

1. Salmon External Marks

Protocol

Before dissections begin, check all salmon on both sides of the body for external marks, including:

- wounds (fresh injuries) and scars (healed wounds),
- sea lice (either present or abrasions caused by them above anal fin or behind dorsal fin),
- signs of illness (metacecaria = raised black spots or fin rot),
- deformities (e.g., deformed fins or gill cover),
- clipped (removed) adipose fins.

If present, note the type of mark, location on the body (Figure 1), approximate size of injuries, potential predator(s) (Figure 2, Table 1), or number of metacecaria/sea lice. If you are unsure of the predator, note this as well. Take two photos, one that shows the entire fish with the external mark, and the second that shows a close up of the mark. Make sure the tow number and fish number are visible in both photos (format = tow number-fish number).

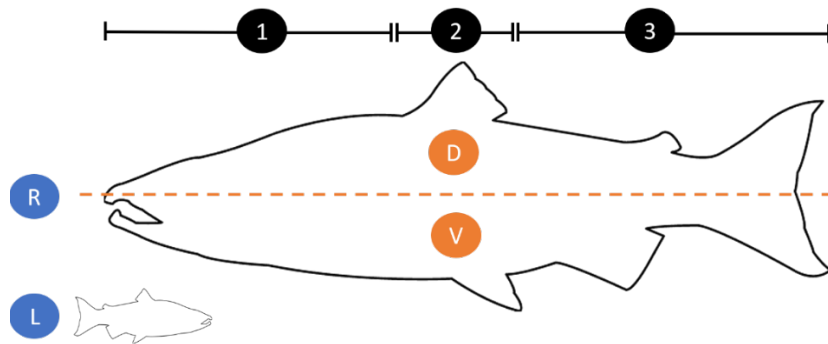


Figure 1. A diagram depicting how to indicate the location of the mark on the body. 1 = head to dorsal, 2 = dorsal segment, 3 = posterior to dorsal. V=ventral, D=dorsal. L=left, R=right.

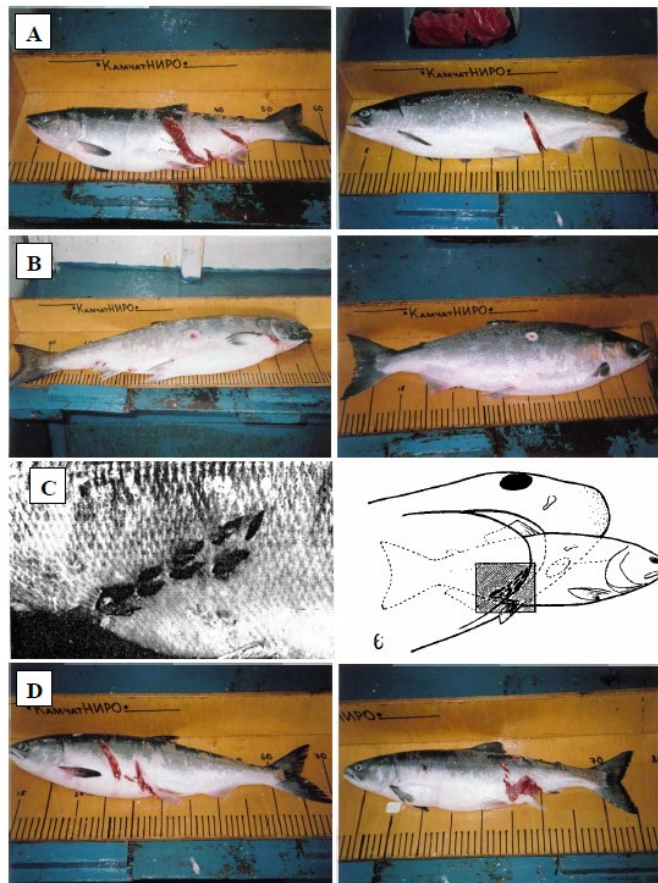


Figure 2. Photos from Bugaev and Shevlyakov (2007 NPAFC Bull 4:145-154) of salmon wounds/scars. (A) lancetfish and daggertooth, (B) lamprey, (C), salmon shark, and (D) seals.

Table 1. Classification scheme and description of characteristics of wounds on Pacific salmon from Bugaev and Shevlyakov (2007 NPAFC Bull 4:145-154).

Type of wounds	Predator	Characteristics of wounds
Type I (fish)	a) Lancetfish , daggertooth	Transversal cuts of various depths occur on one side of the fish, usually directed at a backward slanting angle to the vertical axis of fish. On the other side of the body, small lacerated wounds can be observed as a prolongation of a main cut. These wounds are most frequent in the area of anal fin.
	b) Lamprey	The wound has a precise, rounded shape. In superficial wounds, diagnostic marks made by lamprey teeth can be observed. In serious wounds, there is a deep round hole that exudes semi-digested tissues.
	c) Salmon shark	Obvious marks or puncture wounds caused by placoid shark teeth. Characteristically, the bite has multiple rows of teeth marks.
Type II	Seals (Pinnipedia)	Lacerated wounds bearing the marks of pinniped canine or incisor teeth. As a rule, the wounds are deep, with tissues pulled out. Parallel scratches (pinniped claw rake abrasions) are frequently observed.

Data Collection

Data should be collected using the following parameters: Specimen ID, Scientific name, Type of mark (W = wound, S = scar, SL = sea lice, I = signs of illness, D = deformities, A = clipped adipose fin), Location of mark (1 = head to dorsal, 2 = dorsal segment, 3 = posterior to dorsal), Location of mark (V= ventral, D = dorsal), Location of mark (L = left, R = right), Length or diameter of mark (mm), Potential predator(s) (or 'unsure'), Number of metacecaria or sea lice, Other notes, Photos (Y = yes, N = no)