

# Teacher's Packet



*2016-2017 Education Programs*



# Table of Contents

	<u>Page</u>
<b>General Information</b> .....	<b>3</b>
<b>Directions and Contact Information</b> .....	<b>4</b>
<b>Ranger-led Education Programs</b>	
<b>Tidepool School (K-3<sup>rd</sup>)</b> .....	<b>5</b>
<b>Sea-Creeps of Tide Pools (4<sup>th</sup>-5<sup>th</sup>)</b> .....	<b>5</b>
<b>Wealthy Tide Pools (6<sup>th</sup>-8<sup>th</sup>)</b> .....	<b>6</b>
<b>Wealthy Tide Pools (High School Variation)</b> .....	<b>6</b>
<b>Lighthouse History Program (3<sup>rd</sup>-4<sup>th</sup>)</b> .....	<b>6</b>
<b>Teacher-Led Programs</b> .....	<b>7</b>
<b>Suggested Activities for School Groups</b> .....	<b>8</b>
<b>Interpretive Center Scavenger Hunt</b> .....	<b>10</b>
<b>Guidelines for Teacher-led School Groups</b> .....	<b>12</b>
<b>Field Trip Preparation and Contract</b> .....	<b>13</b>
<b>How to Be a Great Chaperone</b> .....	<b>15</b>
<b>Tide Pool Chaperone Guidelines</b> .....	<b>16</b>
<b>Interpretive Resources for Classroom Learning</b> .....	<b>20</b>
<i>(Friends of Yaquina Lighthouse Bookstore)</i>	

# Yaquina Head Outstanding Natural Area

## General Information

Yaquina Head Outstanding Natural Area offers a number of opportunities for educational groups wishing to visit. The 100-acre park hosts a 19th century Lighthouse, some of Oregon's best tidepools, an exceptional Interpretive Center, and opportunities for bird watching, wildlife viewing, and hiking.

Throughout the year, classes may participate in a Group Discovery Tour, where teachers and chaperones lead students in various activities throughout the park. In the springtime (April through mid-June), school groups can choose one of our Ranger-Led Tide Pool Programs, where curriculum-based programs are offered K-12. Where no ranger-led program is offered, Teacher-led Tide Pool Programs may be scheduled, dependent upon space availability.



# Driving Directions

Our physical address is 750 NW Lighthouse Drive, Newport, OR 97365.  
There are brown signs along Hwy 101 and at the turnoff to help direct you to Yaquina Head.

Please note that Yaquina Head Outstanding Natural Area is a different park than Newport's Yaquina Bay State Park, which also has a lighthouse.

## From the East or South:

Newport is located 55 miles west of Corvallis on the north central Oregon coast. Take Hwy 20 to U.S. Hwy 101 in Newport. Turn north (right) at the traffic light onto Hwy. 101 and drive three miles to the traffic light at Lighthouse Drive (*Izzy's Pizza and the Lighthouse Cafe are on the corner*). Turn left and follow approximately ¼ mile to the entrance station to Yaquina Head Outstanding Natural Area.

## From the North:

Driving from the north on Hwy. 101, turn right at the first traffic light onto Lighthouse Drive (*approximately ½ mile south of the Newport city limit sign*).



## For More Information

### Yaquina Head Outstanding Natural Area

<http://www.blm.gov/or/resources/recreation/yaquina/index.php>

750 NW Lighthouse Drive  
Newport, OR 97365  
Phone: (541) 574-3100  
FAX: (541) 574-3140

### Education Program Coordinator

Phone: (541) 574-3122  
[blm\\_or\\_yh\\_education@blm.gov](mailto:blm_or_yh_education@blm.gov)



# Ranger-led Education Programs

*(April through mid-June)*

Yaquina Head Outstanding Natural Area, home to some of Oregon's most accessible and ecologically diverse tide pools, has provided an "outdoor classroom" for generations of visiting school groups. In 2003, BLM rangers began offering ranger-led educational programs to visiting grade school groups. This spring the intertidal science program will include ranger-led school programs for K-12, as well as self-guided programs for groups of all ages.

Ranger-led programs offer teachers and students the opportunity to participate in an inquiry-based, standards-linked exploration of the intertidal area. We strive to keep the ranger-student ratios low and the engagement level high. By participating in the programs we hope that students will achieve a deeper understanding and appreciation of Oregon's natural and cultural heritage with less impact on the resources.



## **K-3rd Grade Ranger-Led Program:**

*"Tidepool School" (Same program, new name)*

Students will learn how intertidal plants and animals survive with amazing adaptations. After a brief introduction and a close-up look at some of our tide pool critters, students will explore the tide pool area while discovering the unique adaptations of our plants and animals. (Students, teachers and chaperones must be able to climb 130 stairs and navigate over a cobblestone beach.)

