SUCCESSFUL FIELDTRIPPING

MARINE SCIENCE – Ocean Studies, Ocean Issues - Grade 8 is designed as a self-contained curriculum equally appropriate for schools located on the edge of the sea and for schools located inland. As such, the activities included by and large do not require access to the water. If access is available, however, it can and should be utilized to broaden the experience and provide your students with further "hands on" opportunities to become familiar with the marine environment. The following guidelines are presented to help you lead a successful trip to the shoreline.

GUIDELINES FOR ROCKY INTERTIDAL FIELD TRIPS

Adapted with permission from "Once Upon a Seashore" by Gloria Snively
Univeristy of Victoria; Victoria, British Columbia

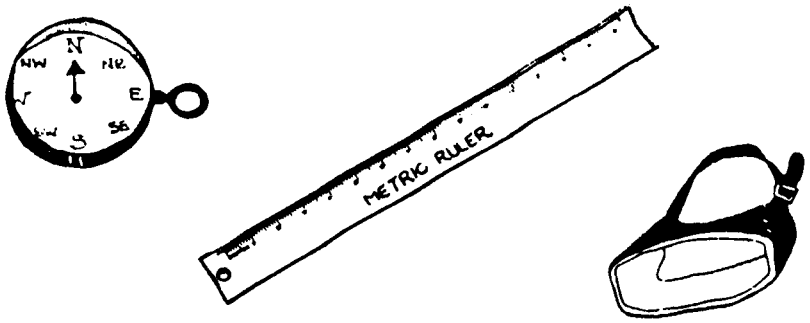
The edge of the sea has fascinated humans since earliest times. Ancient peoples used the margin to find a source of food and many of their gods were to be found in the sea. They looked to the margin of the sea as a defensive barrier to marauding enemies and as a passageway to trade with other units of society. Why humans are drawn to the sea has been a subject for philosophers, poets and physiologists. That we are drawn to the sea today is the concern of land developers, ecologists and the general citizenry.

Increasing human population, shortened work weeks, increased mobility and popularity of "environmental awareness", all contribute to greater numbers of people examining the magnificent beauty available to the human eye at low tide. The word "oceanography" has captured the imaginations of our citizens, including teachers and their students. The edge of the sea is most accessible to them and field trips are being taken by an ever increasing number of groups and individuals. In too many places the result of this increased utilization of the environment has resulted in the modification of that environment from a veritable jungle to that of a desert.

These guidelines are designed to offer some suggestions to those planning group visits to the shore. Our goals are educational usefulness, environmental protection, safety and esthetic enjoyment. Our concentration is on the rocky shore because of its great abundance and variety of life. Suggestions are in four sections as follows: preparation (Plotting the Course); at the site (All Hands Topside); back in the classroom (Swabbing the Deck); and references. The sections are in the form of questions the field trip organizer should consider.

PLOTTING THE COURSE

- What are your objectives besides getting out of doors?
- Have you personally visited the site? Does the site minimize the inherent dangers? By the way, have you checked the tide table for a tide +1' or lower? Have you established transportation and published itinerary? Are you familiar with the state's intertidal rules and regulations?
- Have you considered teaching aids such as films, slides, resource people, books, bulletin boards? Have you established work crews (i.e. 5 - 8 with a captain for each)? Does each crew understand its mission? Where are you going to get your adult help? Parents? Bus driver? College students? High school students? Has acceptable behavior been agreed upon? Where is your food cache? Would emergency telephone arrangements be useful?
- Will everybody have pocket money for snacks, etc.? Do you know what salt water does to leather shoes? Do you know what cold, wet conditions do to one's enthusiasm and attention span?
- Why must you return rocks to their original position? Do you know when you crush a sea urchin you may be destroying 10 - 15 years of growing? Have you considered that when you remove a six inch square segment of mussel bed you are destroying over 6,000 living creatures? Does everyone understand that if you leave the organisms on the beach, the next group will be able to see them?
- Do you have a first aid kit? Will you have emergency transportation? Do you know what barnacles do to naked ankles and sea urchins do to exposed toes? Does each crew have a wave watcher and a tide watcher? Smooth soles lead to departed souls. WATCH YOUR STEP!

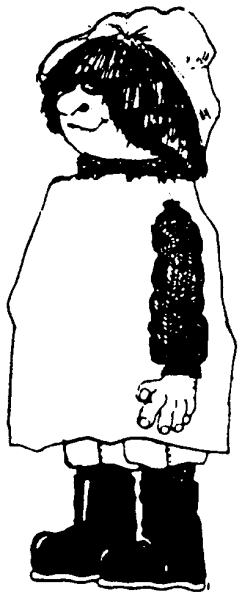


CLOTHING, SUPPLIES, AND EQUIPMENT FOR YOUR TRIP

Clothing - Proper clothing is a very important consideration for the enjoyment and success of seashore activities. Most trips to the seashore need not be cancelled due to poor weather conditions provided that the participants are properly clothed. Weather conditions at the seashore are highly unpredictable. It's possible to see sun, wind, rain, and hail all in the same day. As a general rule IT IS BETTER TO OVER DRESS THAN TO UNDER DRESS.

