

Building and Deploying Suspended Lines with Settlement Plates

Goal: Assemble and deploy suspended structures on poly rope lines to allow marine invertebrate larvae to settle and grow at different sites, for easy sampling of their tissues and microbiomes. Inspiration for these structures comes from the Department of Fisheries and Oceans Canada.

Materials

- $\frac{3}{8}$ " braided Polypropylene Rope
- 10-inch plastic saucers. We suggest not stacking more than two saucers in one line.
- Petri dish bottoms of any size, and as many replicates as you've designed for your experiment. We have used 50mm and 100mm diameter petri dishes.
- Outdoors cable ties
- Standard cored red brick.

Instructions

- Use sandpaper to scrub the inside of the bottoms of the petri dishes for your structure. Sanding the surface increases the surface area of the dishes, and facilitates larval settlement.
- Melt small slits on the edge of the bottom of each petri dish, wide enough for cable ties to slide through. Note: we use a dedicated soldering iron inside a fume hood for melting plastics.
- Arrange the petri dishes in the saucers, and mark the location of the slits of the petri dishes on the saucers, and melt slits wide enough for cable ties to slide through.
- Melt a hole in the center of the saucer, large enough for the $\frac{3}{8}$ inch poly rope to pass through.
- Attach the petri dishes to the saucers by using cable zip ties. Make sure to trim the slack of the cable ties.
- Determine the desired length for the whole structure from the point from which it hangs to the point that attaches the brick that keeps the structure hanging vertically. Then, add at least 80 cm for knots and rope slack. For example, if you would like your structure to be 1m in length, cut at least 1.8 m of poly rope. Note: remember that the brick is approximately 20 cm in length. Make sure to melt the cut ends of the poly rope to prevent fraying of the fibers.
- At ~40 cm, fold the poly rope, and create a loop by making a scaffold or end-loop knot.
- Thread the poly rope through the center hole of the saucers, and make a simple overhand knot below the desired height for the saucer to support the saucer. Thread a second saucer if desired.
- Finally, tie a cored red brick to the desired length using a bowline knot.
- These suspended line structures are easily attached to fixed or floating docks, breakwalls, pillars, or cleats.

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