



## FISH TAGGING METHODS

The following is a description of methods used to PIT tag fish with hand held injection devices. This description will cover the most common locations for tagging fish with PIT tags: body cavity and inter-muscle (IM).

These methods were developed for fish with fusiform body shapes (salmonids). Therefore, you may need to adjust your technique according to the body shape of the species being tagged.

The [USDA](#) has only approved the use of PIT tags in fish "...provided that portion of the animal containing the implanted device will not be used for human food." Therefore, we recommend using the body cavity location for all fish that will be released where fish may be caught and consumed. Or, if a fish is in a hatchery situation, we recommend the pelvic tagging location only if the tag is removed (confirmed with tag reader) along with the pelvic girdle when the fish is processed.

For best results, *USE SHARP NEEDLES.*

We recommend:

1. [Use pre-loaded single use injectors](#), or
2. [Use multi-use needles](#) no more than 10 times.

## Body Cavity Tagging:

### **Body Cavity Rule of thumb:**

1. This method can be used with **fish greater than 55 mm using 9 mm tags**
2. This method can be used with **fish greater than 65 mm using 12.5 mm tags.**
3. *Not recommended for brood stock.*

**Legality:** This is the only tagging location accepted by FDA for food fish.

### **Methods:**

1. The fish should be held abdomen up with the tail pointing away from you.
2. The needle should be inserted posterior of the tips of the pectoral fins, when the fins are laid along the side of the fish (or where the fin tips should be if the fins are eroded or missing).
3. The insertion should be on the abdomen of the fish to the right or left of the mid-ventral line at the tips of the pleural ribs. (The spleen lies on the right side of the body so insertion on the left side will cause less chance of injury to the spleen.)
4. The needle should be directed posteriorly so the tag is injected away from the heart and other vital organs. (For adult fish with large scales, start the needle anteriorly to lift the scale, then rotate the needle before inserting.)
5. The needle angle should be inserted at an angle of approximately 10 to 20 degrees from the axis of the fishes body.
6. The depth of penetration of the needle should vary depending on the size of the fish being tagged. The depth should be deep enough to place the tag as far away from the needle hole as possible so tag rejection is minimized.
7. The needle bevel should be facing down (against the fish). This will help reduce the depth of penetration required to implant the tag into the body cavity. This will also help to prevent the needle tip from coming in contact with vital organs.
- 7. The tag should lie between the pyloric caeca and the pelvic girdle.**
8. When working in a hatchery situation, fish should be taken off feed two days prior to tagging and should remain off feed for two days after tagging.
9. Tag rejection may occur within the first week after tagging. Fish should be monitored for tag rejection for approximately 7 days post tagging.



## Inter-Muscle Tagging (Dorsal muscle or dorsal cavity/sinus):

### *IM Tagging Rule of Thumb:*

1. Should be conducted on **fish greater than 250 mm**.
2. Recommended for brood stock ID.

**Legality:** IM tagging should only be used on non-food fish.

### **Methods:**

1. The **target location of the tag** is commonly placed in two locations.
  - a. **The dorsal muscle**
  - b. **The dorsal cavity/sinus** which surrounds the Pterygiophores (or interneural rays of the dorsal fin.)
2. The fish should be held, or placed on a flat surface, so the tag location, left anterior dorsal region, is exposed.
3. Initially, the needle should be pointed in an anterior direction when starting the injection, so the tip of the needle can be placed under the scales.
4. The needle is then rotated and inserted into the fish at a 10 to 20 degree angle to the body axis when using the dorsal sinus tag placement. Or, the needle should be rotated to a 45-to 90 degree angle when tagging in the muscle.
5. The depth of penetration of the needle should vary depending on the size of the fish being tagged. The needle penetration depth should be no deeper than one inch (on larger fish) and no less than one half inch (on smaller fish).
6. When the needle is inserted to the proper depth, you should pull the needle out as you are inserting the tag. This method will allow the tag to be left in the void created by the needle, and thereby reducing the chance of breakage that may occur if the tag is forced into the muscle.



## Inter-Muscle Tagging (Pelvic):

### Note:

- The pelvic tagging method is currently being used for brood fish at commercial hatcheries and captive rearing programs for endangered wild chinook.
- Pelvic tagging allows for easy detection and recovery of tag by simply removing the entire pelvic girdle (along with using a tag reader to confirm the removal). The tag outline can often be observed allowing removal from live fish.

### IM Tagging Rule of Thumb:

1. The pelvic tagging location should be conducted on **fish greater than 250 mm**.
2. Recommended for brood stock ID.

### Legality:

- A. IM tagging should only be used on non-food fish.
- B. OR, IM tags must be removed prior to consumption (Pelvic IM tagging allows for easy removal - but do not consume if tag is not found).

### Methods:

1. The fish should be held so the tag location, abdominal region, is exposed. (We recommend placing the fish into a "V" shaped tagging cradle.)
2. The needle direction should be pointed anteriorly in relation to the fishes body. (Anterior injection will allow the needle to enter between scales.)
3. The insertion point should be posterior of the pelvic girdle (Basipterygium), but anterior to the anal vent.
4. The angle of insertion should be shallow, approximately 10 to 20 degrees. This will allow the tag to lay parallel to the body axis. **The tag should be located in the retractor ischii muscle between the skin and body cavity, and between the two pelvic fins.**
5. The depth of tag placement should vary depending on the size of the fish being tagged. The needle penetration should exceed the length of the tag by a  $\frac{1}{4}$  of an inch to one inch. (Increasing the distance from the tag to the entry wound will reduce tag rejection.)
6. After the needle is inserted to the proper depth, you should pull the needle out as you are inserting the tag. This method will allow the tag to be left in the void created by the needle, and thereby reducing the chance of breakage that may occur if the tag is forced into the muscle.
7. Tag rejection may occur within the first week after tagging. Fish should be monitored for tag rejection for approximately 7 days post tagging.

