Alaska Coastal Ecology Program

Teacher's Planning Guide

Trips to The Peterson Bay Field Station
Dear Educator,

We are looking forward to your participation in one of the Center for Alaskan Coastal Studies (CACS) programs at the Peterson Bay Field Station (PBFS) and are eager to help you make this a rewarding learning experience for all members of your group. This guide is intended to help prepare you, your students, and your adult chaperones, both educationally and logistically, for their hands-on field experience.

Over the years, field trips to the CACS Peterson Bay Field Station have provided many teachers a base for exciting and extended educational activities in science, math, writing, and social studies. In particular, the core experience of our guided hikes in intertidal and coastal forest habitats have unveiled an engaging learning opportunity. Feeling the pull of the tube feet on a sea star, smelling the spring growth of spruce, seeing the pattern of time on a rock, hearing the quiet of the forest, lifting a rock to discover a sheltered world of brittle stars, sea cucumbers, worms, and gunnels – these are the experiences that create an opening for learning for both kids and adults alike.

Be it your tenth time to the Peterson Bay Field Station or your first, we encourage you to carefully read this guide for updated information about our facilities and the Alaska Coastal Ecology (ACE) program. In early April, one of our educators will contact you to go over your group details and itinerary. At this time, it would be helpful to have the "Trip Planning and Logistics Sheet" (pg. 19) on hand and be familiar with our program activity options.

Organizing a trip to a remote field station for your class requires a great deal of extra planning and preparation. We commend you for giving your students this experience. CACS staff are available to help make both your preparation and the actual field trip run as smoothly as possible. Feel free to contact us if you have any questions, concerns or ideas.

Sincerely,

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Where are we going?

The Center for Alaskan Coastal Studies (CACS) is based in Homer, on the north shore of Kachemak Bay. Homer is located at the southwest end of the Kenai Peninsula and the drive from Anchorage, on dry roads and good conditions, can take four to five hours. In 1983, CACS began offering the Alaska Coastal Ecology program across Kachemak Bay from Homer at the CACS owned and operated Peterson Bay Field Station. The Peterson Bay Field Station is considered semi-remote because it is off the road system and is only accessible by boat.

CACS owns about four acres of land at the entrance to Peterson Bay Lagoon on the south shore of Kachemak Bay. Our land is located next to a coastal forest on the Island Peninsula between Peterson and China Poot Bays. The coastal forest is owned by the Seldovia Native Association, but CACS has an agreement with the Native Association to use their land for forest trails and access to China Poot Bay.
How is the field station set up?

The Peterson Bay Field Station is a rustic frame house overlooking Peterson Bay Lagoon. It was designed to be the summer home of Dr. James and Donna Wong. Before it was finished, however, CACS purchased it and volunteers completed the construction.

There are three rooms downstairs – a central room, a mud room, and a kitchen. The central room is used for class discussions, quiet time, and hang-out time. All meals are served and eaten in this room and part of the group may sleep on the floor here at night. Sleeping bags, pads, and backpacks are piled in the outer part of the main room during the day. Because we need to keep the rug as clean as possible in the main room, we ask everyone to remove their muddy/snowy/wet shoes and boots in the mud room and to stow coats, hats, etc. there. There are coat pegs, boot racks, and cubbyholes in the mud room for this purpose. A first aid station is set up in the central room. The kitchen has two electric stoves, a microwave, toaster and refrigerator and counter space for storing food. The kitchen has cooking pots of all sizes, pans, mixing bowls, cooking and serving utensils, cutting boards, hot water urn, and coffee maker. We provide all eating utensils, plates, bowls, and drinking glasses for the students.

Upstairs, two small bedrooms provide private sleeping areas for CACS staff and volunteers. The central room serves as a laboratory, with microscopes and supplies.

A covered deck is just outside the mud room for staying dry from any wet weather.

A wrap-around deck also provides additional space for groups. Two shallow observation touch tanks with flowing salt water and three salt water aquaria are located on one deck. There is room for students and a naturalist around the tanks and aquaria. The tanks and aquaria are kept stocked with a variety of marine life.

Take a virtual tour of Peterson Bay Field Station! [https://www.akcoastalstudies.org/data/images/virtualtour/index.htm](https://www.akcoastalstudies.org/data/images/virtualtour/index.htm)
In front of the Field Station is a large deck with a fire pit that is used as a group meeting place, classroom, and for evening activities. The decks are also used for art activities. The dock is used for water quality sampling.

There are five wooden platforms with a yurt erected on each one. The yurts have a wooden door, skylight, electric heat, and screened windows. Yurts are the primary sleeping space for groups. In each yurt, there are 6 bunks with mattresses. Eight students can fit in the yurts, and we provide extra mattresses to accommodate the additional students. CACS requires that there be at least one adult in student yurts.

The field station has a utility building behind the main cabin that houses a water system and two composting toilets. The operation of this system depends on spring thaw and water flow. If the toilets are used, they must be used correctly, which requires that nothing but human waste and toilet paper is put down the toilets (this means no trash or sanitary products of any kind). If the toilet system is operational, use of the toilets by your class will depend on your confidence that everyone can follow the rules for operation. Two outhouses are also in place near the yurts for your convenience. Toilet paper should be placed in the trash can when using the outhouses.

There is a cell phone at the Field Station that is used for emergency purposes only. Internet will be made available for educational purposes at the discretion of CACS staff.
What is the area like around the field station?

