

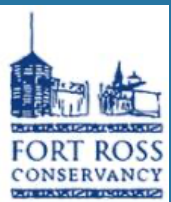
THE COASTAL ACADEMY

Fort Ross Conservancy



The Marine Ecology Program

*Immerse yourself in the natural world in
Metini - Fort Ross State Historic Park.*



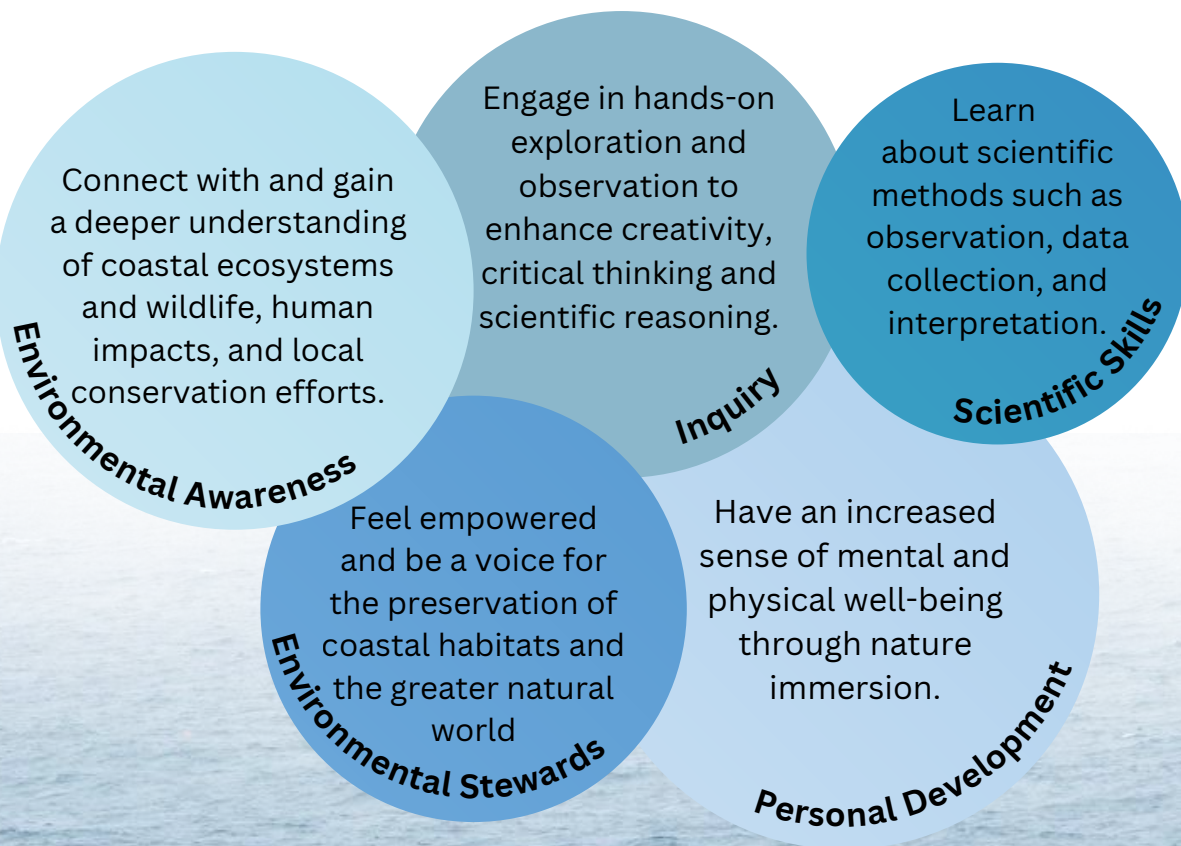
The Coastal Academy's

Marine Ecology Program

Dive into marine science and explore coastal ecosystems!

The Marine Ecology Program (MEP) is an incredible way to experience and enrich your knowledge of the Sonoma Coast and its diverse fauna and flora.

