

Photo Identification of Humpbacks:

How do SPLASH Biologists distinguish individual humpbacks?

In addition to recording the total number of humpback sightings along the *McArthur II* tracklines, SPLASH biologists are also interested in analyzing whether the individual humpbacks recorded by the SPLASH team have been seen in past years by previous researchers. Another way to phrase this is to determine if any of the humpbacks have been “recaptured” by the SPLASH team, or if they are whales that have never been seen before.

How do we know if a humpback has been seen before? Since the 1970’s, humpback biologists have compiled hundreds of photographs of humpback flukes into regional catalogs, “capturing” all of the known humpbacks into a searchable database. Just as a school yearbook represents photos of students attending a given school, the humpback fluke catalogs represents photos of humpbacks that populate a given area.

But how can you tell two individual humpbacks apart? Just as individual humans can be distinguished by features such as eye color, hair color, or distinctive fingerprints, individual humpbacks can be identified by unique markings on their tail, also known as their “flukes.” Take a moment to observe the humpback fluke photos below, paying close attention to the characteristics that distinguish each humpback fluke.



SWFC-JPB-20040723-A-0040 ID SWFSC-0263
Jay Barlow AR2-MAC292-
2004-07-23 Kodiak



SWFC-JPB-20040723-A-0044 ID SWFSC-0262
Jay Barlow AR2-MAC292-
2004-07-23 Kodiak



SWFC-JPB-20040723-A-0012 ID SWFSC-0265
Jay Barlow AR2-MAC292-
2004-07-23 Kodiak



SWFC-JPB-20040723-A-0018 ID SWFSC-0264
Jay Barlow AR2-MAC292-
2004-07-23 Kodiak

Discussion Questions:

How would you “map” or describe the individual flukes shown above?

Which flukes are primarily white? Which are primarily dark? What other features do you see?

If humpbacks are often “recaptured,” what does that indicate about the size of the population?

Prince William Sound Fluke Matching Activity:

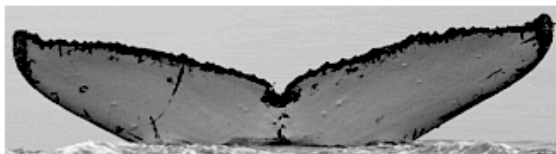
How Many Humpbacks Have Been “Recaptured” by SPLASH Biologists?

Humpback whales that summer in the waters of Prince William Sound, an area adjacent to the Gulf of Alaska, have been well documented by cetacean biologists. Over the past three decades, researchers working in the sound have photographed the flukes of more than 300 individual humpbacks, and have assembled these photos into a catalog. Take a moment to peruse the Prince William Sound catalog and observe the wide variations in the markings and coloration of the humpback flukes.

While conducting line transect surveys an area just south of Prince William Sound, scientists from the SPLASH team photographed 12 humpback flukes over the course of four days in the region. The fluke photos taken by SPLASH biologists are shown below and on the reverse side of this page.

The scientists of the SPLASH team were curious to see if these whales had been previously photographed by researchers working in the sound, or if they were whales that had not been documented before. Make a prediction. Of the twelve whales photographed, how many do you think will have been previously seen by biologists in Prince William Sound?

Your task is to compare the fluke photos shown below to the fluke photos of humpbacks that have been “captured” in the Prince William Sound catalogue. If the fluke pictured below does not match any flukes in the Prince William Sound Catalogue, write “new.” If a fluke shown below “matches” a fluke in the Prince William Sound Catalogue, please write the catalogue code in the space below.



SWFC-JNO-20040715-B-0007 ID SWFSC-0168
Julie Oswald AR1-MAC150-
2004-07-15 Prince William Sound

Match?



SWFC-KMR-20040718-D-0002 ID SWFSC-0182
Katie Roberts AR1-MAC227-
2004-07-18 Prince William Sound

Match?



SWFC-ADL-20040715-D-0073 ID SWFSC-0172
Allan Ligon AR1-MAC162B-
2004-07-15 Prince William Sound

Match?



SWFC-HOF-20040716-B-0031 ID SWFSC-0171
Holly Feambach AR1-MAC203-
2004-07-16 Prince William Sound

Match?

SPLASH: Population Ecology Activities – Student Worksheet



SWFC-ADL-20040715-D-0017 ID SWFSC-0169
Allan Ligon AR1-MAC154-
2004-07-15 Prince William Sound

Match?



SWFC-ADL-20040715-D-0065 ID SWFSC-0170
Allan Ligon AR1-MAC160-
2004-07-15 Prince William Sound

Match?



SWFC-LPC-20040716-D-0063 ID SWFSC-0180
Lillian Carswell AR1-MAC207-
2004-07-16 Prince William Sound

Match?



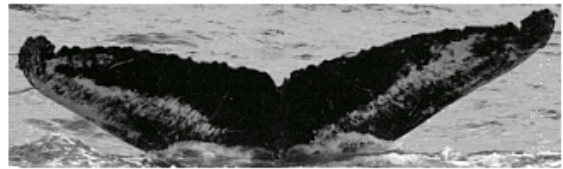
SWFC-MFR-20040716-E-0026 ID SWFSC-0179
Michael Richlen MAC207-
2004-07-16 Prince William Sound

Match?



SWFC-HOF-20040716-B-0037 ID SWFSC-0176
Holy Feambach AR1-MAC207-
2004-07-16 Prince William Sound

Match?



SWFC-HOF-20040716-B-0043 ID SWFSC-0175
Holy Feambach AR1-MAC207-
2004-07-16 Prince William Sound

Match?



SWFC-HOF-20040716-B-0052 ID SWFSC-0178
Holy Feambach AR1-MAC207-
2004-07-16 Prince William Sound

Match?



SWFC-HOF-20040716-B-0034 ID SWFSC-0177
Holy Feambach AR1-MAC207-
2004-07-16 Prince William Sound

Match?

Discussion Question:

Based on results of the fluke matching activity, what observations can you make about the number of humpbacks that visit summer feeding grounds in Prince William Sound?

(See [Capture-Recapture Estimates](#) in “Going Further” for a formula to help you analyze your data.)