There are a variety of habitats and field trips accessible from the Peterson Bay Field Station. China Poot Bay, Otter Rock, and the greater Peterson Bay provide unmatched locations for rocky intertidal exploration and marine ecology studies, while the trail to Lost-and-Found Lake takes students through an excellent environment to teach about plant and forest ecology. At the lake the students can compare the freshwater habitats (and water quality) to that of the saltwater habitats seen at the beaches. The field station is also situated very close to a bog and a prehistoric Native house site and midden pile, which fosters activities in archeology and Native culture. The gravel beaches and ghost forest nearby supply a great open area for games and releasing of any extra energy.

Weather in April, May, September, and October can often be unpredictable. Average temperatures in the spring and fall can range from the low thirties to low fifties. There is often snow on the trails in April and and break up conditions in May. Snow, rain, and sunny days are all possible in the coastal rain forests of the Island Peninsula.

Looking toward the field station from Otter Rock.

A map of the trails on the Island Peninsula.

Students from Mears Middle School cross Peterson Bay Lagoon on their way to Otter Rock.
ACE Program Options

What are the educational concepts for this program?

Alaska Coastal Ecology Major Learning Concepts

1. Kachemak Bay, its beaches and coastal watersheds have favorable conditions for supporting a diversity of plants and animals.

2. Plants and animals have adaptations for survival that allow them to survive best under certain conditions.
   a) Adaptations to the conditions in the intertidal zone.
   b) Adaptations to conditions in the coastal forest

3. Physical factors influence the distribution of plants and animals.

4. Plants and animals have a variety of relationships with other species in their environment which also influences their distribution: predator/prey, competition, parasitism, and commensalism.

5. Appreciation and understanding about the ecology of the coastal forest and intertidal zone is linked to stewardship - what people can do to avoid or minimize harm to these environments

6. People and cultures have been shaped by the unique resources of Kachemak Bay for thousands of years

7. Kachemak Bay is shaped by a number of geological processes and events that continue to affect ecosystems and habitats
What is the curriculum framework?

I. Intertidal Ecology
Students will gain a better understanding about the intertidal zone as an environment and habitat for a diversity of animals. We’ll explore and study marine invertebrates and seaweed, focusing on the concepts of tides, intertidal zonation, adaptation, and interrelationships.

1. Field Trips
   a) Intertidal Discovery Hike
   b) Coastal Monitoring
   c) Science Notebook/Journal Time
   d) Intertidal Transects

2. Stations/Activities
   a) Touch Tanks and Scientific Sketching
   b) Microscopes
   c) Invent an Invertebrate (Invertebrate Adaptations)
   d) Algae Study and Classification
   e) Plankton Races
   f) Zonation Demonstration

3. Environmental Stewardship and Monitoring Activities
   a) Beach Etiquette
   b) Biodiversity Checklist and Fab Four Phyla

II. Coastal Forest Ecology
Do your students know the forest is a factory? Students will learn how different parts of the forest interact and adapt. Then they’ll get a closer look at some of the different forest communities.

1. Field Trips
   a) Forest Discovery Hike
   b) Forest Transects

2. Stations
   a) Taking a Liking to Lichens
   b) Microscopes
   c) Critter Catch (Freshwater Macroinvertebrates)

3. Environmental Monitoring and Stewardship Activities
   a) Project BudBurst phenology monitoring
   b) Forest Management Dilemma - Spruce Bark Beetle Attack!!!
III. Ecosystem Connections
How are the ocean, intertidal zone, and the forest connected? Students will participate in a variety of hands-on activities that focus on the dynamics of the nonliving environment and relate these to interactions in living communities.

1. Stations
   a) Weather and Snow Observations
   b) Water Quality Sampling
   c) Critter Catch
   d) Plankton Tow

2. Environmental Monitoring and Stewardship
   a) CoastWatch Survey
   b) Postcard for Change
   c) Plastics in Society
   d) Marine Debris Masks

IV. Cultural Connections
Kachemak Bay has been home to a diversity of cultures for the last 7,000 years! Your students will look at the resources and landscape of Kachemak Bay through the eyes of past cultures and reflect on how these same factors influence our life today.

1. Field Trip to a Dena'ina house site
2. Art and Culture Activities
   a) Rock Pictographs
   b) Counting Chords
   c) Bentwood Hats

V. Earth Sciences
Dynamic forces including volcanos, earthquakes, glaciers, and extreme tides shaped Kachemak Bay in the past and continue to act on our area today. Students will learn how plate techtonics helped to create our rocky cliffs and how the cycle of the tides affects both the geography and the habitat of intertidal animals.

1. Field Trips
   a) Radiolarian chert cliffs
   b) Earthquake affected ghost forests

2. Activities
   a) Oreo geology
   b) Rock cycle game
   c) Rock hound

Students participate in an algae lab.
What are the educational activities like?

I. Preparatory Activities
   1. Beach Etiquette - Students will learn the proper etiquette for field trips to the beach.

   2. Fab Four Phyla - Students will be introduced to some of the common intertidal invertebrates and learn how to classify these invertebrates into the "fab four" phyla: Arthropoda, Cnidaria, Mollusca, Echinodermata.

