



Photo Identification

Name: _____
Period: _____
Date: _____

Researchers spend a lot of time observing wild dolphin populations. They collect many different types of data to learn more about dolphins. Many studies require researchers to be able to identify individual dolphins. For example, a study examining the average life span of bottlenose dolphins would require researchers to be able to identify individuals over a long period of time. When studying population size, researchers need to be able to identify individuals to make sure that they don't count the same dolphin multiple times.

Identifying individuals can often be difficult, as researchers are often quite far away from the subject dolphins and they do not often get a good view of the entire body. Fortunately, a dolphin's dorsal fin is a good way of identifying a dolphin. No two dorsal fins are exactly alike! Unique notches, markings, and curvature allow researchers to distinguish individual dolphins. Researchers will create photo catalogs by taking photographs of dorsal fins and assigning an identification number or name to each individual. Within these catalogs, photographs are organized into groups according to the region on the fin where notches or markings are found, as well as by fin shape. The diagram below shows the terms used to describe each of the regions on a dorsal fin.

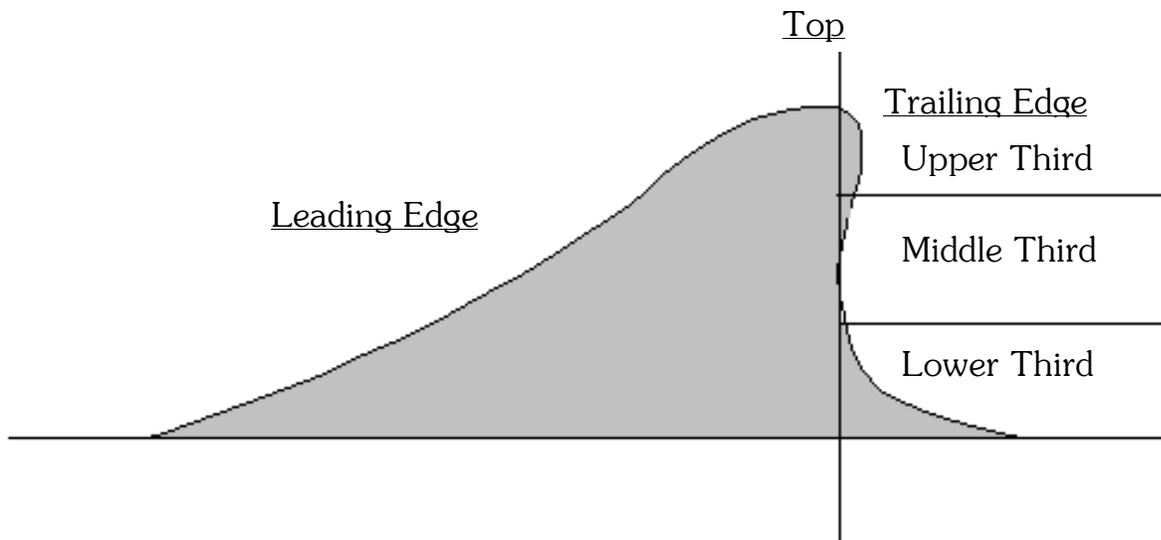
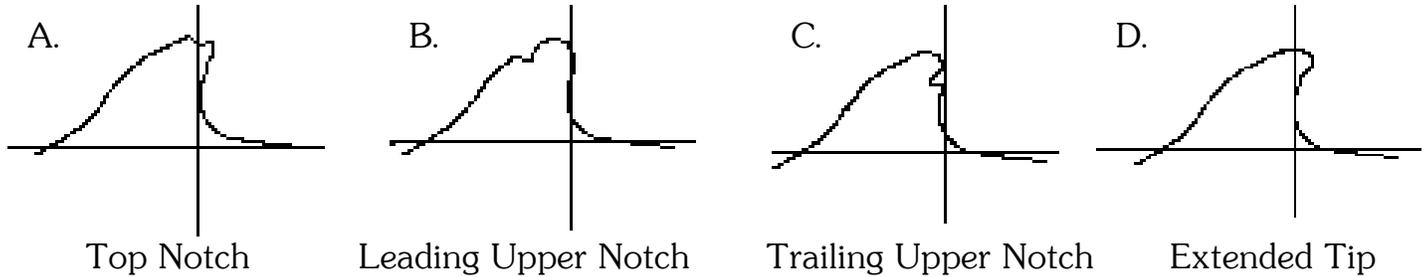