## **4<sup>th</sup>/5<sup>th</sup> Grade Ranger-led Program:** *"Sea-Creeps of Tide Pools"*

Main topics for the 4<sup>th</sup>/5<sup>th</sup> grade program include marine habitats and intertidal zones. Students participate in four activities with an emphasis on 'hands-on, hearts-on, minds-on learning'. In the first activity, students create a watercolor painting of Seal Rock to help them visualize different zones of the intertidal area. Once students finish, they walk down to the tide pool area where they explore where animals and plants live within intertidal zones. The program concludes with a reflective activity. (Students, teachers and chaperones must be able to climb 130 stairs and navigate over a cobblestone beach.)



## **6<sup>th</sup> – 8<sup>th</sup> Ranger-Led Program - Wealthy Tide Pools**

Students will interact with the Cobble Beach tide pool area as junior ecologists to monitor the relative species richness of the intertidal zones, while learning about the scientific method, ecology, and biology in a diverse physical environment. This program aims to engage the students' hands, minds, and hearts, as well as to encourage lifelong stewardship of this unique ecological resource. (Students, teachers and chaperones must be able to climb 130 stairs and navigate over a cobblestone beach.)

### **High School Variation - Wealthy Tide Pools**

A more in-depth study of the intertidal zones, students will monitor for both abundance and species richness, briefly analyze collected data, and apply knowledge gained to discuss appropriate management strategies.



### **Lighthouse History Program:** *(Available by request on special “no tide” days.)*

Students take a trip back in time to the late 1800s, learning how lighthouse keepers lived and worked at Yaquina Head. This program helps students understand the role shipping played in the commercial development of coastal towns, how lighthouses helped ships navigate, and the differences between the lighthouses on the Oregon Coast. Students also explore the various duties performed by each family member (keeper, wife, and children). This program includes a tour inside Oregon's tallest lighthouse.



# Teacher-led Programs

## Overview

Opportunities are available for well-supervised groups at all grade levels. Whereas we welcome Teacher-led programs, we expect that students are actively engaged in appropriate activities that will encourage learning and stewardship while protecting the resources at Yaquina Head. In this regard, we have found that allowing students to explore the park without an assignment or planned activities is often ineffective and compromises both the resources and the students' learning experience. Please think of your visit as a "Field Experience" rather than a "Field Trip," and come prepared with appropriate, supervised activities for students while exploring the tide pools and other areas of the park.

There is **no charge for schools to visit or for programs** at Yaquina Head but **advance registration is required**. Please use the scheduling guidelines outlined below for instructions on how to register.

Yaquina Head Natural Outstanding Area is designated as a Marine Garden, *a specially protected area in which it is illegal to collect any marine invertebrate (except single mussels for bait)*. Marine Gardens are areas that are targeted for educational programs allowing visitors to enjoy and learn about intertidal resources. Please **take extra care to review our 'Rules and Guidelines' with your students** before you come and, more importantly, abide by them during your visit.

To insure the safety of our visitors, and to provide an overall positive experience for students and visitors, a practical student/adult ratio is required. A student/adult ratio of at least one adult per five students is recommended.

## General "Group Discovery Tours" to Yaquina Head

Yaquina Head welcomes **self-guided groups** to tour Yaquina Head year-round. **Advance reservations are required**. Groups may choose to do a number of different projects listed in *Suggested Activities for School Groups (see pages 17-18)*, or bring their own activities. Unlike the springtime registration procedures for tide pool programs, classes may schedule general visits at any time. Please call the Education Program Coordinator at (541) 574-3122 to discuss and book your field trip.

Upon arrival, a park ranger will greet each school group and provide a short, **required orientation**. The ranger will review rules and guidelines, provide suggestions on where and how to best proceed, and update your group about recent or interesting findings. Whenever possible, a ranger will assist your group and be available as a resource while exploring.

## Springtime Field Trips to the Tide Pools

Due to the high demand for springtime tide pool programs, Yaquina Head is required to limit the number of students visiting the tide pools at any given time. For specifics on when and how to register, please download our *Registration Procedures* from the website or call to request a copy. Preference will be given to ranger-led programs over teacher-led programs in grade levels where we offer such a program.

**For questions, concerns, or comments**

Contact the **Education Coordinator (541) 574-3122** or email **blm\_or\_yh\_education@blm.gov**

# Suggested Activities for School Groups

In addition to our ranger-led programs, Yaquina Head offers a number of other activities for your students to enjoy. Please check with the Education Program Coordinator prior to your visit if you plan on doing any of these activities in addition to your scheduled ranger-led program.

