

Better Fishing through Engineering

NOAA Teacher at Sea Lesson

Inspired by Henry Bigelow, Autumn Bottom Trawl Survey Leg II, September 23-October 3, 2014, Janelle Harrier-Wilson

Purpose of the Cruise:

The NOAA Northeast Fisheries Ecosystems Surveys Branch conducts surveys that provide consistent, unbiased estimates of relative abundance for many finfish and shellfish species in the Northeast region. The Bottom Trawl surveys have been conducted since 1963 and serve as the basis for some of the longest time series of standardized fishery-independent indices of relative abundance in the world.

Ship:

Henry B. Bigelow supports NOAA's mission to protect, restore and manage the use of living marine, coastal, and ocean resources through ecosystem-based management. Its primary objective is the study and monitoring of northeast and mid-Atlantic marine fisheries and marine mammals, ranging from Maine to North Carolina. The ship continually reports weather, sea state, and other environmental conditions while at sea.

Goal:

Design and create a boat that replicates the Henry Bigelow's net trawl system in order to catch the most fish of varying species.

Specifications:

Your boat must have a mechanical mechanism to cast the net and bring the net back in. You can manually move the boat.

Materials:

You can only spend \$1 on your materials. You must keep an inventory of what you spend.

Plan:

Sketch a plan of your design with a list of the materials you plan to use. Once you have a plan, you will be given materials. You can test and redesign as you go.

Test:

Compete to see which group's design is able to catch the most total fish and the most variety of fish at the lowest cost. Each group will have one minute to fish. Record results on chart.

Item	Cost	Number Used	Total Cost
Popsicle Sticks	\$0.01 each		
Straws	\$0.01 each		
Balsa Wood Piece	\$0.25 each		
Bobbin	\$0.32 each		
String	\$0.01 per foot		
Hot Glue	\$0.12 per stick		
Duct Tape	\$0.08 per foot		
Mesh	\$0.05 per foot		
Paperclips	\$0.01 each		
Screw Nuts	\$0.05 each		
Staples	\$0.01 for ten		
12-inch Skewers	\$0.02 each		
6-inch Skewers	\$0.01 each		
Cling Film	\$0.05 per square foot		
Aluminum Foil	\$0.05 per square foot		
Dixie Cup	\$0.02 each		