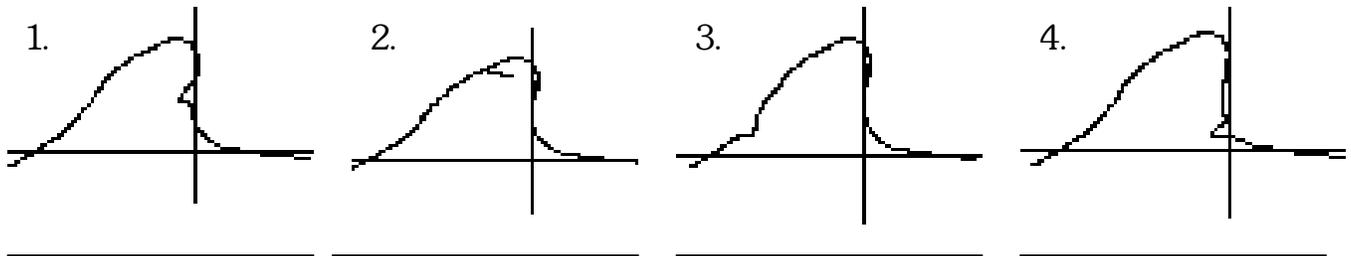


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Examine the dorsal fins shown below. Upon close inspection, you will probably notice some differences between the different dorsal fins. Fin A has a notch located at the top. Fin B has a notch in the upper third of the leading edge. Fin C has a notch in the upper third of the trailing edge. Fin D does not have any unique notches, but it does have a unique shape. The tip extends further past the vertical line than the others do.



It is important for scientists to be able to identify and communicate these unique features. For this activity, you will need to be able to communicate the characteristics of different dorsal fins with your classmates. Take a minute to practice by examining the dorsal fins below. On the line below each dorsal fin, describe where the unique scars or notches are located.



Now you'll have an opportunity to put your knowledge to use in a photo identification activity. You and your partner will receive one set of dorsal fin photographs. Sixteen of the photographs are labeled with the name of the dolphin. This is your photo catalog. The remaining 16 photographs are labeled with numbers, and these are photographs of dorsal fins that have yet to be identified. Your job is to identify each of the unidentified dolphins using your catalog of known dorsal fins. Before you begin matching dorsal fins, let's start by observing some of the known dorsal fins.

1. Look at the photo of Sandy's dorsal fin. In the space below, describe the unique characteristics of his dorsal fin and where each is located.





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2. Now find Pandora's dorsal fin. In the space below, describe the unique characteristics of her dorsal fin and where each is located.

Compare your answers with your partner's answers. Both of you should have described similar characteristics. The closer your answers are, the more easily you will be able to communicate during this task! Now you may work together to complete the rest of this activity.

3. Examine Talon's dorsal fin. Now take a look at photograph #5. Do these dorsal fins belong to the same dolphin? Support your answer using specific characteristics.

4. Look at the photographs of Delphi, Kibby, and Sandy. These three male dolphins have often been photographed together by your research group. On your next trip out, your group takes photographs 4, 8, and 10. Is this the same group of males you have previously observed together? Support your answer using specific characteristics.





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5. Now see if you can work together in your group to properly identify all of the unknown photographs.

Photo Number	Dolphin's Name
1	
2	
3	
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11	
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13	
14	
15	
16	

Conclusion Questions

6. Which dolphins were the easiest to identify? Why?

7. Which dolphins were the most difficult to identify? Why?





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8. Dolphin dorsal fins tend to change over time. Closely examine the photographs and identify one dolphin whose dorsal fin seems to have changed by the time the second photograph was taken. State the dolphin's name and describe the changes.

9. How could these changing dorsal fins effect researchers and their studies?

Applications

Once researchers have mastered the technique of photo identification, they are able to make amazing discoveries relating to wild dolphin populations. For example, a well-known scientist by the name of Randall Wells has researched wild dolphin populations in Florida's Sarasota Bay for over 35 years. Photo identification is a very important part of his research, and through this technique we have learned a lot about dolphin social groupings and population structures.

One of the studies in Sarasota Bay looked at how successful female Atlantic bottlenose dolphins were at raising their calves. The study found that only 40% of the calves of first-time mothers survived their first year. In contrast, over 70% of the calves born to experienced mothers survived their first year.

10. Why do you think experienced mothers may be more successful at raising calves than first-time mothers?

11. Many marine mammal populations are currently facing drastic declines. This can be due to a variety of natural causes, human-related causes, or a combination of the two. When a population faces such a big decline, scientists may try reintroducing animals into an area to help re-establish the population. Based on the Sarasota Bay study, what type of female





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dolphins would be the best candidates for such a project—those who had never raised a calf, or experienced mothers? Why?

12. The information collected in Sarasota Bay can also help marine mammal facilities increase their calf survival rate. At Dolphin Research Center, a female dolphin who has never been pregnant may be placed in a lagoon with an experienced expectant mother. The younger female might remain with the expectant mother through the birthing process, and even well into the calf's first year of life. How might this help increase the younger female's chance of success when she gives birth for the first time?

13. Describe two other things (besides the success rate of mothers) that researchers might be able to learn by identifying and observing individual dolphins in the wild.

More information on the study described above can be found at www.sarasotadolphin.org.

