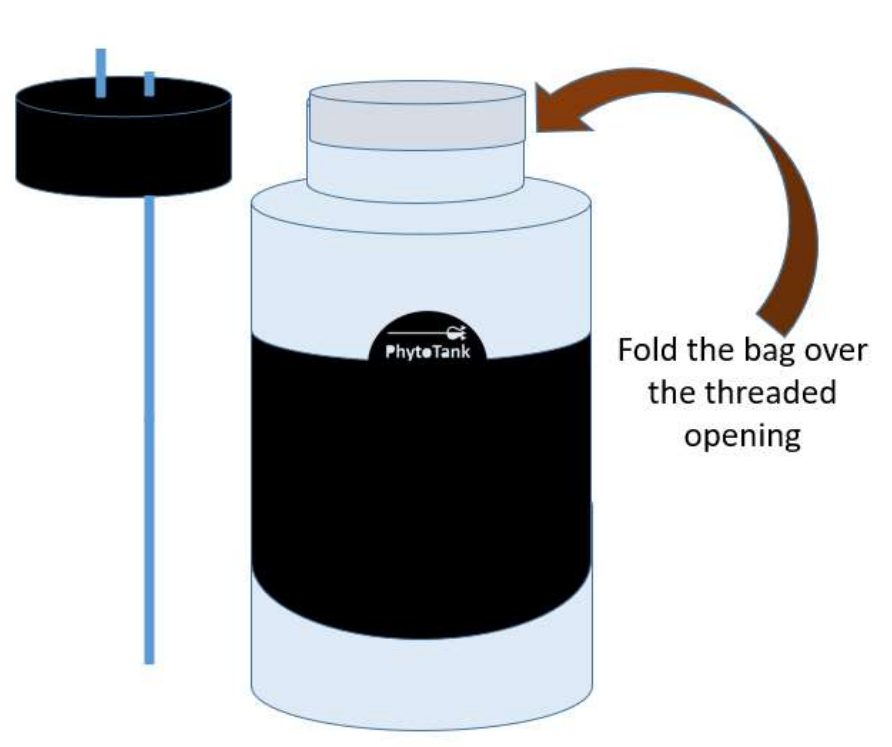


**IMPORTANT:** Make sure the alcohol completely evaporates. Trace amounts of residual alcohol will kill phytoplankton!

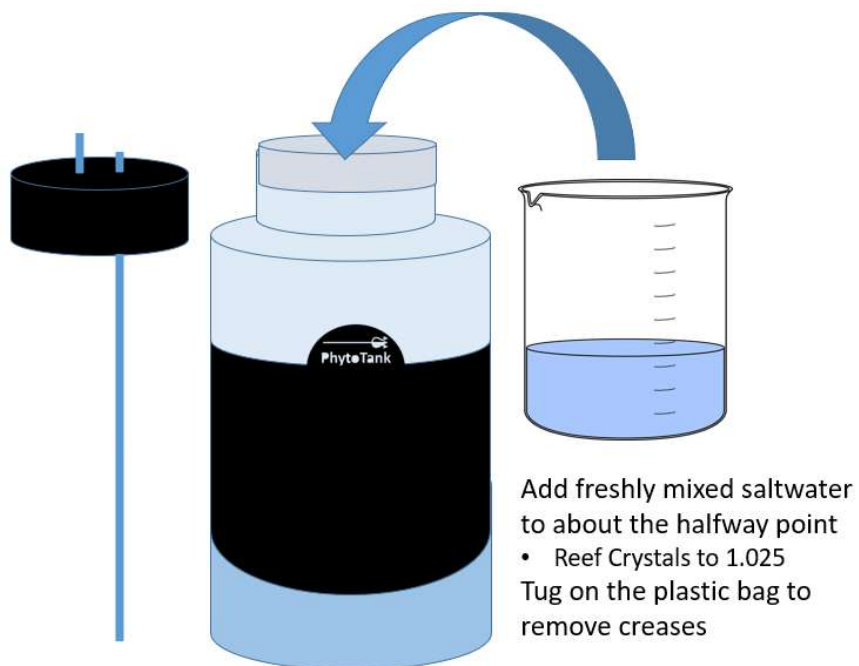
Figure 6



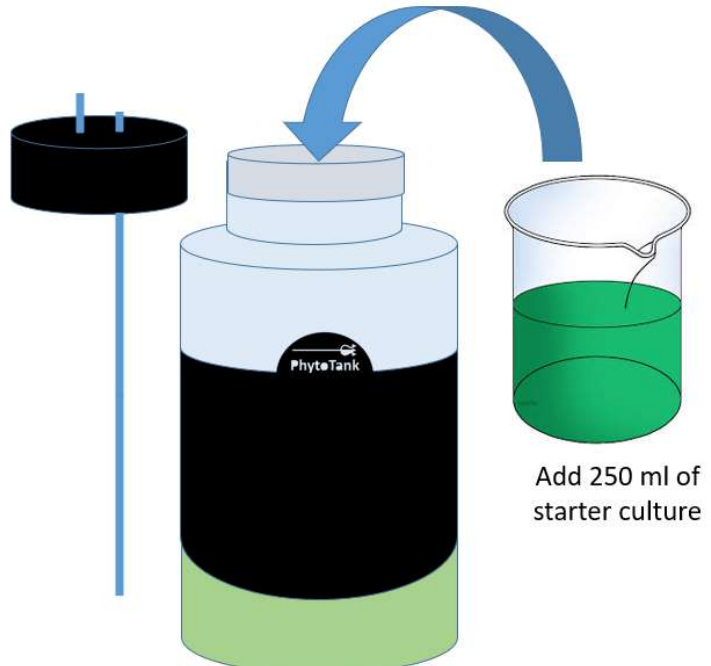
**Figure 7**



**Figure 8**



**Figure 9**



**Figure 10**





### **Inoculation Levels:**

Use the entire starter culture pouch to start up your system for the first time.

After 7 days restart your cultures. Your results may vary but we recommend a 250 ml Starter Culture.

Starting a new culture with too much phyto will result in the culture reaching a dense plateau phase too soon which may crash the culture.



### **Poseidon Reef Systems Starter Cultures:**

Our starter cultures are grown in UV-Sterilized, 1 micron filtered synthetic seawater (salinity 1.025) using silica-free fertilizer. They are packaged at the late exponential growth phase and shipped immediately without any cold storage.