It is essential that clothing be both comfortable and functional. Attention should be paid to the characteristics of different fabrics. The following suggestions are provided as a guide to proper clothing. You will need to add or delete items to fit the general climate of your area.

Rain Gear - One of the most important considerations when going to the seashore is how to keep dry. One way to choose the most appropriate gear is to examine what a fisherman wears. A fisherman wears good rubber boots with thick soles, woolen socks, a long nylon or rubberized rain coat with a hood or a fisherman's rain hat, and rubberized pants. A variety of synthetic substitutes can be worn, but it should be emphasized that such items as wind breakers, sweat shirts, and cotton jackets are not substitutes for waterproof rain gear.



Emergency Rain Gear

Emergency Rain Gear - No matter how much you emphasize the importance of proper clothing there will always be a number of students and assistants who will show up poorly dressed. It is a good idea to bring along a dozen or so large plastic garbage bags. These bags are great because they can be fashioned into make-shift rain coats, hats, and boots. And get clear bags; they can be used as aquariums or as aids to writing during rainy weather.

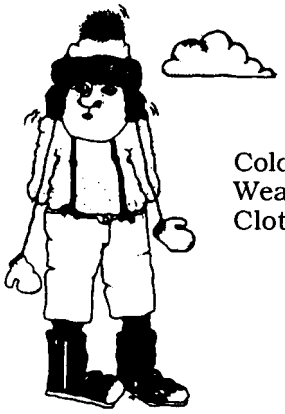
Cold Weather Gear - Wools retain warmth more than any other material, even when wet. Fishermen often wear heavy woolen sweaters, woolen mittens, woolen hats that cover the ears, woolen pants, and long woolen or thermal underwear.

Hot Weather Gear - On hot, sunny days the reflection off the water can cause severe sunburns and even sun strokes. This is particularly true of children who are not used to the out-of-doors. On first trips each child should bring along a long sleeved, cotton shirt and a cotton hat that can be tucked into the back pocket. Cotton is an excellent material for any trip to the seashore because it can be worn under wool or under rain gear.

Clothing Check List

Day Trip

rain coat
rain hat
rubber boots
heavy woolen
sweater
long sleeved
cotton shirt
2 pair socks
2 pair pants



Cold Weather Clothing

Extended Trip

rain coat
rain hat
rubber boots
rubber pants or
woolen pants
heavy woolen sweater
woolen mittens
3 pairs woolen socks
2 pairs cotton socks
2 pairs jeans
2 long sleeved cotton
shirts
cotton hat
long woolen underwear

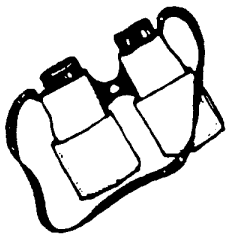
Warm Weather Clothing

Supplies and Equipment

In addition to the supplies that each individual student is required to bring you will want to bring along some extra equipment and supplies for class activities. The equipment that you choose depends on the length and the specific purpose of your trips. As a general rule travel as light as possible.

Equipment for Observing Plants and Animals

2 or 3 dozen clear plastic freezer bags
rubber bands or bag twisters
1 dozen 1-2 gallon or gallon freezer bags
wide mouthed jars
clear plastic aquariums
magnifying glasses
microscopes (for extended trips)
binoculars
face masks



Equipment for Measuring Data

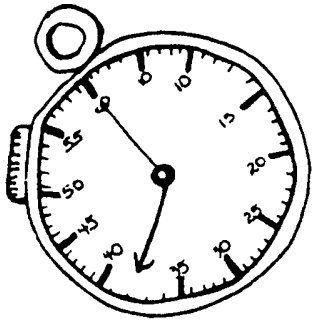
compasses
thermometers
stop watch
metric stick
string
baby bottle with measuring scale

Equipment for Recording Data

field notebooks with pencil attached
tape recorders
cameras

Additional Equipment

local field guides
extra spiral notebooks
extra pencils
newspaper
toilet paper
first aid kit
large sketch pad
water color sets
pastels
charcoal



ALL HANDS TOPSIDE

- Are all present or accounted for? What are you going to do? Have you defined the physical boundaries for exploration? What is the direction and pattern of the waves? Are crews assembled with their equipment? Does each member understand his or her duties?
- Have you scheduled a familiarization time for when you first hit the beach? What kinds of rocks are present? What birds are evident? Is there a lot of driftwood? How steep is the beach? What is the surf like?
- What specific program will each crew carry out?

Observing?

- Are there vertical bands of organisms? If so, how many are there? How many different kinds of creatures are found under rocks? Did you return rocks to original position? How does a sea anemone feed? (Harvest one mussel for feeding experiments. How does a crab eat? How does a limpet react to juice squeezed from a starfish? Is distribution of organisms different on wave side of rock compared to lee?