## The Interpretive Center

The Interpretive Center, filled with hands-on activities and exhibits, is a great place to start your visit.

- **Scavenger Hunt** – A great way for students to explore and learn about Yaquina Head is by going on an Interpretive Center scavenger hunt (different formats for different age groups). Request an advanced copy; limited copies are available at the front desk. (20 – 30 minutes)
- **Historical Video** - A 15-minute video about the history of the lighthouse runs continuously.
- **Exhibits** – The exhibit area is full of great hands-on displays and information about Yaquina Head and the surrounding area. (5 – 15 minutes)
- **19th century parlor games** – Games for kids of all ages including Graces (ring toss game), Jacob’s Ladder, puzzles, crosswords, checkers, and more. (5 – 20 minutes)
- **Three (3) picnic tables** are available behind the interpretive center. No food or drinks are allowed in the building. Ask a ranger to supply a trash bag for your group. Please clean and check the area for garbage and food scraps before leaving.

## Towards Quarry Cove and Communications Hill

- **Quarry Cove** (5-15 minute walk from the Quarry Cove parking lot, or 20-30 minutes from the Interpretive Center)

The Cove has a diverse history. It was used as a rock quarry to supply highway materials for US 101 from the 1920s through 1980s. In 1995 the Cove was turned into wheel chair-accessible tide pools. Nature, however, had other ideas as ocean sand filled in the area and the “man-made tide pools” were impossible to maintain.

Fortunately for visitors, the seals have claimed the Cove! Although there are no tide pools, the area is now a great place to check out harbor seals at high tide. When the seals are present, students can observe them close-up from the viewing area. However, we ask that visitors consider themselves guests to the animals’ home and act respectfully to them, allowing them to remain wild. Please review the attached *Rules and Guidelines* with your students *prior* to visiting the Cove.

- **Communication Hill Trail** (30-45 minutes round trip from the Interpretive Center)

This trail is a great opportunity for exploring the Sitka spruce and Shore pine forest found on the headland. It begins at the Interpretive Center and leads you to the top of our highest peak for a breathtaking view of the ocean. Interpretive signs highlight forest plants and animals along the way.

*Communication Hill remains home to equipment belonging to the US Coast Guard and others. Please stay away from buildings, tanks and other apparatus.*



## Towards the Lighthouse

- **Lighthouse** (20-30 minutes)

Yaquina Head Lighthouse was first lit on August 20<sup>th</sup>, 1873 and is still a working lighthouse today. Whereas the outside of the lighthouse is open year-round for viewing when the park is open, interior tours are difficult to arrange for large groups (eight is the maximum number for a group allowed on a single tour). A limited number of 45-minute tours, conducted daily with fewer days in the winter are available on a first-come, first-served basis by signing up at the Interpretive Center **on the day of your visit**. Ranger-led lighthouse education programs are offered April through June; please ask the Education Coordinator for details.

- **Wildlife Viewing** (5-15 minutes)

The area around the lighthouse parking lot has a number of great lookouts (and interpretive displays) for viewing the ocean and wildlife. Birds flock here seasonally by the thousands including brown pelicans, cormorants, and murre. Bald eagles are commonly seen. Gray Whales are best observed migrating December - March, and resident whales are observed closer to shore August-October. Bring binoculars!

- **Cobble Beach** (15-60 minutes)

This volcanic basalt beach is very unique and a great place to visit at both low and high tides. Have students check the tide chart before arriving. There are 134 steps down to the beach!

**Low tide** – The Yaquina Head tide pools, one of the best tide pool spots in Oregon, are located in a Marine Garden Preserve. April through June, tidepool exploration occurs via scheduled ranger-led programs. Teachers may take their students into the pools from July through March. Please dress appropriately for inclement weather and wear proper footwear (*no flip-flops please*). Review *Rules and Guidelines* with your students *prior* to reaching the beach.

**High tide** – Although you won't be able to access the tide pools, Cobble Beach is a great place to explore, journal, and/or draw. Check out how the angular basalt becomes cobble while listening to the tide move the rocks to and fro. Go on a "wrack walk," a scavenger hunt where students explore all the interesting things brought to shore with the tides. Look for harbor seals in the water or lying on the rocks.

- **Salal Hill Trail** (25-30 minutes round trip)

This trail provides a great opportunity for students to get exercise and get an amazing ocean view (on a clear day). Although it looks steep, it is well graded and fairly easy to climb. Keep your eyes open for native wildflowers, plants, small mammals, birds, and insects.