II. Field Studies
   1. Intertidal Ecology
      a) Intertidal Discovery Hike
         Our naturalist will guide the students through the experience of exploring the dynamic intertidal habitats surrounding the Field Station. Informal learning opportunities on the beach include: scavenger hunts, forming a species diversity checklist, beach bingo, silent observation, and much more.

         b) Coastal Monitoring
         This trip takes a more intensive look at the invertebrates and algae on the beach and encourages exploration of global questions about climate and environmental change. This monitoring option allows the students not only to learn more about the intertidal, but to also participate in a global "real science" project. Our monitoring protocol includes the following: timed counts, vertical transects, and quadrat counts, as well as collecting data about weather and water quality. (This option is offered to the classes that will be staying for at least two low tides.)

   2. Coastal Forest Ecology
      a) Forest Discovery Hike and Transects (Theme: Habitat Comparisons)
         Students will be guided by one of our naturalists to explore the forest ecosystem through hands-on activities and scavenger hunts, learning to identify common plants and animals, and investigating the differences between the bog, forest, and lake habitats. Learning activities include: Each One Teach One, Camouflage Game, Unnatural Trail, and Forest Transects.

      b) Forest Discovery Hike (Theme: Spruce Bark Beetles & Changing Forest)
         With this field trip students can take a more intensive look at the effects of the spruce bark beetle epidemic and collect data on spruce bark beetle impacts and biodiversity in different areas of the forest, bog, and lake. (This option is offered to the classes that will be staying for at least two days of forest hikes.)

      c) Water Quality Sampling
         Collect water quality data including temperature, turbidity, salinity and pH at three local water sources for comparison: Lost and Found Lake, a forest stream, and water from Peterson Bay Lagoon.
3. Cultural Studies: Native House Site Visit
Students visit a prehistoric Native house site and midden. Students will explore authentic and replica tools, imagine what life would have been like 1,000 or more years ago in this area, and compare and contrast the Alutiiq and Dena’ina cultures that inhabited this area for thousands of years. (This option only offered at PBFS and Kachemak Bay Wilderness Lodge)

4. Geology: Rock Studies
An up-close exploration of the dynamic processes that shaped (and continue to shape!) Kachemak Bay. Learning activities include: Oreo Geology, Rock Cycle Game, Rock Hounding, and more!

III. Adaptations Stations
These stations allow the students more time to focus on the adaptations of plants and animals have that allow them to survive best under certain conditions in the intertidal zones or coastal forests.

1. Live Tanks - Students will explore intertidal animals using their senses and guided questions. This is also an opportunity for scientific sketching and adding detailed notes to journals.

2. Microscopes - Students will take a closer look at some of the adaptations of specific plants and animals under the microscope and record their observations in their journals.

3. Invent an Invertebrate - Students play a game to learn more about adaptations of animals as they create and act-out their own intertidal invertebrate.

4. Take a Liking to Lichens - Using hand lenses and microscopes, students will get a closer look at lichens and learn what makes them unique. They will also use the Peterson Bay Field Station reference collection.

5. Critter Catch (Freshwater Macroinvertebrates) - Scoop some macroinvertebrates from the lake to examine back at the field station. Students may also use soil funnels to catch macroinvertebrates beneath the forest floor. Compare adaptations to freshwater, saltwater, and soil environments. (This program depends on break-up.)

6. Plankton Races - After examining plankton structure, students will use toothpicks, weights, and sponges to create a plankton that is as close as possible to neutrally buoyant.

7. Zonation Demonstration - This interactive demonstration helps students to understand how both physical (waves, tides, sun, wind, etc.) and biological (predation, competition, etc.) factors influence life in the intertidal zone, from the splash zone to the subtidal.
IV. Creation Stations
Students are encouraged to let creativity flow as they use art to reflect and add to what they have learned during the field trips.

1. Algae Press - Students will take a closer look at the different species of algae in the region while pressing them into interesting and colorful patterns. (Pressing only available at Kasitsna Bay).

2. Journal Time - Students will have an opportunity to quietly reflect on what they have learned and experienced throughout their ACE trip.

3. Scientific Sketching - Students will learn how scientists use sketches to identify and document organisms. Then they will use their skills to sketch a living invertebrate specimen from the live tanks.

4. Bentwood Hats - Students will create and decorate a bentwood hunting hat in the Alutiiq tradition.

5. Rock Pictographs - Students will use a traditional recipe to create pictographs on small rocks to communicate a story of their ACE experience.

6. Counting Cords - Students will review the highlights of their ACE experience and craft a counting cord in the Dena’ina tradition to remember important events.

V. Environmental Monitoring Stations

1. Weather and Snow Observations - Students will make observations at the Field Station Weather Station and learn how to contribute important data to the GLOBE monitoring program. The equipment for weather monitoring is located primarily at the Peterson Bay Field Station, but the activity can be modified for use at other locations.

2. CoastWalk Survey - Students will collect and examine data about the coastal ecosystems they have visited to contribute to the CoastWalk program, including information on biodiversity, water quality, and human impact. Real-time data about Kachemak Bay conditions will be available for students to review, and data from subsequent classes will be made available for students to follow back in their classroom.

3. Plankton Tow - While examining bay-caught plankton under microscopes and video-microscope monitors, the students will be able to chart the seasonal development of larval invertebrates and monitor for potentially harmful phytoplankton. Larval collectors located on the dock may be checked as well.

4. BudBurst Phenology Monitoring - Participate in a nation-wide citizen science monitoring project to observe the growth and seasonal changing of local plants.