### **Storing Phytoplankton:**

Phytoplankton can be stored in the refrigerator and remain nutritious for coral and other organisms for as long as 5 months. However, shorter refrigerated storage times are required for phytoplankton targeted for starting active cultures. We recommend shaking refrigerated cultures weekly to avoid settling which can affect viability.

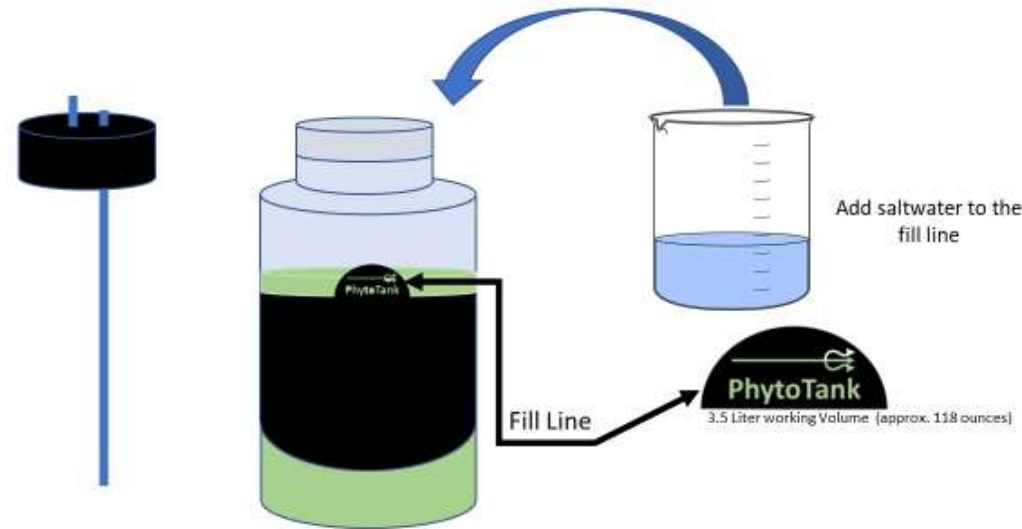
*Nanochloropsis Oculata* cultures can be refrigerated for future starter culture use for up to 90 days and *Isochrysis Galbana* cultures for up to 30 days. Please note that refrigerated cultures will have a delayed early growth phase. In particular, refrigerated *Isochrysis Galbana* starter cultures will have a significant lag period and may become noticeably fainter during the first few days. Consequently, allow extra time for these cultures to recover and enter the exponential growth phase.