This STEM program taught through outdoor experiential learning is designed to inspire passion for the natural world and marine environment.



Program Options

Join us for the day or stay overnight on the stunning Sonoma Coast

Who are programs for?

- Schools and homeschool groups
- Holiday/summer camps
- University classes and tertiary education
- Family and friend groups
- Social groups
- Adult professional and corporate groups/offices
- Team building

School and Youth Group Programs

The MEP is suitable and adaptable for learners of all ages. We teach classes and grade levels of students from all ages: kindergarten to 12th grade and university. Led by our knowledgeable instructors, the MEP is suitable for all ages and can be customized to suit the needs of your group or grade level. FRC provides resources for teachers and activity booklets to enhance student learning.

School Partnership Program

Experience all of the activities on offer! FRC can provide three field trips + in-class lessons for your class in one year. If multiple grades at your school are interested in coming back every year, we can structure the program so that students do new activities each field trip.

Pricing Structure

Day programs

\$10 per participant per hour (full day, 5 h = \$50)

For school programs, each chaperone is just \$10 for the day

Overnight programs

\$75 per participant

Includes ~7 hours of program activities across two days

For school programs, each chaperone is just \$20 for the program



Popular Program Ideas

Families or dad camp!

Families or just kids and their dads do the MEP during the day and camp in the Fort or at Reef Campground.

Corporate and social groups

FRC has provided programs for kayaking and other social groups, corporate office retreats staying at local hotels interested in team building activities, and more!

The MEP at your school

Do you want to add marine science into your classroom without driving to FRSHP? Book an in-class program or an assembly with one of our instructors. If you are within driving distance we can come to you.

MEP: In-class + Field trip

Set the scene for your students with an in-class program in-person or via zoom with one of our instructors followed by a field trip MEP at Fort Ross.

Catered Camping for Youth Groups

Is organizing a camping trip for your school or youth group stressful and a lot to organize? Fieldguides Outdoor Education has you covered! Fieldguides Inc. provides an all inclusive camping experience with tents, food, and a full outdoor kitchen as well as evening activities for your students after a day of fun-filled marine ecology activities. See [page 20](#) for more information.

Open Programs

Set programs are run throughout the year for anyone who would like to learn about marine biology and Sonoma Coast wildlife. If you are a homeschool family or looking for something to do during school breaks, this is for you!

Help Kelp!
Winter

Invert Alert
Spring

Sand Crabs
Summer

Marine
Mammals
Fall

Dates are announced on our website, social media and in our newsletter. You can sign up here to receive email alerts*

*only for these programs, not a mailing list



Activities and Curriculum

The intersection of natural & cultural history

Fort Ross is an ever changing place reflected in the modified landscape. The wildlife and ecosystems in the ocean and on land have significantly changed since the Kashia lived on and cared for the land for over 12,500 years. Back then, kelp lined the coast and the bluffs were covered with native plant species.

Today, we are restoring the wildlife and environment. The MEP connects you with both coastal wildlife, local history, and restoration initiatives. You will have the opportunity to explore the coastline, historic buildings and learn about the different people and animals who lived in the State Park over time.

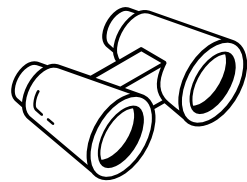


Curriculum themes:



Each has a number of different activities (1–1.5 h length, pages 13-15). A program can consist of activities from one curriculum or a mix of activities from across curricula.

Your FRC instructor will choose a mix of activities based on the weather conditions and tides unless a preference for activities is expressed.



Incorporate geology into your trip!

The San Andreas fault runs along the length of the state, skirting on and just off California's coast and through Fort Ross' historic orchard. This fault line is a transform boundary between the Pacific and North American plates.

If you walk up Fort Ross Road, the fault line is clearly marked on the road and surrounded by stunted trees and sag ponds left behind from the famous 1906 earthquake.