VI. Stewardship Activities

1. **Postcard for Change** - Students will review what they have learned during their trip and discuss ways in which humans impact coastal ecosystems, and the direct and indirect consequences of these impacts. Students will then write a postcard to themselves, detailing one change they will make upon their return home to be stewards of their environment. They will receive their postcard 1-2 months after the trip.

2. **Plastics in Society** - Students will identify the many every day uses of plastic. They will make their own polymer and learn about the unique issues surrounding plastic degradation. After discussing the effects of marine debris in the environment, students will brainstorm ways to reduce the amount of plastics ending up in the ocean.

3. **Marine Debris Masks** - Students will spend time on the beach, collecting marine debris for disposal. Small pieces of plastic marine debris will be gathered in a separate container for transport back to school and use in the creation of marine debris masks.

What can we do in the evenings?

Evening programs can be an excellent way to supplement the day's learning. Teachers and chaperones are responsible for programs that take place after dinner, though you will have one CACS along with you.

1. **Games on the Beach**: Take your students on a short hike to some gravel beaches excellent for playing games like the following: Shark Seal Octopus, Crab Tag, The Succession Game, Food Shelter Water, Capture the Flag, and much, much more. This is a great option for a class that has extra energy. This program is dependent on tides.

2. **Campfire**: A campfire ring is available for your use, and most groups close the day with a campfire program. Campfires may not be permitted if there is a burn-ban in effect. Your school staff will be responsible for planning and conducting the campfire programs. Campfires must end by 9:30 pm. Skits, songs, and stories can work well when they are planned ahead of time. Feel free to contact us for campfire program ideas. However, we would like to stress all campfires will be structured by the trip leader and chaperones.

3. **Sleep Option**: After long travel and long days outside, certain children may be too tired to attend evening programs. For these students you may want to consider a sleep option. An adult must be in the sleeping area with students.
Are additional learning opportunities available?

I. Onboard Oceanography
The Onboard Oceanography Program (OBO) takes students out on the water for a unique excursion on Kachemak Bay to study issues facing our ocean including ocean acidification and oil spill response. With scientific tools on board, students have the opportunity to collect data and make observations to answer research-style questions posed by CACS staff or developed by students in the classroom prior to the trip. Activities are designed to help students build core STEM skills.

Hands-on activities include:

- Conducting plankton tows at varying locations and depths
- Using scientific tools to measure temperature, turbidity, pH, and salinity
- Making observations at a seabird rookery
- Visiting a local oyster farm
- Dropping a crab pot and taking sample measurements on crabs collected
- Opportunities for marine mammal sightings
- Learning to use tide tables and marine chart

Students observe Black Legged Kittiwakes on Gull Island seabird rookery on an OBO program. Photo: Kim McNett

Four and six hour OBO programs can be scheduled as a day program or in conjunction with your Alaska Coastal Ecology program. Most OBO programs done with an ACE program take place on the first day of scheduled activities. Please contact the program coordinator by phone or email to check on program availability.

II. Beluga Wetlands
Explore coastal wetlands during a two-hour field trip that guides students along the shores of Beluga Lake and Slough. In addition to comparing and contrasting freshwater and saltwater wetlands, students will learn wetland functions and how to collect and identify aquatic invertebrates. This program can be scheduled before departing on your Alaska Coastal Ecology Program.

III. Creatures of the Dock
Gain further understanding of the life of intertidal invertebrates by taking a tour of the amazing intertidal life right under your feet at the Homer Harbor docks. This program works best before departing on your Alaska Coastal Ecology program. Program duration is 30-90 minutes and depends upon the needs of your group and other programs on your itinerary.
What does an example trip itinerary look like?

The schedule of events on your ACE field trip will be created around the time of the low tide. As a result, each group’s trip will have a different schedule of activities and field trips. In addition, each year CACS hires new environmental educators and naturalists to lead the school programs. Many activities will reflect the expertise and creativity of the staff. To give you a sense of the flow of a day, we have provided you here with some sample itineraries. The first itinerary is for a two-day ACE trip, another for a three-day ACE trip, and a third is for a three-day trip that combines an ACE field trip with our Onboard Oceanography program.

**Sample Two Day Itinerary**

Day 1

2:00 p.m. Arrive at Homer Harbor for check-in and gear chain
3:00 p.m. Depart for Peterson Bay Field Station with a tour of Gull Island along the way
3:30 p.m. Arrive Peterson Bay Field Station, gear chain to field station
4:30 p.m. Orientation to field station, start dinner and set up sleeping areas
6:00 p.m. Dinner
6:06 p.m. High tide, 15.1
7:30 p.m. Campfire or games (teacher led activities)
9:30 p.m. Quiet time in the field station

Day 2

7:30 a.m. Breakfast (all gear should be packed up and brought to field station, yurts should be cleaned)
8:30 a.m. Marine Ecology Stations (topics: Invent an Invertebrate, Water Quality Monitoring, and Touch Tanks)
10:00 a.m. Beach Etiquette Activity and depart for China Poot Bay
10:30 a.m. Oreo Geology activity on hike to China Poot
11:00 a.m. Tidepooling on China Poot Beach
12:08 p.m. Low tide, -1.1
12:30 p.m. Lunch on the beach
1:00 p.m. Hike back to field station, visit Dena’ina archeological site along the way
1:30 p.m. Pack and clean up field station and yurts
2:15 p.m. Wrap up activities and evaluations, if time play Peterson Bay Celebrity review game
2:45 p.m. Stage gear for pick up
3:30 p.m. Pick up by boat
4:15 p.m. Return to Homer Harbor

