PLANKTON STATION - QUICK GUIDE

Inland Seas Education Association

PREPARE TO TEACH

SET UP STATION MATERIALS

- ☐ Try out the microscope to be sure it is working properly and the video screen is receiving images from the microscope. It is common for the power to not be working when you arrive – just let the crew or lead instructor know what is going on and they will make it work.
- ☐ Setup materials on the plankton bench or table. Alert lead instructor if materials are missing or broken.
- ☐ **If a Next Gen program:** Bring plankton net on deck, locate the line for the plankton net, and grab a plankton cup. Check to make sure everything is in working order.
- ☐ Setup datasheet with your name, date, time, and location. Review datasheet directions.
- ☐ Gather index card, pencils, and logbooks for students. Smile!

PURPOSE

At this station we will assess lake health by asking:

Does the plankton community contain **many kinds of plankton**, and **no invasive species**?

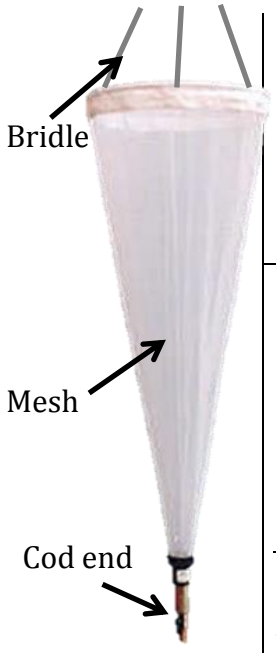
CONNECTION TO LAKE HEALTH

Plankton are the foundation of the aquatic food web. Phytoplankton are the conduits for energy and nutrients to enter the food web, and zooplankton are food for many small creatures in the lake, which in turn are food for larger creatures in the lake, notably fish. When there are problems in the plankton community – populations drop, favored prey types become rare, or invasive species compete for prey items – the whole lake can suffer, and fish become weaker and less numerous. In contrast when plankton thrives, so do the fish!

COLLECTING THE SSAMPLE

NEXT-GEN ONLY • NEXT-GEN ONLY • NEXT-GEN ONLY • NEXT-GEN ONLY

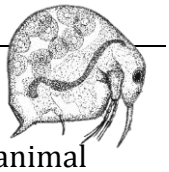
Pre-sampling discussion (6 min)



1. Show the plankton net
→ **153 micron** holes (0.153 mm)
→ Filters water

2. What can we catch with this net?
→ Tiny things
→ Plankton

3. What words describe plankton?
→ Weak swimming
→ Drifting
→ Floating



4. Are plankton plants or animals?

Phytoplankton
are algae and bacteria
→ "phyto" means plant-like
→ they use sunlight to do photosynthesis
→ <100 microns
→ near the surface

Zooplankton
are animals
→ "zoo" means animal
→ they eat other organisms
→ >100 microns
→ deeper in the water

5. What can plankton tell us about lake health?
→ An abundant and **diverse** plankton community is good for the lake

Take plankton sample (8 min)

→ **50-60 ft** *(IS)*
60-70 ft (*Man*)

→ At least 10 feet from the bottom

→ **1 foot = 16 gallons** filtered

→ Rise net on **shower** setting

→ Note cloudiness of the sample

Prep for peer teaching! (3 min)

Student should talk about:

- ☐ **Sampling info in logbook**
- ☐ **How to use the plankton net**
- ☐ **What we will do with the plankton sample**
- ☐ **Plankton and lake health**

TEACHING THE STATION

INTRODUCTION (2 min)

Purpose:

Assess the health of the plankton community

Why look at plankton?

→ **Plankton feed everything else in the lake**

→ **50-85% of Oxygen comes from phytoplankton**

A healthy plankton community includes:

☐ **A diversity of types**

☐ **Many common types**

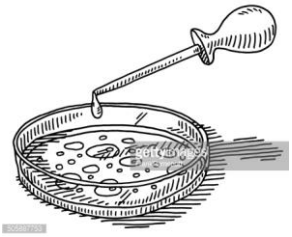
☐ **No invasive species**

What might we see today? Introduce with: Plankton Poster | Plankton cards | Plankton graphs

EXAMINE SAMPLES & TALLY SPECIES (12 min)

Find Abe:

Five drops:



Low power (10x)

High power (30x)

→ **Use poster or cards to identify plankton types**

→ **Share cool facts!**

→ **Record species presence per drop in logbook**

→ **Calculate percentages**

Copepods:	Rotifers:	Cladocerans:	Veligers:	*Bythotrephes*:
Note antennae & egg sacs Live about one year	They rotate Live 3-21 days	Most are female Overwinter as eggs	1 of 400,000 eggs Last several weeks	Spiny tail Eats Cladocerans

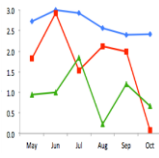
ANALYZE RESULTS (LAST 3 min)

Is the Plankton healthy? Did we find a diversity of organisms? Look for:

☐ Several types ☐ Two or more common types ☐ No invasive species

1. **How many types of plankton did we find?**

→ Compare to what we normally find this time of year



2. **How many types did we find: Frequently? Rarely?**

→ Look for several types found frequently

3. **Did we find invasive species?**

→ No = Healthy!

→ Yes = Ecosystem problems

BETWEEN GROUPS

→ Clean off petri dishes to make room for new drops.

→ Reset materials for the next group.

CLEAN UP

☐ Calculate percentages from ALL drops examined during the station, complete datasheet.

☐ Return samples to the lake.

☐ Dry off petri dishes, rinse eye droppers, turn off microscope and television

☐ Place everything neatly back into the Plankton bin.

☐ Give your completed datasheet to the Lead instructor.

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Next-Gen and Traditional Schoolship
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[v. 03/2019 jev]