High School Marine Biology Research Projects
Marine Debris

I. Introduction

Marine debris is any persistent solid material that is manufactured or processed and directly or indirectly, intentionally or unintentionally, disposed of or abandoned into the aquatic environment. Every year, marine debris injures and kills marine life, interferes with navigation safety, has adverse economic impacts to shipping and coastal industries, and poses a threat to human health. Our oceans and waterways are constantly polluted with a wide variety of marine debris ranging from soda cans and plastic bags to derelict fishing gear and abandoned vessels (NOAA 2008).

II. Research question: Which type of marine debris is most prevalent in Bimini, Bahamas

III. Hypothesis

a. Null H_0: _____

b. Alternate H_a: _____

IV. Prediction: _____

IV. Materials:

Project materials:

- Red Flags (under sink)
- Biodegradable flagging tape
- Garbage bags
- Clipboards
- Pencils (extra just in case)
- Tape Measure
- Mesh Bags
- Data Cards
- Orange Shore Box with radio
- Digital Camera (grey box)
- Insect repellant
- Sunscreen
- Cooler with water

Student materials:

- Filled Water Bottles (in cooler)
- Gloves
- Snorkel Gear
- Closed-toe Shoes
- Hats
- Insect repellant
- Sunglasses
- Personal sunscreen
- Shorts and Shirts

V. Procedure

Prohibited Items to Bring Aboard (count, but do not collect):

Glass
Metal
Sharp Objects
Strange liquids
Very large items

Prohibited Items to Count or Collect:

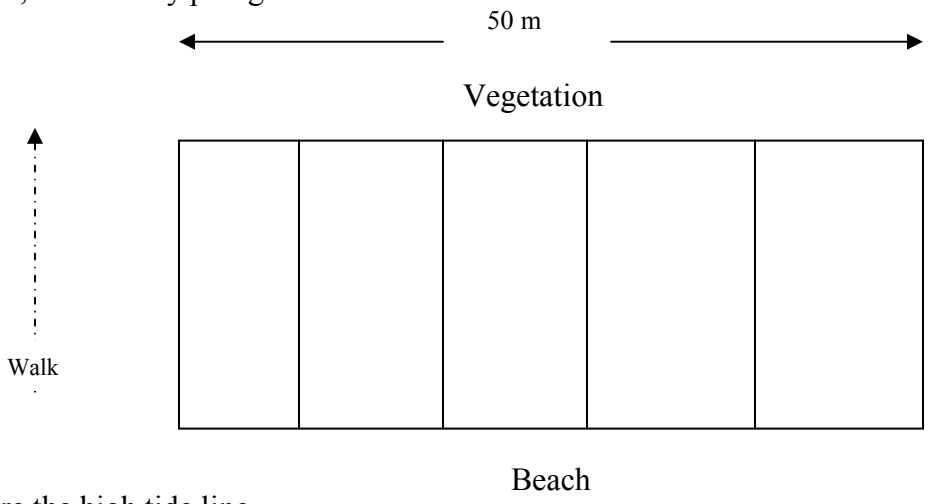
Natural debris (wood, algae, coral, vegetation)

- Additionally, do not open closed containers with liquid in them

Collection Procedure:

1. Gather materials, apply sun block
2. Project leaders brief students on project details
3. Students gather materials and place in skiff
4. Project leaders take skiff to island; other students snorkel
5. A 50-meter section of beach and the distance from the water to the vegetation line are measured by group leaders while they wait for other students to arrive
6. Flags are placed every 10-meters within the 50-meter zone

Flag every 10m, each buddy pair gets 10m



7. Measure the high tide line
8. Students survey the beach and collect debris
    a. Shake sand off when debris was collected and unnecessary water is dumped out
    b. No glass or natural debris is collected from the beach. Students are to use best judgment when they pick up debris; if it is dangerous – take necessary safety precautions
    c. Plastic should be placed in a separate bag from other debris
9. Record all findings on the data sheet, including the type and number of each article of debris
10. After the data is recorded, students place debris in the garbage bags provided – separating recyclable/non recyclable materials
11. Project leaders gather all materials, including the flags, and place it in the skiff to return to the R/V Coral Reef II.
12. Record total weights on the data sheet
13. Project leaders debrief the group on the boat
    a. Discuss most common items found
    b. Discuss ways to improve the quality of beaches and oceans

Literature Cited

National Oceanographic and Atmospheric Administration (NOAA). NOAA Marine Debris Program: Marine Debris 101. Revised June 13, 2008. http://marinedebris.noaa.gov/marinedebris101/welcome.html