## Quests (45 minutes for each Quest)

Quests are clue-directed hunts that encourage exploration of natural areas. "Questers" follow a series of word clues once all the clues are found, the secret location is revealed - a box where students can sign their name and get the official Yaquina Head quest stamp. Yaquina Head now has three Quests available to download or upon request at the interpretive center:

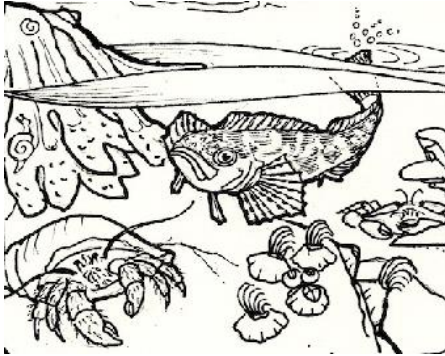
- 🚩 History Quest (*towards the lighthouse*)
- 🚩 Hills Quest (*to Communication Hill*)
- 🚩 Stewardship (*to Quarry Cove*)

A book of other Quests located throughout Lincoln, Benton and Coos Counties is also available at the Yaquina Head gift shop or at <http://hmsc.oregonstate.edu/visitor-center/education/marine-education/quests>

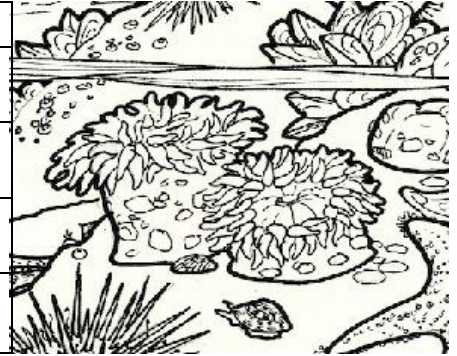
# Interpretive Center Scavenger Hunt

## The Tide Pools

- 1) Identify the different zones and give an example of an animal found in each.
- 2)



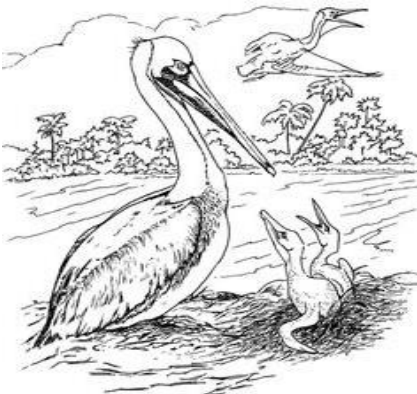
ZONE	ANIMAL
Spray Zone	Periwinkle Snail



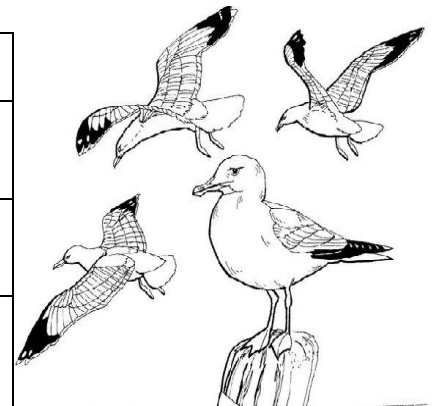
- 3) Name 3 invertebrates:

## The Wildlife

- 1) Are baby seal pups capable of swimming at birth?      YES      NO
- 2) Where are the gray whales when they:
  - have babies in the winter? \_\_\_\_\_
  - feed in the summer? \_\_\_\_\_
  - What is the distance the gray whales migrate between the two? \_\_\_\_\_
- 3) Find the bronze egg! What bird lays this “bronze” egg? When the egg hatches who teaches the chicks to fish?
- 4) Name 3 birds that can be seen at Yaquina Head and one adaptation for each:



BIRD	ADAPTATION



- 5) Who is living in the tunnel? \_\_\_\_\_
- 6) Draw a picture of your favorite animal found in the interpretive center.

Why is this your favorite?

### The Lighthouse

- 1) Locals originally called the lighthouse by a different name. What was it?  
\_\_\_\_\_
- 2) What is one job you would perform if:  
you were the head lighthouse keeper? \_\_\_\_\_  
you were the lighthouse keeper's wife? \_\_\_\_\_  
you were the lighthouse keeper's children? \_\_\_\_\_
- 3) Observe the lighthouse's flashing pattern. What is the pattern and how do ships use this to navigate?  
\_\_\_\_\_ seconds on, \_\_\_\_\_ seconds off , \_\_\_\_\_ seconds on, \_\_\_\_\_ seconds off



### Bonus Questions

- 1) There is a book in the Interpretive Center that does not belong. What is it?
- 2) How many creatures can be found in the large mural in the wildlife exhibit?  
What is the only invertebrate?
- 3) What is one way that you can help to protect the wildlife at Yaquina Head?
- 4) Rangers put out the bright yellow boundary sign to keep \_\_\_\_\_ safe.

