



NOAA FISHERIES

Protected Resources Division

Pinniped Branding on the West Coast

*Frequently Asked Questions – April 2013 (*updated May 2014)*

What marine mammals do we brand?

Researchers in the Pacific Northwest use branding to permanently mark harbor seals, California sea lions and Steller sea lions. Seals and sea lions are collectively known as “pinnipeds”.

Why do we brand seals and sea lions?

Permanent marking allows scientists to gather information over a long period of time from known individuals in a population. Branded animals can be easily observed from a distance without disturbing them or other animals around them, and because the marks are permanent the animals can be followed throughout their entire life.

Why is that kind of research and monitoring important?

By re-sighting individual animals throughout their lives, we can learn about age specific survival, migratory movements, habitat use patterns, human interactions and resource conflicts, site fidelity, age at sexual maturity, reproductive success, and longevity. Through subsequent capture of known individuals we can learn and better understand what diseases they may have, how well their immune systems function, what contaminants their bodies have accumulated and how that has affected their health.

How long have we been branding seals and sea lions?

Although there were some marine mammal branding studies before 1950, the first large-scale branding study began with Steller sea lions in 1976 in Alaska. In 1987 a branding feasibility study on California sea lions began in the California Channel Islands. Branding studies in Oregon began in 1986 with Steller sea lions and in Puget Sound, Washington in 1989 with California sea lions. Harbor seal branding studies began in Washington in 1993. Branding sea lions in the Columbia River began in 1997.

How many seals and sea lions have been branded?

Since the beginning of branding studies in Alaska in the 1970's, thousands of seals and sea lions have been permanently marked on the Pacific Coast. In the Columbia River, over 1,400 have been branded since 1997.

Isn't there some other way to mark the animals?

Long-term studies require a permanent mark. Permanent marking methods include tattooing, toe-clipping/web punching, passive integrated transponder (PIT) tags, freeze branding, and hot branding. Of these, only branding, whether by freezing or hot branding, produces a durable, easily observed mark that can be seen from a distance. The other permanent marking techniques require subsequent capture and close observation to detect and interpret the mark. Of the two branding methods, freeze branding requires longer contact with the skin, 10 to 60 seconds for each letter or numeral, while hot branding is much quicker – less than 10 seconds. A hot brand is also less likely to blur than a freeze brand. For these

reasons, hot branding has been safely used on pinnipeds for decades. There are many other marking methods that are not permanent, such as plastic or metal flipper tags, hair dye, or paint.

Does it hurt the animals?

Hot branding is the application of a heated branding iron which creates a bald mark with permanent hair loss. The brand is in contact with the skin for two to four seconds per numeral. Hot branding works by destroying the hair follicles and burning the epidermis, and studies indicate that animals may feel pain and stress during branding. During the healing process the brands have minimal effects on the overall activity or behavior of the animal.

Are there ways to make it less painful?

Yes, an option is to use anesthesia during branding. But the process of administering anesthesia itself represents a significant risk to the survival of the sea lion. Total restraint time using physical restraint alone is approximately one third the length of time required for restraint with anesthesia. Handling captured animals using physical restraint is done as quickly and safely as possible, for both the animal handler and the individual animal. Branding irons are designed and fabricated for use on seals and sea lions. The irons are heated to "red" heat prior to application to minimize contact time with the skin. Brand application personnel are trained to use light pressure on the iron to minimize damage to underlying skin, connective tissue and blubber. Animals are released back to the water immediately after branding. Cold sea or river water likely reduces pain from branding.

Does branding sometimes kill the animal?