Classifying?

- How many kinds of algae can be found? How do snail shell structures differ in sculpturing, hole size? How many different ways do algae hold onto rocks? How many different species of crabs can be found? How do the various barnacles differ structurally? How do color patterns and sculpturing differ among limpet shells? How many different kinds of animals and plants can be found in one tide pool?

Measuring?

- What is the temperature of a high tidepool? A low tidepool? The ocean? The air? Among limpets of the higher rocks, what range of shell lengths are there? How long does it take a sea anemone to swallow a bit of food? How long does it take various starfish to turn over when placed on their topside? How wide are the bands of organisms on rocks (if they are seen)? If you use a squared wire coat hanger for area reference, what is the density of creatures at different levels of the tidal zone? If you find barnacles feeding in a tidepool, how many times a minute do they rake their feathery feet through the water?

SWABBING THE DECK

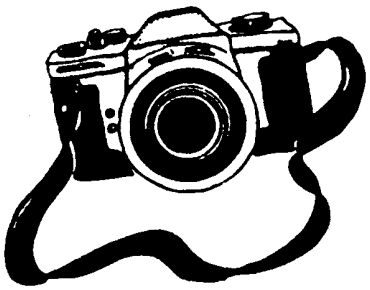
Will there be oral presentations, analyzing what each crew did? Will you share your experiences with other classes in the building? Will there be formal evaluation? Will you integrate the field experience with other experiences? Will there be a parent's night to show them what you did? Will local news media be invited? Have you or the students written thank you letters to those who helped you? Have you written thank you letters to the appropriate people if there was necessary first aid given? Do you have a file on what you will change the next time you go to the intertidal?

SAFETY - SPECIAL PRECAUTIONS

Any teacher should be aware of the potential dangers on the beach. Drift logs, steep and crumbly trails, treacherous waves, and incoming tides all must occupy a leader's attention.

- Take only a group of manageable size to the beach. If your group is larger than 30 students, be sure to include an adequate number of properly briefed chaperones, to help keep an eye on energetic students. One adult for every 10 students is a good ratio.
- Be sure the students are dressed properly for the trip. Long pants and tennis shoes (or rubber boots) are musts. Warm jackets are a good idea, as it is almost always chilly at the beach.

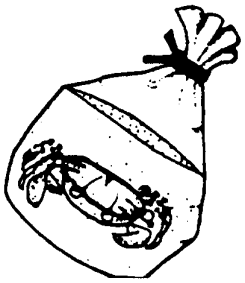
- Be sure a first aid kit is available for the minor cuts and abrasions that are likely to occur.
- Visit the site of the field trip before the trip date, to become familiar with the beach area the group will visit.
- Study the tidetable; plan to arrive at the beach an hour before low tide. It is safer to be on the beach with an outgoing tide.



- Check weather conditions before starting the trip; a stormy winter beach, with waves pounding, is not a place to take a group of students. Seas eight feet and above are considered rough; be especially careful to keep a good distance from the water line if you are on the beach under these conditions.
- Playing and exploring around drift logs are sources of enjoyment, but stay away from those near the water. Logs are easily moved by only a small amount of water, and every year beachcombers are crushed by rolling logs.
- Never build a fire in the drift logs. It can spread through the driftwood area.
- Trails to the beach are often slippery and steep. On dangerous trails, station chaperones at intervals for an orderly descent to the beach.
- While on the beach, always be on the alert for extra large “sneaker waves”.
- Don’t let the incoming tide trap you or any of the group on a rock or ledge. Assign one of the chaperones to a “wave and tide” watch while on the beach.
- Rock pinnacles are a challenge to most students, but they are steep and dangerous. Many are bird refuges, and it is against the law to disturb the birds.
- Rip currents are a reality. Never allow students to wade or swim while on the field trip. Strong currents run out to sea and can carry inexperienced swimmers with them.
- Assign the students to a buddy system while at the beach.

CONSERVATION

Rocky tidepool areas are limited in size; thousands of students visiting these areas during the spring low tide series can cause real problems of overuse. Stress conservation practices to the students before you leave the classroom.



- Squelch the “save it and take it home” impulse. The replacement rate of some of the animals is not very rapid, and your collecting may deprive other students from ever seeing the more unusual species.

- Check with your state fish or game department to determine if it is lawful to collect for a classroom aquarium or other selected educational purposes and for information about regulations and collecting permits. Check the current angling regulations for information about tidepool animals.
- When students pick up rocks that reveal hidden animals, be sure they return the rocks. Tubeworms, sponges, and other sessile animals live there for protection; they will die if left exposed.
- If students pick up animals and examine them, they must return these to the spot where they found them. Some animals have specific feeding requirements, and they live at specific tidal heights. Moving them to another part of the beach can kill them just as surely as removing them from the beach.
- Soft-soled rubber boots or tennis shoes are less damaging to the animals than heavy, hard-soled hiking boots. Selection of proper footgear can be another conservation measure.