# Guidelines for Teacher-led School Groups

Welcome to Yaquina Head Outstanding Natural Area. We hope that your field trip experience will be enjoyable and of value to you and your students. For large groups we find that proper planning and field trip management will provide a more profitable experience while ensuring the park and its resources are preserved and protected.

## Before Your Visit

- **Decide which sites/activities/programs you wish to visit/accomplish – Coordinate with the Education Coordinator.** *Although there are a lot of activities and/or programs to choose from, the number of things you are able to accomplish will depend upon how much time you have to spend at the park.*
- **Divide your students into smaller, adult-led subgroups before you arrive.** *By doing so, the students will have a better experience and it will minimize the chance of damage to the resources or student misconduct.*
- **Try to keep group sizes less than ten and ideally smaller than eight.** *Have each group rotate through different parts of the site and participate in appropriate activities with minimal impact to Yaquina Head or other visitors. (Numbers will vary for Ranger-led programs.)*
- **Avoid more than two groups (15 students) congregated at one activity.** *No matter how well-mannered the group, large groups tend to be noisy and harder to control.*
- **Orient adult leaders and chaperones.** *We ask chaperones to be aware of and responsible for their students at all times. Please distribute and review “How to be a Great Chaperone” with adult leaders.*

## Upon arriving at Yaquina Head

- **Check in at the fee booth.** *A ranger will instruct you on where to meet for a required orientation.*
- **Proceed to the designated orientation site.** *A ranger will meet and orient your group.*
- **Review rules and proper conduct.** *Once on-site, take a few minutes (either outside or on the bus) to discuss with students. (See Rules and Guidelines)*



# Field Trip Preparation and Contract

## ***Scheduling:***

- Scheduling begins early in the school year for ranger-led programs. Check the Yaquina Head website, or ask to be notified of registration dates. Some dates tend to fill up quickly, so if you are scheduling your field trip in conjunction with a visit to the Oregon Coast Aquarium, Hatfield Marine Science Center, Marine Discovery Tours, etc., we recommend that you schedule with us first. Our tide pool program times are dependent on when low tides occur, while other area attractions do not have this restriction.

## ***Before the Field Trip:***

- Arrange administrative permission
- Schedule transportation
- Distribute forms and guidelines:
  - chaperone guidelines
  - student checklist
- Please divide your students into study groups as designated when booking by the Education Coordinator, and/or as outlined in “*Guidelines for School Groups.*”
- Please use name tags to designate smaller groups. Ideally, use colors or themes to define each group: black, red, green, blue, etc.
- Review rules and guidelines with your students
- Prepare students with pre-visit activities

## ***Day of the Field Trip - Before you arrive:***

- Give clear directions to your chaperones on both your expectations and those from Yaquina Head. Review schedules and meeting times.
- Review rules and guidelines with your students.
- Use restroom facilities, or plan to arrive 15 to 30 minutes prior to your scheduled program to use the park’s restrooms.
- Notify park staff if you will be late, delayed, or need to cancel by calling (541) 574-3100.

## ***Day of the Field Trip - at Yaquina Head:***

- A member of the education staff will orient your group before the start of your park visit. Check with the entrance station or interpretive center ranger upon arrival to determine where to meet.
- We expect students to be courteous and to show consideration for others while visiting Yaquina Head.
- For the convenience of groups bringing their own lunches, we have an outdoor seating area with three picnic tables behind the interpretive center where you may eat. Ask a ranger for garbage bags and be aware of clean up procedures. Please leave the area cleaner than you found it.

Field Trip Preparation and Contract - continued

**Chaperones:**

- Distribute to adult leaders and review “How to be a Great Chaperone”
- **We request a minimum of one chaperone for every 5 students.**
- **Chaperones need to stay with the students at all times during the visit - including high school students.** If your students become unruly and/or separated from their chaperones, they may be asked to return to the bus.
- Chaperones are along to assist and supervise students, and should refrain from visiting with other adults during instruction.
- Chaperones that bring younger siblings may detract from your students’ experiences.