### **Do Not Mix Phytoplankton Species:**

In a mixed culture the fastest growing species will eventually take over. If you're interested in dosing a mixture you can combine species after you grow them independently.

**Special Note on *Isochrysis Galbana*:** This species is more difficult to maintain. In addition, it doesn't store as well and will be unlikely to start a new culture after about 30 days in the refrigerator. The best way to maintain a supply of *Isochrysis Galbana* is to maintain a constant culture without periods of refrigerated storage between cultures.



**Figure 11**

## PhytoTank Culture Set-Up



Figure 12

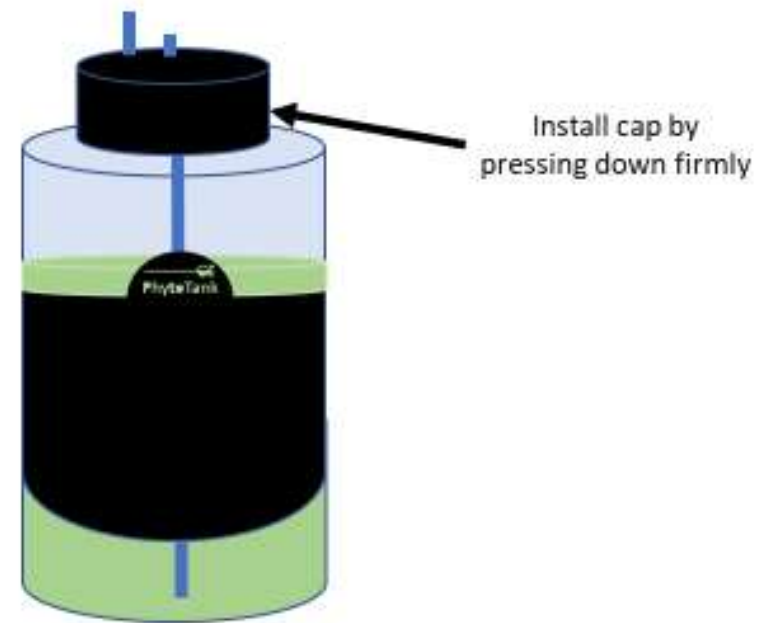


Figure 13

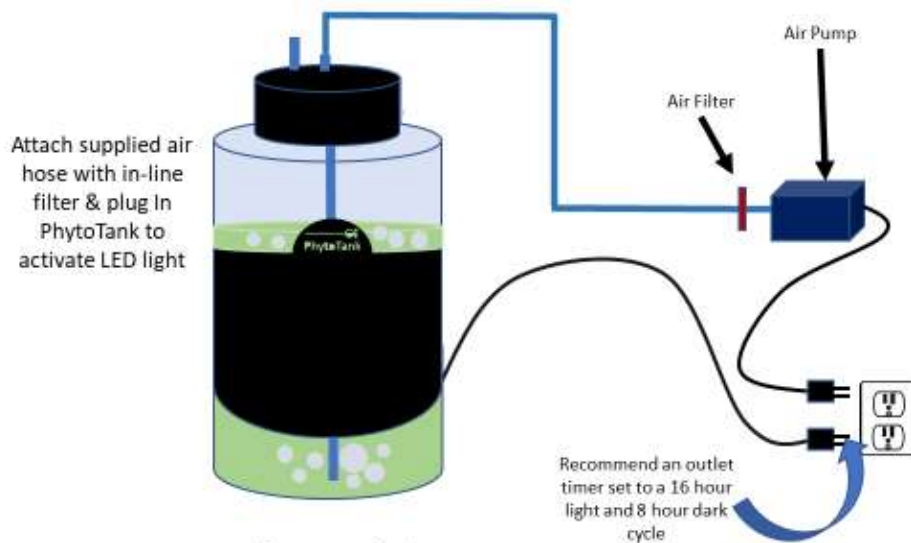


Figure 14

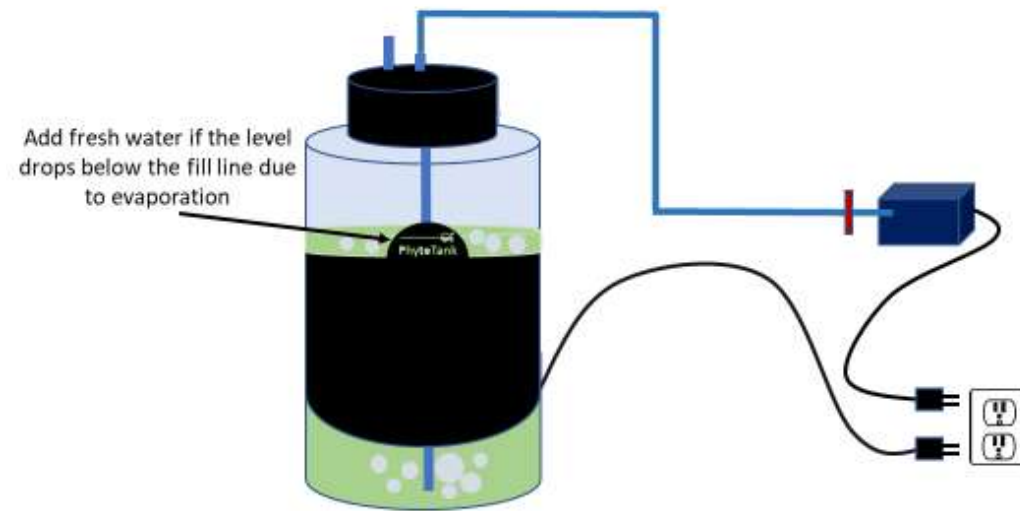
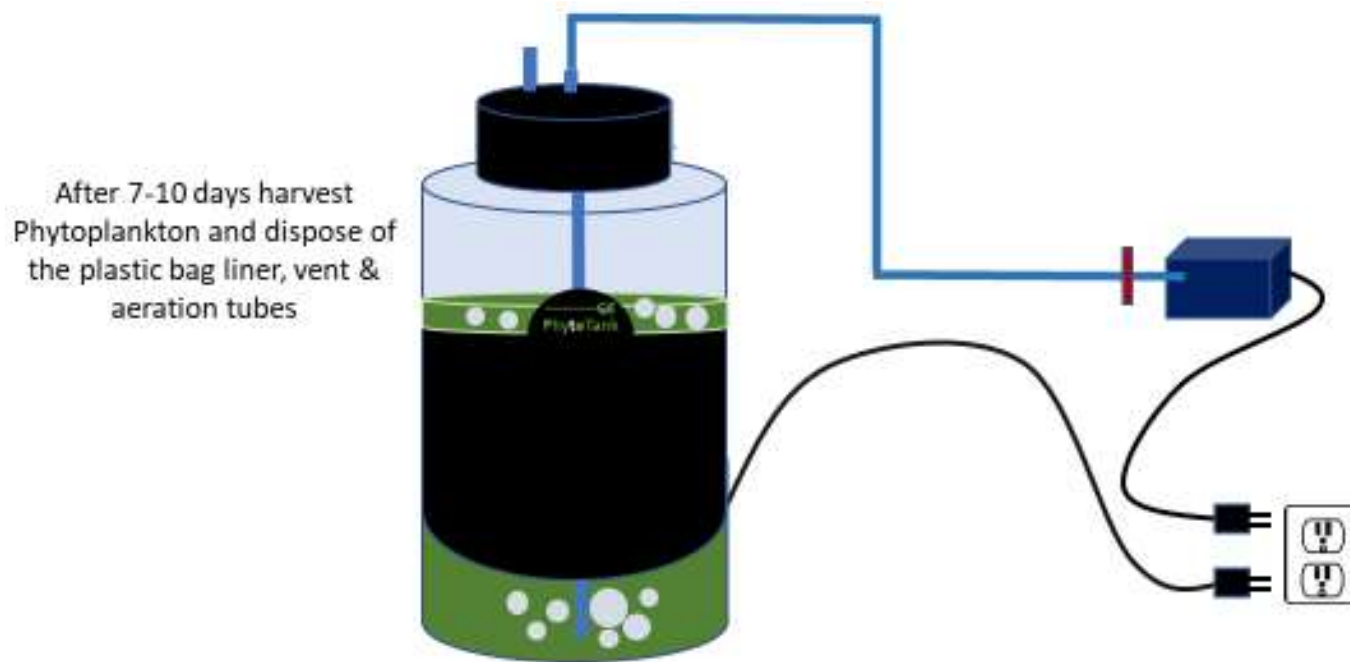


Figure 15



**Figure 16**

### What if your phyto crashes?

- There are four main causes:
  - Inferior water quality: Use high quality RO water with zero TDS to make your saltwater
  - Contaminating microorganisms: Clean everything & don't let anything you use come in contact with your display tank water
  - Too much light: Set a 16 hour light, 8 hour dark cycle-if you use a mechanical outlet timer periodically check it to make sure it stays set to "Timer" and not "On."
  - Too much heat: If you place your PhytoTanks in a crowded small compartment with lots of other heat-generating gear, then the culture might overheat. Relocate the PhytoTank or place a fan in the compartment to move air around and keep the area cool
- SEE THE TIPS & TRICKS SECTION FOR MORE POINTERS



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# Phytoplankton Dosing & Storage

Phytoplankton is the basis of the marine food chain. Reef keepers have reported excellent coral and invertebrate growth and maintenance by dosing with phytoplankton.

