



This catalog contains photographs of nearly 400 different humpback whales taken in the Prince William Sound and Kenai Fjords regions, Alaska from 2006 to the present. A majority of the photos were taken as part of the Gulf Watch Alaska long-term monitoring program of the Exxon Valdez Oil Spill Trustee Council.

Each humpback whale can be identified by the unique black and white pattern on the underside of the flukes. Within this catalog the whale fluke photographs are grouped by color pattern beginning with the most white and ending with all black flukes. Located directly under each photo is a unique identification number for each whale.

This project is part of ongoing humpback whale research in the region. The overall study area stretches from the Nuka Bay, outer Kenai Peninsula region, to Cordova on the eastern edge of Prince William Sound. All photos taken under NMFS permit 14122.

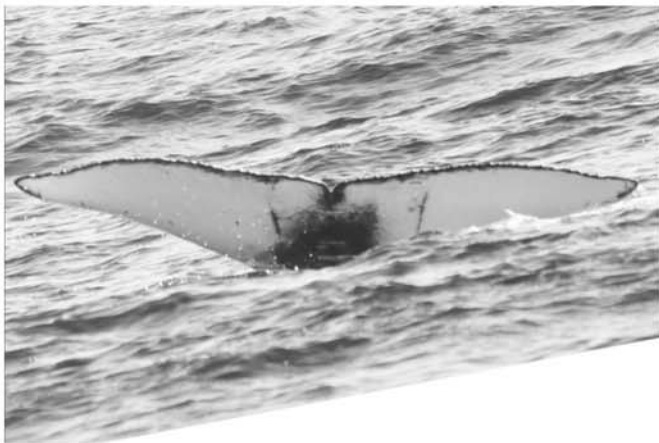
Many researchers have contributed photos as part of this project.