**Sample Three Day Itinerary**

Day 1

1:00 p.m. Arrive at Homer Harbor for check-in and gear chain onto boat
2:00 p.m. Depart for Peterson Bay Field Station
3:00 p.m. Orientation to field station, start dinner and set up sleeping areas
4:00 p.m. Forest Ecology Hike on Lost and Found Lake Trail
4:06 p.m. High tide, 21.1
6:30 p.m. Dinner
7:00 p.m. Campfire or games (teacher led activities)
9:30 p.m. Quiet time in the field station

Day 2

7:30 a.m. Breakfast
8:15 a.m. Beach Etiquette Activity and depart for China Poot Bay
9:00 a.m. Geology with Oreos and Native House and Archeological site
9:45 a.m. Marine Ecology Beach Walk
10:22 a.m. Low tide, -2.4
11:45 a.m. Return to Field Station and lunch
1:15 p.m. Biodiversity Checklist and Fab Four Phylum
4:39 p.m. High tide, 21.6
4:30 p.m. Invent an Invertebrate Activity
6:00 p.m. Dinner
7:00 p.m. Campfire at Field Station/Games at outside beach
9:30 p.m. Quiet in the Field Station

Day 3

8:00 a.m. Breakfast (come down with bags packed)
9:00 a.m. Plankton Race Activity
10:00 a.m. Depart for Otter Rock Marine Ecology Beach Walk
11:00 a.m. Low tide, -1.2
11:45 a.m. Depart for Field Station
12:15 p.m. Lunch and Biodiversity Checklist update
1:00 p.m. Clean-up Field Station
2:00 p.m. Wrap-up activities and evaluations
2:30 p.m. Stage gear near dock
3:30 p.m. Pick up by boats
4:00 p.m. Return to Homer Harbor
Sample Three Day Itinerary
with an Onboard Oceanography Program Included

Day 1
8:30 a.m. Arrive at Homer Harbor Ramp #2, check-in and gear chain down ramp and into boat
9:30 a.m. Introduction to Oceanography Cruise on the boat and divide into learning groups

Activities While On Board:
SeaWatch Bingo while leaving the Harbor
Drop and retrieve crab pots (all on deck)
Tour of Gull Island
Conduct a plankton tow
Visit an oyster farm

Station Rotations (The boat will be stationary)

1. Plankton/ Water Transparency-
   Each group will identify collected plankton, make observations, discuss zoo/phytoplankton, and have time for a quick look in TV scope. Talk about larval development of crabs and briefly mention larval dispersal. Each group will measure water transparency with a Secchi Disk. There will be time for discussion on what and how a photic zone would impact larval crabs.

2. Water Temperature/Weather-
   Each group will measure: temperature of air and water, wind speed and direction, and other weather parameters. How might these physical parameters affect crab distributions?

3. Tide and Currents-
   Students will have the opportunity to learn about the currents of Kachemak Bay and study and learn to read tide tables.

12:00 p.m. Review data collected in station rotations and make predictions for crab populations. Pick-up crab pots and collect data on adult crabs.
1:00 p.m. Travel to Peterson Bay Field Station. Wrap-up on crab data along the way. How did the predictions compare to the actual data?
2:00 p.m. Arrive at the field station and gear chain
2:30 p.m. Orientation to Peterson Bay Field Station,

Move into yurts
3:30 p.m. Forest Ecology Hike
6:00 p.m. Dinner
8:30 p.m. Games or campfire on beach (teacher led)
9:30 p.m. Lights out

Day 2
8:00 a.m. Breakfast
9:00 a.m. Marine Stations rotation at field station (Stations: Microscopes, Tidepool Tanks, and Algae Study)
10:00 a.m. Snack break
10:15 a.m. Finish station rotations
11:00 a.m. Invent an Invert
12:00 p.m. Lunch
1:00 p.m. Beach Etiquette Activity
2:00 p.m. Depart for Marine Ecology Hike/Tidepooling at China Poot Bay (Includes free exploration, quiet pool observations, tidepool card investigations, and biodiversity checklist)
4:16 p.m. Low tide, -1.2
5:00 p.m. Return to field station
6:00 p.m. Dinner
8:30 p.m. Games or campfire (teacher led)
9:30 p.m. Lights out

Day 3
8:00 a.m. Breakfast
9:00 a.m. Forest hike. Geology and archeology stops along the way.
11:55 a.m. High tide, 15.1
11:00 a.m. Return to bunker house, play Peterson Bay Celebrity/Jeopardy review game
12:00 p.m. Lunch
1:00 p.m. Pack and clean-up bunker house
2:00 p.m. Wrap up activities and evaluations
2:30 p.m. Bring gear down to dock
3:30 p.m. Pick up by boat
4:15 p.m. Return to Homer Harbor
Pre-Trip Preparation

What do I need to do before the trip?

Read your confirmation letter and make sure dates and times are correct. Please contact the CACS program coordinator immediately if you discover a problem. (907) 235-6714

Read this guide for all the planning and background information. Review program policies and procedures with your students and chaperones.

Introduce your students to basic learning concepts and vocabulary outlined in this guide.

Discuss with your students the need for special gear: waterproof rain/snow gear, boots and warm clothing. Give students a list of what they need and how to pack.

Make your transportation arrangements to Homer. Take into consideration potential weather conditions and stops you might want to make along the way.