Handling wild animals always involves risk – to the animals and the people handling them. There are no records of marine mammal deaths on the west coast from the branding itself during the branding process or following branding. But on rare occasions animals have died from heat stress or other complications during capture and handling. Studies of post-marking mortality of branded or tagged California sea lion pups have shown no significant difference in the near term survival of animals in the two groups (NMFS, NMML unpublished data). A study in Alaska of delayed mortality of branded Steller sea lion pups concluded that 0.5 to 0.7 percent of the pups died (Hastings et al. 2009). The California sea lions that are branded in the Columbia River are all sub-adult and adult males (pups and juveniles do not occur here), so it is likely that any delayed mortality would be less than that reported for Steller sea lion pups.

Are veterinarians involved in the branding program?

Yes, all of the animal capture, handling, branding, and sampling procedures are reviewed and approved by an Institutional Animal Care and Use Committee (IACUC) which is comprised of veterinarians, biologists and species experts familiar with the research objectives as well as a non-affiliated member representing animal care concerns. The research methods and procedures are modified as necessary based on the IACUC's review and recommendations. In some instances, such as when anesthesia or surgical procedures will be performed, a wildlife veterinarian participates as part of the field research team to oversee those procedures.

Are we just branding seals and sea lions so we can know which ones to euthanize later?

No, the primary purpose of the Columbia River branding program is to permanently mark sea lions for long term studies and not solely to mark sea lions so they can be captured and euthanized. Please see the response to the questions above about why we brand sea lions and the research and monitoring projects in

the area. Regardless of the Columbia River branding program, NOAA Fisheries has authorized the states of Oregon, Washington, and Idaho to lethally remove individually identifiable predatory California sea lions feeding on salmon and steelhead at Bonneville Dam subject to specific criteria. Branding studies began long before this authorization and have been a central part of our research on seal and sea lion populations. Although some of the pinnipeds that are marked during research activities may subsequently meet the criteria for removal and be euthanized as part of the salmon protection efforts at Bonneville Dam, the majority of the pinnipeds that are marked will not. Approximately 10% of the 1,400+ sea lions marked at Astoria, Oregon have been identified as predatory sea lions at Bonneville Dam.

Isn't it illegal to harm marine mammals?

In most circumstances, yes. All marine mammals are protected by law under The Marine Mammal Protection Act. The law provides some exceptions for wildlife officials to respond to emergency situations and for permits to conduct scientific research. Permits for research are issued by NOAA Fisheries Office of Protected Resources. Permit applications are reviewed by NOAA Fisheries staff, the Marine Mammal Commission, and the NOAA Office of Law Enforcement, and are announced for public review and comment before a permit is issued. For more information on the permitting process please visit: http://www.nmfs.noaa.gov/pr/permits/faq_mmpermits.htm. For more information on the Columbia River research permit (Permit No.13430) please visit: <http://www.nmfs.noaa.gov/pr/permits/review.htm#mmpa>

Who authorizes the branding and other research?

All activities that are considered a "take" under the Marine Mammal Protection Act must be authorized by NOAA Fisheries or the United States Fish and Wildlife Service (this depends on who has jurisdiction over the species involved).

I want to learn more about the research done on branding techniques. What resources are available?

The following publications discuss hot branding of pinnipeds:

Merrick. 1996. Hot Branding: A Technique for Long-term Marking of Pinnipeds.
<http://www.afsc.noaa.gov/Publications/AFSC-TM/NOAA-TM-AFSC-68.pdf>

Hastings. 2009. Postbranding Survival of Steller Sea Lion Pups at Lowrie Island in Southeast Alaska.
<http://onlinelibrary.wiley.com/doi/10.2193/2007-208/pdf>

McMahon. 2007. Investigator responsibilities and animal welfare issues raised by hot branding of pinnipeds.
<http://onlinelibrary.wiley.com/doi/10.1111/j.1751-0813.2007.00238.x/abstract>

* During the 2014 spring pinniped season at Astoria, OR and Bonneville Dam we received comments on the application of hot brands and on branding sub-adult animals. To maintain program transparency, and in keeping with the best available science, this document has been updated to reflect current practices, which are consistent with program guidance from the Institutional Animal Care and Use Committee and the referenced scientific literature.