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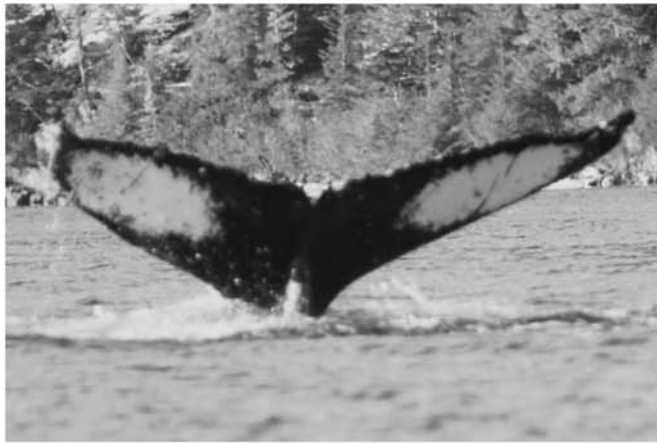
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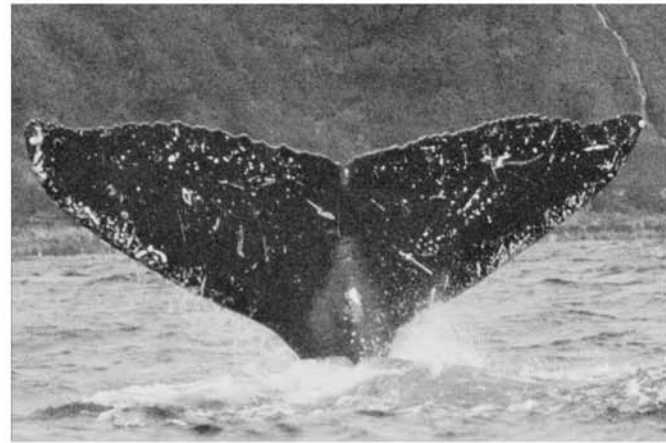
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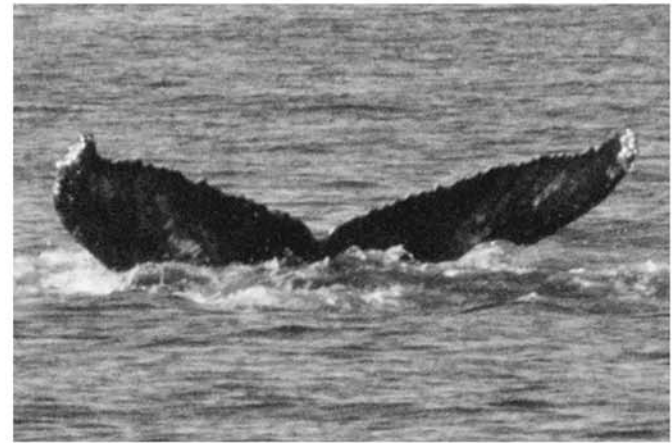
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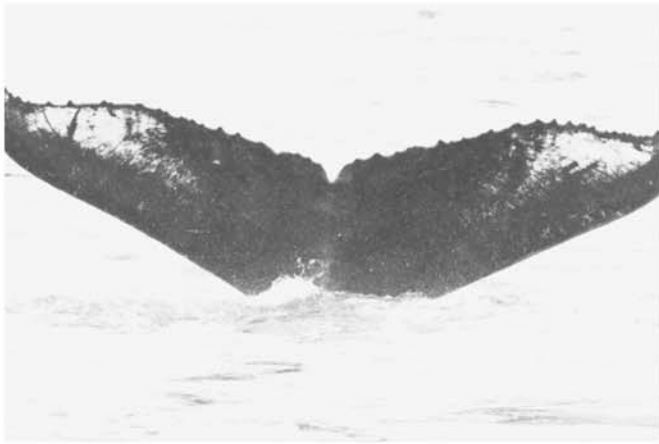
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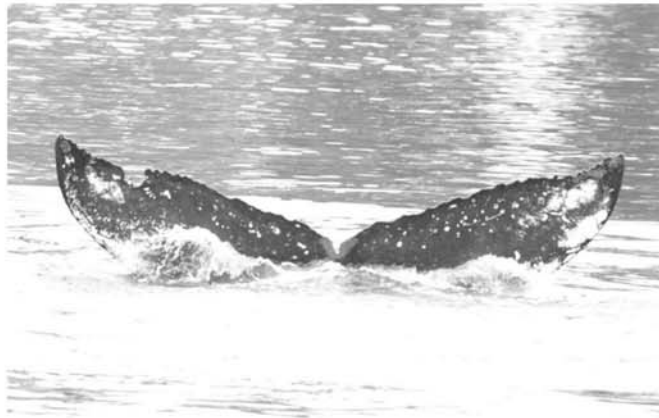
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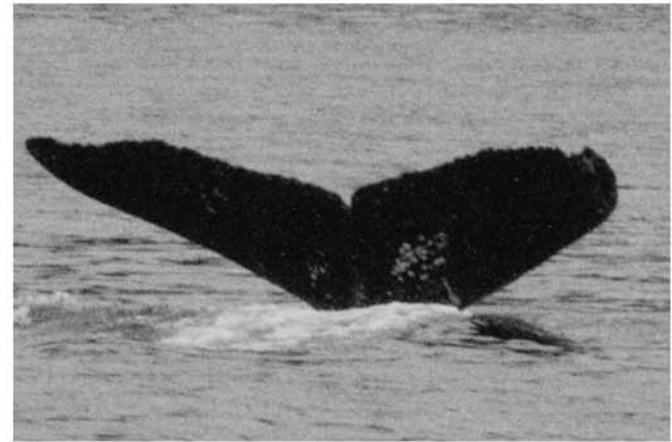
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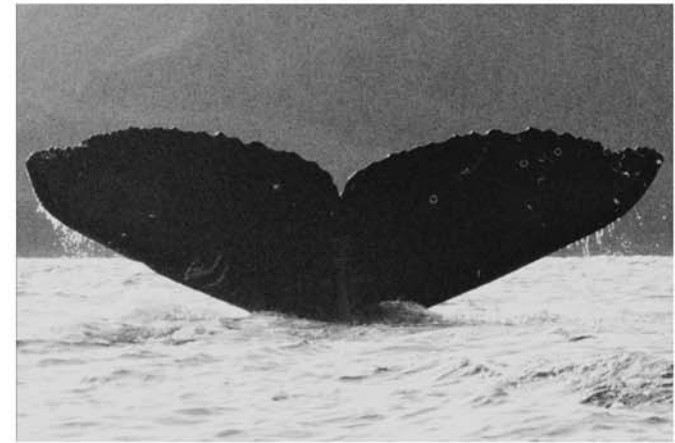
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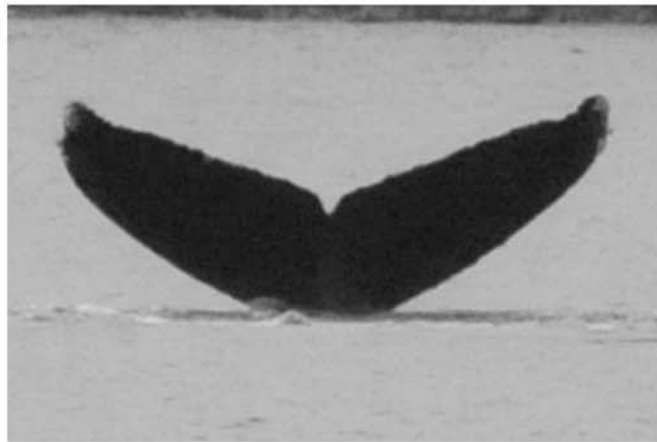
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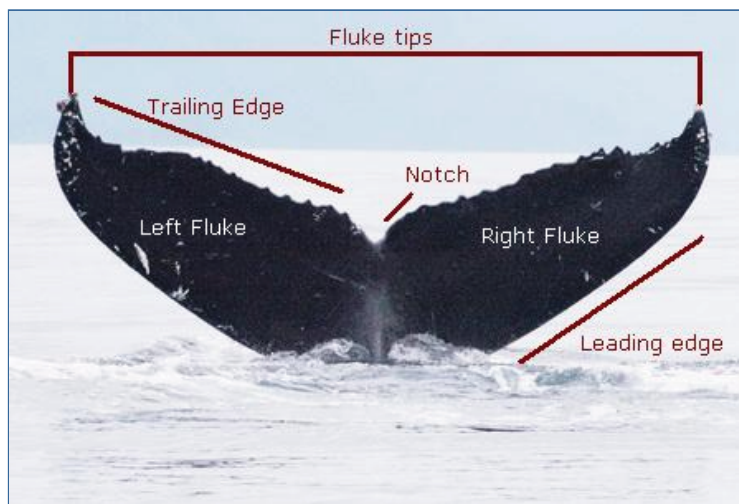


