

# SCRIPPS BIRCH AQUARIUM WORKSHEET

Name \_\_\_\_\_

1. *Read over the Student Learning Outcomes and associated General Questions on this page, and refer back and take notes on this page as you walk through the aquarium, so that you may include your answers in your report summary.*
2. *Check out the dive shows and animal feedings if you can.*
3. *Complete the worksheet that starts on page 3 which will help you to observe some of the fascinating exhibits on your visit here. The questions are listed in the order you will see the exhibits. Begin with the sardine exhibit and walk through to the tropical fish, then the outside exhibit of the tide pools, then back inside through the rest of the displays, and finally to the large shark tank outside in the south courtyard. Hint: Read the signs above the exhibits to help you find the answers.*
4. *Turn in the completed handout with your summary report.*

## **STUDENT LEARNING OUTCOMES and General Summary Questions.**

1. **You will have increased your knowledge and awareness of the diversity of ocean life.**
  - a. Did any species surprise you by its size, shape, color, or behavior?
  - b. Vertebrates are animals with backbones; they include fish. Invertebrates don't have a backbone, and include animals like octopus, cuttle-fish, abalone, sea anemones, jellies, lobsters, barnacles, and sea stars. Did you see any differences in the behavior of invertebrates compared to vertebrates?
  - c. What was the range of size of fish that you saw?
  - d. What was the largest invertebrate that you saw?
  - e. Were you surprised by what species were put together in a tank? A community includes the populations of all the different species in a habitat. Describe one of the communities you saw.

2. **You will understand threats to ocean life.**

There is a lot of life near the coasts. Why? What threatens it? What can you do to protect ocean life?



## DIVE SHOWS AND ANIMAL FEEDINGS

	MON	TUE	WED	THU	FRI	SAT	SUN
<b>Kelp Tank Dive Show</b>		12:30		12:30		2:00	10:30
<b>Shark Tank Feeding</b>		10:30		10:30		10:30	
<b>NW Coast Gallery Feeding</b>			10:30				
<b>Southern California Feeding</b>			10:30				
<b>Tide Pool Feeding*</b>	2:00		2:00		2:00		
<b>Tropical Feeding</b>			11:00				

### Schooling Fish Tank in Main Lobby on the right.

Small and medium-sized fish “school” to reduce losses from predation. Did you notice the lines along the sides of the fish? They are part of a sensory apparatus, the *lateral line* system, which enables fish to feel vibrations in the water.

1. How do you think the lateral line system helps these fish?

### Stop and read the large signs as you enter the first exhibit hall on your right.

2. What are zooplankton and phytoplankton?
3. What is the major factor affecting the distribution, abundance and diversity of marine life?
4. What is upwelling?
5. Why are zooplankton and phytoplankton so important?

### Northwest Coast - Tank #2

6. How many species of sea stars are in the North Pacific?

### Northwest Coast - Tank #3

7. What body parts do sea anemones use to capture prey?

### Northwest Coast - Tank #4

8. Are the sea anemones in this tank the same species as in Tank #3?
9. What do abalone eat?

### Northwest Coast - Tank #5

10. What do sea stars eat?
11. Look for a sea star on the glass. Can you see the tiny *tube feet*?

### **Southern California open ocean – Tank #8**

12. Do you need to be concerned if you come across a moon jelly while swimming?
13. Why are plastic bags problematic for sharks?

### **Coastal Lagoon – Tank #10**

Start looking for differences between sharks and other fish. Rays are closely related to sharks. Notice that the gills of sharks and rays are not covered by a flap. Sharks and rays move continuously, because they are not as buoyant as other fish, which can “float” in one spot because of a gaseous “swim bladder” inside.

14. Why are lagoons considered nurseries for the ocean?
15. Indicate another benefit provided by coastal lagoons.
16. What fraction of California coastal lagoons has been ruined?
17. How many types of rays can you find?
18. What other types of flat fish can you find?

### **JELLIES – various tanks**

19. What is a polyp?

### **Southern California pier piling – Tank #14**

20. Name two types of animals that live on the pilings (supports).
21. What do leopard sharks eat?

### **Southern California Rocky Reef – Tank #12**

22. What features give the sarcastic fringehead its name?

### **Southern California Rocky Reef – Tank #13**

23. How old is the oldest lobster?
24. How big is the largest lobster?
25. What happens when a lobster outgrows its shell?
26. Hey! Where are the claws???!?

### **Underwater Park – Tank #15**

27. How can you tell if a garibaldi is a young or old fish?
28. The garibaldi fiercely protects its \_\_\_\_\_ and \_\_\_\_\_.

### **BIG KELP TANK, sit and observe the fish for a while.**

29. How many different species of seaweeds can you identify?
30. What is the largest fish in the tank and what size and age can it reach?

### **On the left wall on the other side of the big kelp tank notice the model of the ocean floor off our local coast.**

31. Where is the deepest trench off our coast?

### **THE AQUARIUM NURSERY**

32. What are the two species of sharks represented by egg cases?

### **Mexico, Los Islotes, a rocky reef - Tank #22**

33. Why do some fish have “beaks” in their mouths?

### **Tropical Seas - Tank #24**

34. What gives the flashlight fish its name?
35. What organisms cause the bioluminescence on this fish?

### **Tropical Seas, Western Pacific reef - Tank #26 and sign on the opposite wall**

36. How many different species of coral can you identify?

### **CORAL REEF EXHIBIT**

37. What are zooxanthellae?
38. What fraction of the world’s coral reefs have humans destroyed?

### **“Tropical Time Capsule – Written in Stone”**

39. How do living corals record the climate in their skeleton?
40. Could coral reefs help us measure global climate change?

### **“Reefs in Hot Water”**

41. What phenomenon explains the colors of corals?
42. How does global warming cause corals to change colors?

### **Tropical Seas, Fore Reef - Tank #29**

43. What is the relationship of the anemones with the anemone fish?

### **Tropical Seas - Tank #32**

44. How does the nautilus perform nightly vertical migrations?

### **Tropical Seas - Tank #33**

45. The lionfish is beautiful but \_\_\_\_\_.

**Go outside and observe the tide pools. Check out the smaller tanks with sea cucumbers, abalone, decorator crab, wavy-top snail, key-hole limpet, shark egg case, octopus, and sea stars.**

**Back inside, head into the hall to your right. The exhibit on Global Warming may give you some ideas for Student Learning Outcome 2.**

### **“THE ART OF DECEPTION”**

#### **“Are you seeing Red?”**

46. Identify 3 ways to camouflage.
47. Why are real and false eyes an important aspect of camouflage?
48. How many sea dragons are in the tank?

**Return to where you started the “Art of Deception” exhibit and step outside and observe the shark tank in the blue tented area. (Hint: read the signs)**

49. Why are sharks in decline worldwide?
50. Do all sharks have teeth?