The volume of phytoplankton that you add to your reef tank depends on the nutritional demands of your system. Consequently, you will need to experiment with your system to arrive at the optimum dose. Guidelines have been published by a number of phytoplankton suppliers suggesting a dose of 5 ml per 10 gallons, 3-4 times per week.

## **Manual Dosing:**

- Phytoplankton can be dispersed in the water column or you can directly target feed specimens. It is recommended that you turn off protein skimmers for 30-60 minutes after dosing phytoplankton.

## **Automated Dosing:**

- You can grow a phytoplankton culture using the PhytoTank with the Culture Cap and then use a PhytoTank with a Dosing Cap to maintain the culture for 7-10 days for automated dosing using a dosing pump. One option is to use two PhytoTanks, one to grow a culture while a second PhytoTank is used for dosing the culture that you grew the previous week (retaining a small amount to use a starter culture each week).

## **Storage:**

- Phytoplankton can be refrigerated for future dosing or culturing. Experimental data suggests that phytoplankton can remain viable in the refrigerator for as long as 5 months (with weekly shaking to prevent settling). However, in our hands, phytoplankton stored for more than 90 days is less effective as a starter culture. If you use refrigerated phytoplankton as a starter culture, then you may observe a lag period before additional growth is observed. This is particularly noticeable for *isochrysis galbana* wherein you may see the culture become significantly lighter in the first few days of culture and then it will gradually get darker. This lag period is not observed if you start a new culture with fresh phytoplankton that has never been refrigerated.

# Tips & Tricks

- **Periodically clean your hands:** Clean your hands with rubbing alcohol as you work.
- **Make sure rubbing alcohol evaporates:** Small amounts of residual alcohol can crash your culture so make sure it evaporates before setting up the PhytoTank.
- **Water quality:** Make sure to use high-quality RO water with 0 TDS to make your saltwater. If you use a lot of saltwater, consider storing it in a clean container and continuously circulate the saltwater through a UV light to hold down contamination.
- **Keep implements separate:** Your display tank has a lot of organisms that can crash a phyto culture. Therefore, use separate pumps, tubing, containers etc. for phyto cultures.
- **Disinfection:** If your culture crashes, soak the rubber cap in 5% household bleach for 5-10 minutes. Thoroughly rinse the cap off before use. Also wipe down the PhytoTank surfaces with rubbing alcohol.
- **Back-up cultures:** Store samples of phyto in the fridge in a clean capped container to restart your cultures in the event of a culture crash. Periodically shake the cultures to keep the phyto suspended. Replace the back-up cultures every few weeks. Nano can be stored for 90 days and still effectively start a new culture, however iso is a lot less stable and may last 30 days or less.
- **Light/Dark Cycle:** Make sure your outlet timer is working properly and delivering 16 hours light/8-hour dark cycle. Make sure the dimmer is connected to the Pod culture and the phyto culture gets full light.
- **Grow iso continuously:** Iso doesn't store well in the refrigerator, so for best results grow iso continuously. Iso stored in the fridge will still be nutritious but it may not start a culture effectively.
- **Inoculation & culture duration:** Get in a routine of starting cultures on a 7-day schedule using the same inoculation level. Your results may vary, but a good starting point is 250ml for the PhytoTank-L, 150ml for PhytoTank-M and 100ml for PhytoTank-S.
- **If contamination persists:** Consider replacing the air filter and tubing.



Poseidon Reef Systems 

**STARTER CULTURE GUARANTEE**

If you purchase a system from [www.poseidonreefsystems.com](http://www.poseidonreefsystems.com) and your culture crashes for any reason we will provide free replacement starter cultures for a \$22.50 shipping and handling charge. Simply place an order for the *Starter Culture Guarantee Fulfilment* on our website (<https://poseidonreefsystems.com/products/starter-culture-guarantee-fulfilment>)

Make sure you keep the quantity as "1" in your cart because it's a flat rate deal

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