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How to Identify a Humpback Whale by Matching Photographs of the Flukes

Matching humpback whale flukes can be simple, and it can be quite challenging. Hopefully after reading this short article, you will have great success in matching your photographs to our catalog.

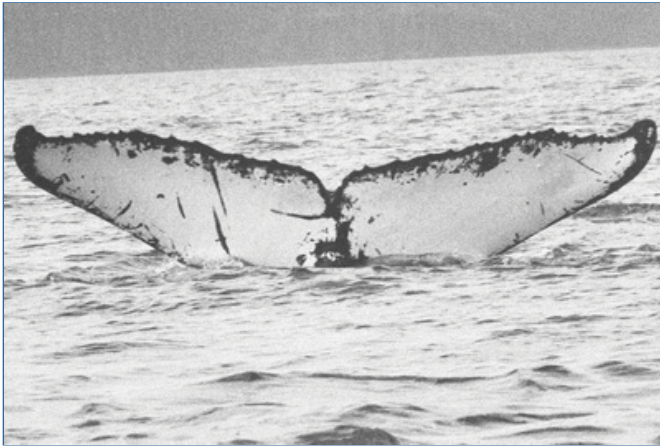
First, you need to understand the anatomy of the flukes of a humpback whale. What is often referred to as the tail are actually called flukes with each side or lobe called a fluke. Take a look at the following photo to get a better idea of the common terminology used when discussing parts of the flukes.



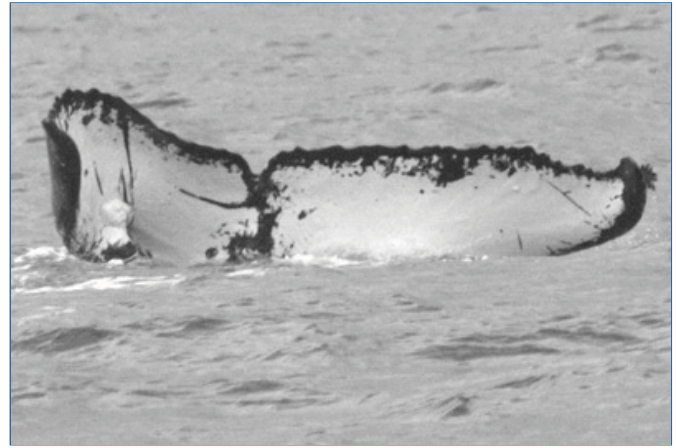
Next, you will need to find one or two easily identifiable characteristics of the whale you are attempting to match. If you choose more than two things to look for it can get distracting and make matching much more difficult. If your photo has flukes with a large area of white you may want to focus on a specific scratch or shape in the white area. If your photo has dark flukes with some white scratches, focus on finding a photo with similar scratches.

After you find something unique to look for on your photograph, you need to pay attention to three other basic characteristics; fluke shape, trailing edge, and notch shape.

The shape of the flukes can change to some degree depending on the angle to the surface of the water the instant the photograph was taken. Typically, it is easiest to match photos taken when the flukes are straight up and down at a 90 degree angle to the water. Of course, not all of the photos turn out like this, so it may be more challenging if the photo is not at 90 degrees. Fluke shape is something that does not change drastically, unless the whale has had an injury. Whale 1638 in the following photographs changed fluke shape due to an injury to the left fluke blade.