**Teacher-led Field Trips:**

- **Please come prepared with appropriate activities for students while exploring the tide pools.** Whereas we welcome Teacher-led programs, we expect students to be actively engaged in appropriate activities that will encourage learning and stewardship while protecting resources at Yaquina Head. In this regard, we have found that allowing the students to “just go explore” can be ineffective and compromises both the resources and the students’ learning experience.
- The staff at Yaquina Head continually seeks new and better ways to improve our program. Please share applicable activities and curriculum with us, so that we may pass on your successes to other groups.

**Late Arrival and Cancellation Policy:**

- Please arrive 15-30 minutes or more before your scheduled time, allowing students plenty of time to go to use the restroom, disembark from the bus, etc. If you know you will be late, please call (541-574-3100) to tell us your anticipated arrival time. Your program will be limited to the time-block reserved; if running late your program could be shortened, modified, or possibly cancelled.

**Fees:**

- All BLM education programs are presented free of charge to educational groups, but reservations are mandatory. Please plan in advance for your visit.

**I have read the *Field Trip Preparation and Contract*, and *Rules and Guidelines*. I understand and agree to abide by them during our visit to Yaquina Head Outstanding Natural Area.**

\_\_\_\_\_  
*School Name*

\_\_\_\_\_  
*Signature / Date*

\_\_\_\_\_  
*Date of Program*

*Please return the signed form to:*

**Education Program Coordinator, 750 NW Lighthouse Drive, Newport, OR 97365**

Or email an acknowledgment to [blm\\_or\\_yh\\_education@blm.gov](mailto:blm_or_yh_education@blm.gov)

# How to be a Great Chaperone

**You don't need special knowledge to be a chaperone—just common sense and a willingness to jump in and get involved. Here are a few tips to help make your trip a good one:**

## ***What will I be doing as a chaperone?***

- You will supervise a small group of students, help them learn, assist the ranger when called upon, and make sure the students behave appropriately.

## ***What will my role be during the program?***

- Throughout the day, your job will be to monitor the behavior of the students, provide for their safety, and facilitate the learning process while insuring a fun visit for the students.
- You may be asked to work with specific students and help guide them through program activities. You may want to ask the teacher for information about the program, including background information and vocabulary words, to familiarize yourself with the topic. The more you are able to interact with the students, the better their experience will be.

## ***What do I need to tell the students about touching in the tide pools?***

- Encourage students to touch gently. When touching tide pool animals, wet your hands in seawater first. Most tide pool animals have a coating of slime to protect them. Touching them with a dry hand can damage their slime layer and harm their delicate surfaces.
- Do not pick up or remove the animals.
- Follow the guidance of the park education staff.

## ***How can I help students get the most out of their visit?***

- Be sure you understand the plan for the day, as instructed by the student's teacher.
- Ask the teacher for any material that will help you lead the students.
- Ask the teacher whether the students have specific projects to work on, and how you can help them during the visit.
- Interact and have fun with the students.
- Ask questions of each student in your group. There will always be a few who have all the answers.
- Encourage the shy or quiet students to share ideas, too.

## ***What else do I need to know?***

- Please leave small children at home if possible. They distract you from your duties as a chaperone.
- Avoid visiting with other adults at the expense of your chaperone duties. Remember that your primary job is to chaperone the students, not to visit with other parents.
- Students must stay with you, their chaperone, at all times. Their behavior is your responsibility.
- Be sure you know when and where to meet the rest of your group during and at the end of the visit.

*Chaperones are integral to our programs at Yaquina Head Outstanding Natural Area.*

*Your participation is important to ensuring a safe and profitable learning experience for the students while protecting the natural and historical resources.*

*You don't need a special knowledge to be a chaperone;  
just common sense and a willingness to jump in and get involved.*

*Here are a few tips to help make your trip a good one.*

**What will I be doing as a chaperone?**

You will supervise a small group of students during the visit, helping them learn, assisting the ranger when called upon, and making sure they behave appropriately. This is especially important when visiting the tide pools when it's 'like kids in a candy store.' The terrain is rocky, uneven, and extremely slippery.

Throughout the day, your job will be to monitor the behavior of your assigned students, provide for their safety, protect park resources, and to facilitate the learning process while insuring a fun visit for the students.

You will be asked to work with specific students and help guide them through program activities. You may want to ask the teacher for a description and information about the program, to familiarize yourself. Our "For Teachers" webpage also contains pertinent information, activities and discussions:

<http://www.blm.gov/or/resources/recreation/yaquina/education-groups.php>

The more you are able to interact with the students, the better their experience will be.