Select and prepare chaperones. We recommend a 1:6 ratio of chaperones to students.

Divide class into two instructional or "field groups" that will work together during the field experiences.

Assign students and chaperones to their sleeping arrangements. An adult chaperone of the appropriate gender is required in each yurt and field station sleeping area. Begin with the five yurts that each sleep 8 (including chaperone), then the upstairs and downstairs of Field Station for rest of group, if needed.

Encourage students to design waterproof name tags that they will wear during their visit.

Make sure that a CACS staff has contacted you during the first two weeks of April to go over "Trip Planning and Logistics Sheet" and confirm boat schedule, program selection and any other special needs.
Trip Planning and Logistics Sheet

During the first two weeks in April, one of the CACS staff will contact the attending group leader to discuss details of your trip. Below is the list of the basic information we will cover at that time. Please keep this in a convenient location so that you can give or note any pertinent information.

School________________________________________ Program dates____________________________
Attending Group Leader_______________________ Have you been to PBFS before?___________

NUMBERS:
# Students _____ + # Adults _____ = Final Count ______ Non-refundable deposit paid: ______
Please call the CACS office (907) 235-6714 if your total number of participants drops down below 25 or there is a drastic change in the number of participants.

BOAT:
Discovery departure time from Homer Harbor: ______
Discovery departure time from the Peterson Bay Field Station: ______
Please arrive at the Homer Harbor one hour before departure time to allow time for loading of gear.

GROUP ASSIGNMENTS: (Should be assigned and told to students prior to arrival)
1. Assigned # of study groups: ______ (Please divide groups evenly)
2. Sleeping assignments:
   # sleeping in yurts (5 yurts, sleep 8 each) ________ # sleeping in PBFS common area_______
3. Meal preparation and clean-up:_________________________________________________________

MEDICAL INFORMATION:
Teacher or authorized school personnel will be responsible for keeping track of medical information and dispensing prescription medicine.
- Don't forget to bring school required medical forms or medications.
- Are there any pre-existing medical conditions that could cause an emergency that we should be aware of (e.g. seizures, diabetic coma, severe allergy, etc.)?

PROGRAMS:
Low Tide Day One: ______ feet ______ time  Low Tide Day Two: ______feet ______time
High Tide Day One: ______ feet ______ time  High Tide Day Two: ______feet ______time
Three Stations Day One: ____________________________
Three Stations Day Two: ____________________________

IMPORTANT DETAILS:
Review what to bring and what not to bring ______ Have you decided on meals? ______
Is there anything we need to know to prepare or make special arrangements for individual students?

We are excited about your trip, please do not hesitate to call us if you have any further questions.
What do we need to bring?

Sleeping Gear
___Sleeping bag
___Pajamas/sleeping clothes

Clothing (Warm jacket, gloves and hat should be accessible for boat trip to field station)
___One to two changes of clothes (depending on length of stay). Warm clothes that can be layered are best, plus lots of extra tall, non-cotton socks and long underwear. Long pants are preferred over shorts. Wool socks are best.
___Warm jacket, knit wool hat and warm, waterproof gloves
___Rain Jacket and Rain Pants
___Sturdy hiking shoes (hiking boots are preferred due to muddy nature of trails)
___Knee-high rubber boots (no hip boots)
___Slippers (or heavy socks) to wear inside Field Station

Personal Gear (Showers will not be available)
___Toothbrush and toothpaste
___Brush and washcloth
___Sunscreen and bug spray
___Flashlight or head lamp
___Water bottle or canteen
___Day pack
___3 pens or pencils
___Special foods or medications

Optional
___Pillow
___Camera
___Binoculars and hand lens
___Student journal
___Money for field trip tee shirt or other souvenir
___A book to read during down time

No electrical equipment should be brought to Field Station (This includes, but is not limited to the following: iPods, handheld games, and blow dryers). If student have electronic equipment used during long travel, please ask your students to leave them on bus. Exceptions can be made for electronics (iPhone, iPod, cell phones) when they are the students only means of taking photos. In addition, no pets, knives, firearms, fireworks, alcohol, or drugs are allowed.

All clothing and gear should be marked with student’s name (CACS is not responsible for lost items.) Please call (907) 235-6714 to arrange for return of lost items. Lost and found items will be kept until June 1st of that year and then donated to charity.
What do we need to know to plan for cooking our meals?

The Peterson Bay Field Station does not have a cook on staff, so that means you get to facilitate the unique experience of cooking for your group. **Due to limited cooking space, you will also be expected to cook for 2 CACS staff.**

The Field Station kitchen has the following amenities to help with the cooking experience:

- Electricity
- Water (may need to be hauled from Homer in jugs early in the season, running water later)
- Pots, pans, and utensils for cooking
- Plates, cups or glasses, and silverware
- 2 Electric stoves with ovens, a microwave and an electric griddle
- Kitchen towels, sponges and rags
- Toaster
- Hot water urn for warm beverages
- Coffee makers

CACS will provide the following consumable items for your group:

- Disposables: garbage bags, foil, paper towels, toilet paper
- Dishwasher soap and hand soap
- Condiments: Ketchup, mustard, mayonnaise, and ranch dressing

We like to encourage the visiting school groups to help the environment by minimizing and planning to recycle. **You will take your recycled items (aluminum, plastic 1 & 2, corrugated cardboard and glass) with you when you leave the field station.** There are recycling bins in the parking lot of the Homer Harbor near the Salty Dawg Saloon. Since we supply dishware and utensils, **please do not bring paper or styrofoam plates, cups, bowls or plastic utensils.**

**Meal tips include the following:**

- Plan simple meals. (Spaghetti, pizza and tacos are favorites, because meat can be precooked.)
- Lunches could include cold cut sandwiches with veggie and fruit trays.
- Do as much food preparation as possible before you come to the field station.
- Bring food items in bulk. Even trail snacks can be packed in bulk and small portions can be measured into ziploc bags that can be reused.
- Avoid individually wrapped food when possible. These can generate a tremendous amount of waste.