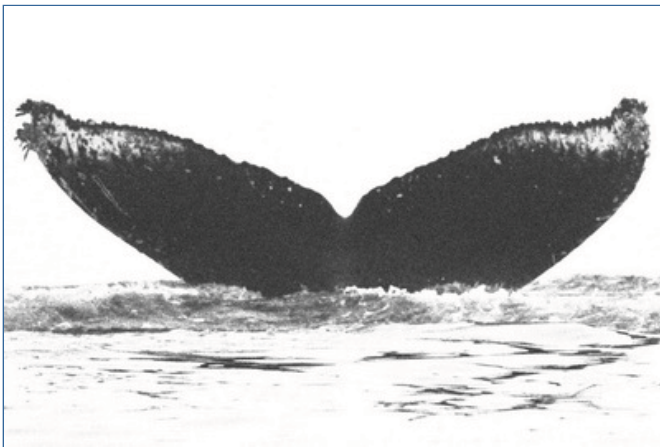


Whale 1638's flukes prior to 2005.



This photograph, taken in 2005 shows an injury to the left side of the fluke. There is a cut from the leading edge of the fluke that has caused the fluke to curl inward.

One of the most important areas of the flukes to look at is the trailing edge. The bumps and nicks along this edge remain relatively stable throughout the whale's lifetime. There are, of course always exceptions. A whale may lose a part of the trailing edge or even half of a fluke from an entanglement in fishing gear, an injury competing with other males in the breeding grounds, an attack from a predator, or an encounter with a vessel. In the following photographs, Whale 1504's left fluke blade's trailing edge changed due to an unknown injury.

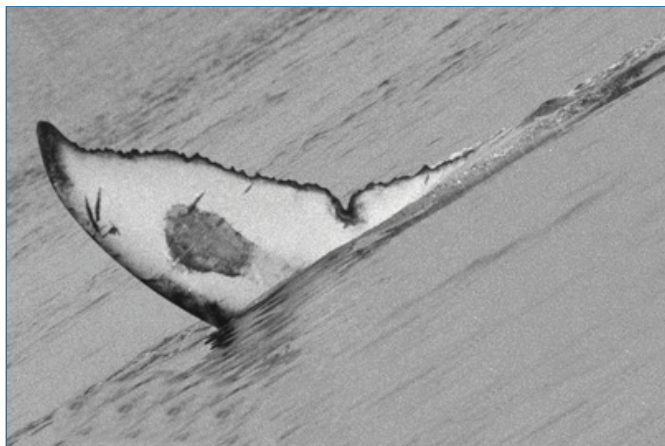


Whale 1504 before an injury to the trailing edge of the fluke.



The same whale, 1504 after an injury to the trailing edge. It is unknown what caused the injury to the flukes, but you can see that the median notch and white markings on the fluke remain the same.

Whales will also acquire new markings that change the appearance in more subtle ways. Injuries such as rake marks from a killer whale's teeth, circular barnacle scars, scratches, and new nicks may make a positive match a bit more difficult. In the following photographs show the example of whale 1297 that acquired new markings between being sighted as a calf in 1992 and a thirteen-year-old in 2005.



Whale 1297 as a calf in 1992.



1297 as an adult. Notice the large black splotchy area on the left fluke blade is still visible. Scars from barnacles have made a dramatic change in the white area, but the trailing edge is a match.

The notch, separating the flukes, is the final characteristic to use when trying to match your photograph. Some whales have very narrow notches and some have very wide notches. The notch is useful because the shape seldom changes, so every time the whale shows its flukes upon diving it will look the same.

In many areas of the world, the black and white pigment pattern on the underside of the flukes is used primarily to identify individual humpback whales. However, in southeastern Alaska nearly 70% of the whales have all black flukes! This is where the trailing edge comes into play. In the following four photos of whale 1731 you can see the changes of the flukes from a calf to a three year old. The markings have changed dramatically, but fluke shape, trailing edge, and notch shape were used to make the positive match.



This is the calf photo of whale 1731 taken in 2001.



Second sighting of 1731, taken in 2002. Notice how the bumps along the trailing edge have spread apart and there are new markings on the flukes.



1731, taken in 2003 at two years of age. Notice the increasing scratches on the flukes. The three white dots on the left side of the fluke are still very noticeable.



At three years of age 1731 looks quite unlike the calf photo. It has even more scratches in this 2004 photo. The three white dots, while still visible are camouflaged by all the scratches.

One final note on matching humpback whale flukes; calves and yearlings are tricky! They often have a smoky or indistinct grey pattern and it is particularly challenging to match to photos of these young whales. The pigmentation on the flukes becomes more distinct as the whale gets older and then the pattern seldom changes. Spacing of features such as nicks, points and bumps on the trailing edge usually change as the whale grows to maturity and the flukes increase in size. However, it is very useful to match to calves because it is the only well-established way to precisely determine a live whale's age from the year of birth.

Just remember, for any match at least three of these features must be obviously present in both photographs for it to be considered a match. Don't hesitate to get a second opinion. Good luck!