

**MANATEE PIT TAGGING PROTOCOL**  
**USGS, Sirenia Project - October 2003**

1. **List of Equipment.** Sterile PIT tags, syringe applicator, Trovan scanner, betadine, 70% isopropyl alcohol, gauze, topical anesthetic, and tissue adhesive.
2. **Examine animal.** Thoroughly check (scan) the animal for previous PIT tag application. If no PIT tags are located, or only one tag is present, apply new tags as appropriate.
3. **Selection of the PIT tagging sites.** The two sites are located on the right and left dorsum, between the scapula, vertebral column, and the caudal edge of the cranium. The approximate location can be determined by measuring the distance between the nostril and eye. This distance will be very close to the distance between the eye and the external auditory meatus on the same side. Locate the meatus and measure that distance diagonally and caudally towards the dorsal mid-line. Mark that site on the skin surface. Skin thickness at this site will vary depending on the length of the animal, but will generally fall within 1.0 to 3.0 cm.
4. **Sterilization.** Thoroughly scrub and clean the site at least three times, alternating between betadine solution and 70% isopropyl alcohol. Place a sterile gauze 3" pad over the cleaned implantation site. If application of topical anesthetic is employed, make sure sufficient time has elapsed to help ensure deadening of nerves to reduce pain.
5. **Ready equipment.** Attach a sterile 12-gauge needle containing the Trovan PIT tag transponder to the plunger. Use the scanner to check and record the PIT tag number. Make a special note to be sure that the PIT tag applicator is in the locked position. Check to make sure surgical-grade tissue adhesive is ready for application.
6. **Cut-down procedure.** Insert a No. 11 sterile scalpel blade approximately 2 cm directly perpendicular to the skin surface until the hub of the knife meets resistance. Pull the blade straight out and take special care to visualize the incision site, as once the blade is free of the skin, it will be difficult to see.
7. **Insertion.** Insert the loaded implanter needle into the incision site until the tip of the needle reaches the bottom of the incision. Be careful not to bend the tip of the needle. Once this has been achieved, the implanter should be pushed down into the animal with steady pressure. The collar at the base of the applicator will contact the animal's skin surface. Unlock the implanter and using steady pressure force the plunger through the needle which will implant the tag. Keep the plunger engaged and slowly lift the needle from the implantation site. If the tag was successfully implanted you should observe a portion of the white plunger within the core of the needle.
8. **Verify.** Check for successful tag placement by holding the hand-held scanner approximately 5-10 cm above the skin at the implantation site. Verify the tag number.
9. **Repeat procedure.** Repeat steps 2-8 for the opposite side.
10. **Records.** Submit PIT tag information to USFWS electronic database and the FMRI, Manatee Pathobiology Laboratory in St. Petersburg, Florida.

For detailed information refer to: Wright, I.E., S.D. Wright and J.M Sweat. 1998. Use of passive integrated transponder (PIT) tags to identify manatees (*Trichechus manatus latirostris*). Marine Mammal Science 14(3):641-645.