Students are allowed to bring their own snacks, but, no food or drinks will be allowed in yurts, so be sure all food is packed in the mud-room cubbies at night.

Pack food so it can be hauled on and off of boat, up the ramp, moved into field station and stored right away. Plastic totes with good handles that are not too heavy work best. Very large, heavy coolers are difficult to transport--please bring smaller ones.
How should we pack?

Packing - Moving the gear can be a big task, but it is made easier by following a few rules:

♦ Pack frugally. Don’t let the kids bring unneeded or forbidden items.

♦ Pack into bags and boxes that are light enough to be handled by everyone in your group.

♦ Make sure all items are packed INSIDE the duffel bags or backpacks. There shouldn’t be any shoes, boots, or pillows tied to the outside. They make the bags clumsy to handle and often are lost or left behind. Always bag pillows.

♦ Use waterproof bags and plastic garbage sacks around boxes and anything else that is not waterproof. There’s always the chance of rain and boxes and bags will need to be placed on wet decks, stairs, etc.

♦ Pack sleeping bags INSIDE a plastic bag INSIDE a stuff sack. If you place the plastic bag on the outside, it may tear and the sleeping bag will get wet.

♦ Securely tie all bags and ensure that there is a strong handle or loop of rope by which they can be lifted and handed from one person to another. Plastic garbage bags work well for many items and a loop can be made from heavy tape.

DO NOT BRING THE FOLLOWING:

1. Paper or styrofoam plates, cups, or bowls
2. Plastic utensils
3. Knives, firearms or fireworks
4. Electronic equipment (like iPods and Gameboys)
5. Pets
6. Alcohol or illegal drugs

Students from Redoubt Elementary perform a text-book gear chain.
How do we get us and our gear to the Peterson Bay Field Station?

You will most likely travel to the Peterson Bay Field Station on the *Discovery M/V*, a charter vessel licensed to carry large groups. The Discovery is 75' long, with a warm comfortable cabin, snack bar, marine heads, and two decks that can be used for viewing both fore and aft. With groups smaller than 25, or due to weak high tides, 15 passenger water taxis are used as well. No marine heads are located on the water taxis.

Please plan to arrive at the Homer Harbor, located at the end of the Homer Spit, at least **45 min. before your scheduled departure time**. One of our CACS staff members will be meeting your group in the Homer Harbor at the top of Ramp 2. Ramp 2 is located conveniently next to the harbor bathrooms and just before the historic Salty Dawg Saloon. When arriving by bus, it is usually better to have a chaperone get out and check out the parking situation above Ramp 2 before bringing the bus into the narrow lot. The Discovery is located to the left of Ramp 2, between Ramp 2 and Ramp 3.

The temperature on the water will be much cooler than on land so wear a jacket on board. Once on the *Discovery*, crew will provide a boat safety briefing before the boat leaves the harbor. They will provide a tour of Gull Island either on the way over to the field station or on the way back, depending on their schedule.

**Loading the Boat** - The first activity during your field trip will be loading all of the gear on to the boat, the *Discovery M/V*. Remind students to bring only the gear listed on the packing guide included in this manual.

To help facilitate a smooth loading follow these procedures:

1. Everyone can keep a small backpack to take onboard (this is where the warm jacket, hat, and gloves, can go if these items are not already being worn), but everything else needs to be stowed in the hold for the trip over.

2. A CACS staff person or volunteer will meet you at the boat harbor parking area. They will help oversee the gear chain process and may ask adult chaperones for help loading water jugs and coolers if needed.

3. Direct all of the students and adults to form a line, beginning at the bus or vehicles the gear is on, and leading down the ramp, which may be fairly steep at low tide. Everyone stands at arm’s length from one another and each piece of gear is moved from hand-to-hand (**not tossed!!**) down the ramp. This is called the GEAR CHAIN. Hand carts are usually available at the foot of the ramp to move the gear to the boat. The gear chain reforms to move the gear to the boat and into the hold, or students might be asked to "grab and go," taking what they can carry with them to the boat.

4. Only Discovery crew is allowed in the hold and they will assist with loading items that go below. Coolers and totes are stored on the back deck. Some food might be taken in the cabin and stored in the galley.

5. The students and adults can board the boat after all gear is stowed.
Who will be leading activities at the field station?

Although we strive to make the Alaska Coastal Ecology (ACE) program fun and interactive, our activities are educational in focus. Our instructors, volunteers, and naturalists have extensive background and experience in the field of environmental education. We train all volunteers and new staff to be CACS instructors who will lead this incredible hands-on field experience.

During the first weeks of April you will be contacted by one of the CACS instructors that will be leading your group. At this time, the ACE program options will be discussed and a schedule formed. You will also go over the information on the "Trip Planning and Logistics Sheet." Make sure that you have the form handy during the conversation. If you have activities you would like to lead or "quiet time" provisions be sure to discuss this with the CACS instructor when they contact you.