<b>RULES OF THE POOLS - SHOUT OUT</b>		
<b>Rule</b>	<b>Ranger Shouts</b>	<b>Student Shout Reply</b>
Walk on Bare Rocks	<i>Walk on</i>	<b>BARE ROCK</b>
Don't pick up alive critters	<i>Alive or attached</i>	<b>DON'T PICK IT UP</b>
OK to touch gently	<i>Touch</i>	<b>GENTLY</b>
No Collecting	<i>Collect only</i>	<b>TRASH</b>
Leave sticks and stones	<i>Sticks and Stones</i>	<b>LEAVE EM ALONE</b>



## Tide Pool Rules

Follow the guidance of the park education staff that will review and emphasize the rules.

### How can I help students get the most out of their visit?

- Be sure you understand the plan for the day, as instructed by the student's teacher.
- Ask the group's teacher for any material that will help you with the students.
- Ask the teacher whether the students have specific projects to work on, and how you can help them before, during, and after the visit.
- Interact and have fun with the students.
- Be sure to ask questions of each student in your group. There will always be a few who will have all the answers. Encourage the shy or quiet students to share ideas too.

### Chaperones have rules too!

- Avoid visiting with other adults during the program. Adults visiting with each other distract students and the ranger from the task-at-hand. Remember that your primary job is to chaperone your assigned students, not to visit with other parents, or take photographs.
- Students must stay within the vicinity of their chaperone at all times. Their behavior is your responsibility.
- Turn cell phones off during the visit. If you must have your phone available (teacher, doctor, etc.), please turn them on vibrate. Answer away from the group after ensuring students are safe with another chaperone or ranger.
- Be sure you know when and where to meet the rest of your group during and at the end of the visit.
- Please leave additional small children at home if possible. They distract you from your duties as a chaperone.

## Inquiry Questions

While exploring in the tidepools, we try to stimulate inquiring minds, encouraging them to ask questions, touch, and discover the wonders of nature and science. To help facilitate this process, we have included a list of some common species found, along with some possible questions you might use with the kids in the group. Keep in mind that the questions are very simple (written for elementary grades) and may need to be re-worded for advanced or upper level students.



Please take a few minutes to look at the Inquiry Questions on the following pages before arriving. Make a copy to bring with you, or borrow one of ours when you are here.

## TIDE POOL INQUIRY QUESTIONS

**Giant Green Anemones**  
*Anthopleura xanthogrammica*



- Why are Giant Green Anemones green?
- Describe what happens when you touch the outside of the Anemone? The inside flower-like tentacles?
- Why do Anemones cover themselves with rock and shell pieces?
- Why don't you want to touch its center (like a belly button)?
- What do anemones eat for dinner?

**Ochre Star**  
*Pisaster ochraceus*



- Why are Ochre Stars different colors? How many different colored Sea Stars can you find?
- Touch a sea star. What does it feel like?
- Where is the mouth of an Ochre Star? How do they eat?
- Why are sea stars considered the kings and queens of tide pools?
- Where are Ochre Stars' eyes located? Why?

**Purple Sea Urchin**  
*Strongylocentrotus purpuratus*



- Why are Purple Sea Urchins spiny?
- Gently touch and hold your finger on the Sea Urchin spines for 10 seconds or more. Describe what happens.
- Why are Purple Sea Urchins covered with shells and driftwood?
- What happens if you try to gently remove a stick or shell?
- Where is the mouth of a sea urchin? How do they eat?
- What other species are they related to? (Hint: they have arms)

**Thatched Barnacle**  
*Semibalanus cariosus*



- What do barnacles eat?
- How do barnacles stay attached to the rocks?
- Can barnacles move from one place to another? How?
- Where are barnacles found? Are they on rocks? With other plants, or animals?
- Can you find three different types of barnacles? How are they different?

**Pacific Blue Mussel**  
*Mytilus californianus*



- Why do Mussels live in large groups (beds)?
- Can you find where Mussels attach to the rocks?
- Carefully get close to a mussel and try to find the threads that they hold on with? Are other critters or plants living nearby?
- How do Mussels eat?
- Who likes to eat mussels?



**TIDE POOL INQUIRY QUESTIONS**

**Hermit Crab**  
*Pagurus spp.*



- Can you find a Hermit Crab moving in the water? What is it doing? (Hint: you need to sit still and watch carefully.)
- Do Hermit Crabs grow their own shells? If not, where do they get their shells?
- How long can a Hermit Crab live without a shell?
- What do Hermit Crabs eat?
- Why doesn't the Giant Green Anemone eat the Hermit Crab?

**Gumboot Chiton**  
*Cryptochiton stelleri*



- Touch the Gumboot Chiton. What does it feel like?
- What is it related to?
- Can you see it move?
- Why does it look like a rock?
- Would you like to be a chiton? Why or why not?