Kelp Curriculum

Helping kelp

Kelp forests in California have declined by more than 90% since 2014 due to a population increase in purple sea urchins. These classes cover the key aspects of kelp forest loss and how they are being restored by scientists today. The decline has been caused by over-exploitation of sea otters in the 1800s, the sea star wasting disease in 2013, and a marine heatwave in 2014-2016.



This curriculum was funded by NFWF through The Greater Farallones Association (GFA).

Program structure (5 h MEP):

For a deep-dive into kelp loss & restoration

Time	Activity
10 am	Welcome to Fort Ross + Tide pool species identification
11 am	Sea otters and the 1800s fur trade
12 pm	Lunch
1 pm	Tidepooling
2 pm - 3 pm	Kelp forest lesson: sea urchin dissection

Each lesson is stand-alone and can be taught individually

CLASSES

1 - Tide pool treasures

Find and touch purple sea urchins, sea stars, crabs, abalone, anemones and more while exploring the incredibly diverse rocky shore in Sandy Cove.

Middle and high school students can do a survey of the intertidal using transects and quadrats just like marine scientists and practice species ID.



2 - Sea otters and the 1800s fur trade

Sea otters are one of two key sea urchin predators in NorCal. Fort Ross played a key role in sea otter decline as a hunting outpost. This lesson includes:

- Explore the historic buildings and feel the pelts of local animals including sea otter in the fur warehouse.
- Sea otter biology, ecology, and their role in healthy kelp forests.
- Learn about the importance of sustainable environmental management



MORE KELP CURRICULUM CLASSES

3 - Kelp forests: Underwater cities

Learn how an increase in purple sea urchin population numbers has lead to kelp forest decline.

- Kelp forest food webs and why kelp is so important
- Biology and ecology of purple sea urchins
- The impact of marine heatwaves
- Handle and measure live sea urchins like restoration scientists!

Kelp forest restoration in Sonoma County, including at Fort Ross, is led by GFA and NOAA's Greater Farallones and Cordell Bank National Marine Sanctuaries.

Sea urchins provided by NOAA and GFA's urchin divers directly connects students to the restoration efforts. You can also see the restoration site from the bluffs.



4 - Stars of the sea: Sunflower sea stars

There are so *many* cool species of sea stars. The sunflower sea star is the second predator of purple sea urchins here and the largest sea star in the world!

This activity includes:

- The sea stars of California: so many species!
- Fascinating facts about sea stars
- The sea star wasting disease
- Benthic predators: the sunflower sea star
- Anatomy: create a paper sea star
- Sea star food: mussel dissection class



5 - Tidepool Species

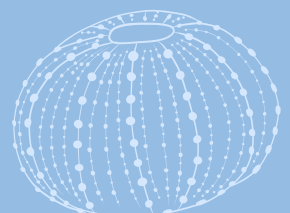
Get ready to explore the tidepools!

Learn how to identify different marine invertebrates, fish, kelp, and other algae species.



Lessons 2, 3, 4 and 5 are indoor classes that are available to schools when wet weather or high tides/swell prevents outdoor activities.

These classes are also available as in-class lessons at your school to prepare for your MEP or if finding transport to FRSHP is too difficult. These can be taught in-person or virtually by an FRC instructor.



Marine Mammals

FRSHP is lucky to have resident Steller and California sea lions and Harbor Seals that live in the Park throughout the year. This is one of the best places to see Stellers in California!

In the spring and fall, there is a high chance of seeing whales, especially in October!

1 - Sea Lion Hike

Sea lions are endlessly entertaining. They play, spar, climb and jump off cliffs and are very loud. On the bluffs, we have a great vantage point to see large groups of sea lions in the water and on the islands, sometimes over 400!