One CACS instructor will work with each group of approximately 15 students. We expect that the school will provide at least one classroom teacher and chaperones so that there will be a ratio of 1 chaperone for every 6 students. The CACS instructor will be responsible for leading the field activities and stations, however the CACS instructor will not be responsible for leading activities during "down time." It is a good idea to have chaperones prepared to lead simple games or project during these times, which usually occur during the 30 minutes before and after meals. Although "down time" would be the only time when chaperones would need to lead activities, adult chaperones are expected to supervise students at all time. This leads nicely to the next question...

What are the responsibilities of the teacher and chaperones?

We highly respect the participation of the chaperones in this experience. Without them, the students would not be able to have such a great field trip. The job of a chaperone is demanding yet vital. We openly acknowledge the great rewards, both personal and group related, which result from their efforts.

To help facilitate a smooth experience, chaperones should be carefully chosen and well prepared. They will be expected to participate in all activities and be role models of positive involvement. We expect the teacher and chaperones to maintain discipline in a way that learning and fun can take place. They should be ready to keep pace with the students during long days of outdoor activities (which includes 3-4 miles of hiking). They should be flexible and have a good manner with students in order to work with them effectively. A keen sense of humor is always helpful. Some groups bring chaperones who take major responsibility for preparing and cooking meals, but this can also be an important group experience.

It is crucial that each chaperone be assigned to a group of students, learn their names, and maintain a cooperative spirit within the group. Again, when you, the teacher, and CACS instructors are not leading activities it is helpful to provide chaperones with games or projects to keep students occupied during the time CACS instructors are not leading the group.
What are the safety rules at the Peterson Bay Field Station?

We have some basic rules you should go over with your class and the chaperones before the trip. We expect all participants, including adults, will be responsible for learning and following the rules below. As with many outdoor and field school programs the foundational guidelines are the three "R's":

RESPECT YOURSELF
RESPECT OTHERS
RESPECT THE ENVIRONMENT

1. Comply with all directions from CACS instructors. They will give an orientation to the field station, review the safety procedures, and show field station boundaries.

2. Always stay with your group. When hiking or exploring the class will stay together. If a student has to leave they should first inform an adult and then take a buddy.

3. Bring only items that were recommended on the packing list. All personal possessions that are not allowed in school will not be allowed at the field station.

4. Walk! Running is only accepted in designated areas during organized games. There will be no climbing on trees, stumps, or rocks.

5. We allow absolutely no horse play or throwing of things. If an accident were to happen, an x-ray or stitches would require scheduling a special boat trip out and back to the field station and may take three hours round trip.

6. Follow the beach and forest etiquette rules that you will learn from CACS guides on your hikes. This will include not handling or feeding wildlife unless given permission by guides.

7. Do not collect souvenirs from the beach or forest. CACS guides may give permission to bring a small number of live plants or animals back to the field station for further study. Otherwise, replace things where you find them for other people to enjoy.

8. Smoking is not allowed for anyone under 18 years old and we strive to maintain a smoke free environment. Chaperones may smoke if absolutely necessary outdoors in designated areas away from students, yurts, and all field station buildings. All butts must be collected and put in the trash (not in the campfire ring).

9. Let CACS instructors know immediately if someone is sick or hurt.

10. Be safety conscious in all your actions. If a rule is not stated, common sense, good judgement, courtesy, and respect should apply.
What are the emergency procedures at the Field Station?

During orientation to the Peterson Bay Field Station, CACS staff will go over safety information and emergency procedures.

**Facility Emergency:**
In the event of a fire or other facility emergency, adults are responsible for moving students to the designated safe location. While moving to the designated safe area it is important to travel in groups established around chaperones. No one should return to the buildings until a CACS staff determines that it is safe to do so. Fire escape procedures are posted near the door of the field station.

**Medical Emergency:**
If a medical accident of any type occurs or someone becomes seriously ill, do not move the person. Instead report it to CACS staff. Send one adult, or two students, to the CACS staff with the following information: where to go, who is hurt, and who is staying with the injured person. All CACS staff are certified in First Aid/CPR and will determine if a medical problem requires evacuation. The field station has a well-stocked first aid kit and CACS staff will carry smaller first aid kits and cell phones with them on all field activities.

Visitors with medical conditions or allergies that could cause an emergency, e.g. seizure, should notify CACS staff of the nature of the condition, symptoms when expressed, medications taken, emergency treatment, and how to contact your physician.

Teachers or other authorized school personnel will be the only adults responsible for dispensing prescription medications to students. Chaperones can remind students to show up on time to receive their medication.

**Lost Student:**
In the case of a lost student notify CACS staff immediately. CACS staff has been instructed as to the proper procedure for a lost child.

**Emergency Communications:**
The Peterson Bay Field Station has a cell phone (399-6668) that can be used by CACS staff for emergency purposes. All non-emergency related messages should go through our Homer Headquarters office (235-6667). The CACS Homer Headquarters staff will relay all messages on a daily basis. The field station also has a VHF radio that can reach the Harbormaster's 24-hour emergency channel.
Peterson Bay Field Station Contact Information

CACS headquarters phone: 907-235-6667

Website: http://www.akcoastalstudies.org

Address: Center for Alaskan Coastal Studies
         708 Smoky Bay Way
         Homer, AK 99603

Physical Address:
         708 Smoky Bay Way
         Homer, AK 99603