**Turban Snail**  
*Chlorostoma funebris*



- Can you find a Turban Snail that is moving?
- Why are they called Turban Snails?
- What do you think Turban Snails eat?
- How do Turban Snails move?
- What do they have to help protect themselves?
- Are Turban Snails related to land snails? How are they the same or different?

**Tide Pool Sculpin**  
*Oligocottus maculosus*



- Can you find a Sculpin "resting" or laying on the bottom of the tide pool? What is it doing? What happens if you touch it?
- Is the Tide Pool Sculpin an invertebrate or vertebrate?
- How large will the Sculpin get? How does it protect itself?
- Do Sculpins ever leave the tide pool? Can it live out of water?
- What do Sculpins eat?

**Gooseneck Barnacle**  
*Pollicipes polymerus*



- Touch and gently try to move a one barnacle. Does it move?
- Why are they called gooseneck barnacles?
- What does a Gooseneck Barnacle eat?
- Where do you find a Gooseneck Barnacle ?
- What question would you like to ask a Gooseneck Barnacle ?



## Interpretive Resources for Classroom Learning

Welcome to the Interpretive Store's partial catalog of resource books. All educators will receive a **15% discount off** the prices listed below. For order details and more descriptive information, please see the instructions at the end of our list. The store at Yaquina Head is non-profit and managed by the Friends of Yaquina Lighthouses. All purchases help with the interpretation, preservation and restoration of the lighthouse.

### Beach, Ocean and Tidepool Exploration

**1001 Things to Spot In The Sea** by Katie Daynes \$9.99 a picture book busy with activity which encourages visual and verbal exploration and counting, best for the younger child

**First Encyclopedia of Sea and Oceans** by Ben Denne \$9.99 simple text and drawings with on-line links

**A House For Hermit Crab** by Eric Carle \$8.99 a delightful picture book following growth cycles, adventures and friendships encountered along the way

**Beach Exploration: A Curriculum for Grades 5-10** by Gloria Snively \$27.95 an easy to use illustrated resource book concerned with teaching students basic marine ecology concepts along the Pacific Coast from Oregon to British Columbia

**On The Seashore** by Anna Milbourne and Erica-Jane Waters \$9.99 a picture book depicting the "treasures the sea has left behind"; encourages a meaningful seashore experience

**Usborne Discovery Books: Big Book of Sea Creatures....and some little ones too. Grades K-4:** \$14.99 an easy informative read with 4 giant fold-outs

**Exploring Tidepools** - \$8.95

### Lighthouses

**Lighthouses for Kids** by Katherine L. House \$16.95 lighthouse history, science and lore, includes 21 academic activities

**Lighthouses of the Oregon Coast** \$4.50 Features activities and coloring sheets for Oregon Coast Lighthouses



## **“Take-along” Pocket and Field Guides**

**National Audubon Society Field Guides:** \$19.95-\$21.95

*Fishes; Wildflowers; Shells; Seashore Creatures*

**Mac 2-sided Laminated Field Guides:** \$5.95 each

*NW Park & Backyard Birds; NW Coastal Fish; NW Coastal Birds; Pacific NW Flowers;*

*NW Coastal Invertebrates; Marine Mammals of North America*

**A Quick Field Guide to Tidepools of the Pacific Coast** \$6.95

**A Field Guide to Sea Stars of the Pacific Northwest** \$7.95

**Field Guide to Marine Mammals of the Pacific Coast Adult** \$24.95 *an extensive California Natural Guide perfect for the reference library*

**A Guide To Summer Resident Gray Whales along the Oregon Coast** by local marine biologist, Carrie Newell \$19.95 *extensive photos enhance the complete dialogue, a must for locals*

### **Jigsaw Puzzles**

### **Educational Posters**

### **Videos**

**Oregon Seaweed Poster:** \$10.00 - 24x18 inches - Over 38! *Colorful Oregon Seaweed*

**NW Lighthouses Laminated Poster** \$12.95 24 x36 in. *detailed map with pictures of each*

## **Order Information**

*We have only touched upon a few of our interpretive materials. Please call the Interpretive Store at (541) 574-3116 to place your order or to receive additional information on our merchandise.*

*We accept Visa, Master and Discover Cards.*

*Don't forget to ask for the 15% teacher's discount.*

*We thank you for your interest and support.*

**Friends of Yaquina Lighthouses**  
**750 Lighthouse Drive #7 Newport, OR 97365**  
**website: [www.yaquinalights.org](http://www.yaquinalights.org)**  
**email: [store@yaquinalights.org](mailto:store@yaquinalights.org)**  
**(541) 574-3116**  
**fax: (541) 574-3140**