Includes:

- Walk across the bluffs to see sea lions through binoculars and telescopes. This is a 40 min hike (20 min each way)
- Species identification
- Coastal upwelling
- The importance of marine mammal monitoring



2 - Harbor Seals

How many seals call Fort Ross home?

Harbor seals haul out along the shoreline in FRSHP. They are the opposite to sea lions: shy and quiet. See pups in April and May!

Learn about:

- Species identification
- Harbor seal biology and ecology
- Do a survey like a marine scientist
- The importance of respecting marine mammals



Do the MEP as part of The Marine Mammal Center's Ocean Ambassadors program for middle school students!

This award-winning marine science program includes visiting the hospital in Sausalito and provides teachers with curricula connected to access to Next Generation Science Standards, resources and professional development throughout the academic year.

Winged Wildlife + More!

There are so many birds, butterflies and bees to see in FRSHP that flit, float and flap along the coast, across fields of wildflowers, and through the redwood and cypress forests. Keep your eyes peeled!

1 - Shore bird diet: Sand crabs

Search for sand crabs on the beach! These unassuming crustaceans are indicators of toxins, important herbivores in beach ecosystems, and food for birds, fish, and sea otters.

- Sand crab biology and ecology
- Use beach survey equipment
- Survey the beach for sand crabs using clam tubes - your feet will get wet!



Roger Birkhead



2- Habitat Restoration*

What is habitat restoration and why is it important?

- What is a habitat?
- Learn about habitat restoration techniques.
- Workshop: in groups, create a plan to save the endangered Behren's silverspot butterfly in Fort Ross State Historic Park

3 - Plants and pollinators

Learn about the amazing hummingbirds, butterflies and bees on the coast and the native plants that support them.

- Help with habitat restoration for endangered butterflies!
- What is pollination and why is it important?
- Create native "seed bombs" to assist with habitat restoration at Fort Ross!



Bird bingo

At the intersection of grasslands, forests, and the ocean, the coast is a great place to see a wide variety of birds! While you are walking around the State Historic Park, try to spot as many birds as you can. How do they compare to the birds you see at home?



Creatures of the night: BATS!

Bats are wonderfully creepy but also very cute and not to mention extremely important! They pollinate crops, disperse seeds, eat insect pests, and are part of the food chain.

- Echolocation game
- Anatomy
- Species ID
- Use an echolocation device to hear bats in real time!



This evening activity is available in overnight programs with Fieldguides INC, our partner organization, or for an additional fee if you would like an FRC instructor to stay after hours (after 5 pm).

*Available as an in-class lesson at your school

COME AND SEE WHY SO MANY STUDENTS LOVE OUR PROGRAMS!

Student Feedback

It was really amazing and I loved the sea lions, touching the urchins, and seeing many amazing historical buildings in Fort Ross.

It was extremely fun to learn about everything in Fort Ross! I may even go urchin diving someday!

The presentation about kelp forest and sea urchins [was my favorite]. I LOVED [the marine science instructor]! She was so nice and just the best. Also touching the sea urchins was so fun and cool.

I had an excellent time because we got to participate in adventurous experiences like tide-pooling. I learned that abalone are endangered and I learned what a nudibranch is.

I enjoyed the MEP program, I loved watching the seals and learning all about them. My favorite activity was looking at the sea lions and seals through the binoculars.

I enjoyed the program very much. I loved seeing the humpback [whale], seals and [the] hike was very pretty.

Teacher and Parent feedback

Our class very much enjoyed the entire experience. The instructors were knowledgeable and interesting. The students really enjoyed their time on the beach and learning about the seals.

The amount of engagement we saw was spectacular. The delivery of this program was what made it so engaging and I want to thank you for that. Our students have struggled to fit in the "traditional ways" of education which is why they end up in our Alternative Education program... yesterday it was something we hardly saw and that is what gave us the definition of a successful leave to learn outing. We would love to do this again next year.

The information was at the correct level and everyone learned so much. It was a fantastic program!

HOW TO BOOK

Visit our website:

<https://programs.fortross.org/mep>

Email: mep@fortross.org



BOOK TODAY!

Staying overnight

We know Fort Ross is not easy to get to! Why not make the most of the coast while you are here?

Overnight programs include 5 hours of program activities on day one and 1.5 h on day two. Options are available for schools who need financial assistance.

We provide three options for staying overnight:

1. Stay in the Fort: Sleep in historic buildings or pitch tents in the Fort! Staying overnight in a historic, restored Russian fortress originally constructed in 1812 is an incredible and unforgettable experience! We can also reserve campsites at Reef Campground for groups doing programs with us.

2. Camp at Reef Campground (see next page)

3. All-inclusive camping with Fieldguides Outdoor Education: FRC does not provide evening activities, dinner, or camping equipment but Fieldguides inc. does! This makes for a much more relaxing and entertaining camping experience with your school or youth group.



Fire pit with grill



Blockhouse rooms

FRC can provide recommendations for other activities and places to visit during your trip to the Sonoma Coast

California State Parks currently allows groups to sleep in the blockhouses, the two corner buildings of the Fort

Each blockhouse has two rooms with wooden floors that can sleep ~6 people. Groups with more than 24 people will need to bring tents.

Camp among the Redwoods on the Coast!

Staying at [Reef Campground](#)

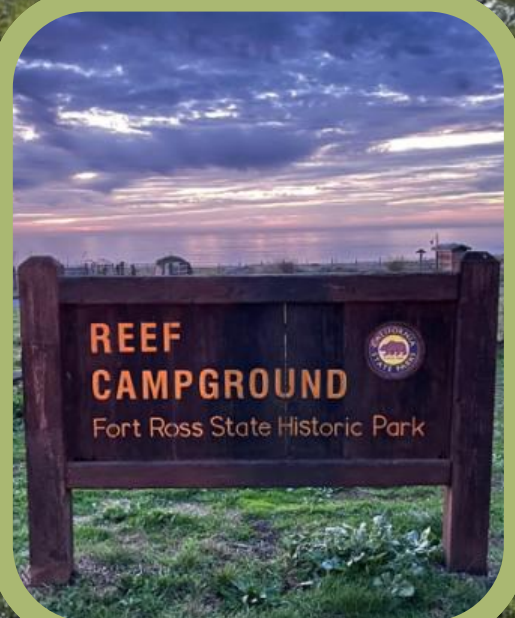
Reef campground is a beautiful campsite on the coast with beach access.

There are 20 campsites each have a fire pit and FRC can reserve sites for groups doing a marine ecology program. Campsites are \$40 per night for 6 people and each have a fire pit. This includes one vehicle per site.

The campground is a ~20 min walk to Sandy Cove and a 30 min walk to the Fort compound. FRC highly recommends the walk, the coastline is stunning!

If you are coming with a big school bus, the students and gear will have to be dropped at the top kiosk and then walked down to the campsites. Although unlikely during the week, there may be others camping within the campground. Please be mindful of others using the space

Please note, campsites are for tent camping only and this is a dry campground (no water). Each site has a fire pit but you will need to bring firewood



**Multiple connected sites
perfect for large groups**



Fire pit at each site

NEW!



Camping by The Fort



**For Fort Ross Conservancy's
Marine Ecology Program**



Enjoy a night of all inclusive camping on the coastal bluffs with FIELDGUIDES INC. after a day of experiential learning in the Marine Ecology Program!

Fieldguides INC provides all camping equipment, dinner and evening activities.

Marine Ecology program: 1-5 hours,
\$10/student/hour, \$10 per chaperone

FIELDGUIDES overnight: \$100/student,
\$25 per chaperone



How to book:

✉ info@fieldguides.org

☎ (650) 969-6325

📱 @fieldguides.inc

Available for youth and school groups. For more information on the MEP, scan the QR code or email mep@fortross.org

