



Attaching Satellite Tags to Sea Turtles

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Know your study animal:

- What is your **question** (what do you expect to learn)?
- What **species** are you tracking?
- **Where** do you plan to track?
- What **age class** are you tracking (size/life history)?
- What kind of **tag** are you using?
- How will the turtle **behave** (what will it encounter)?



Experimental Design—Sources of Bias

Tagging effects:

- Capture stress
- Time needed to attach tag
- Transmitter weight
- Transmitter size
- Drag (hydrodynamics)
- Attachment duration

You aren't alone! Talk to other researchers. There is a wealth of knowledge available.

Attachment Options:

- Direct adhesives
- Tethers
- Bone screws/wires
- Harnesses (not currently recommended)

There is no “correct” attachment—know your animal, know their environment, know your questions and your tag capabilities. Choose accordingly!



General Considerations:

- **Protect the turtle:** keep cool, shaded, safe from injury
- **Prepare shell** to ensure better attachment
- **Strategically position transmitter**
- **Consider antenna orientation**
- **Consider ambient temperatures** when using epoxies
- **Reduce drag** associated with attachment
- **Antifoulant?**
- **Release** turtle(s) as soon as possible

Attaching Satellite Tags—Hard-Shell Turtles:

Turtles restrained in box, barnacles removed



Cleaning/sanding carapace (2nd vertebral scute)



Apply tag: marine epoxy base layer

Mark placement of tag on carapace



- Sand bottom and sides of tag
- Place tape over saltwater switches



Photos by UM/RSMAS, VMSM, K. Mansfield

Attaching Satellite Tags—Hard Shell Turtles:



Buffering tag: Sonic Weld



Let base epoxy set



Let Sonic Weld set; keep turtle cool/wet



Remove tape over switches, release turtle...

Alternative Methods—Hard Shell Turtles:

- **Silicone-Neoprene (small turtles)**
- **Epoxy-Tether (short-term popup tags)**
- **Epoxy-Neoprene (Kemp's ridleys)**
- **Buoyant transmitters, break-away links (long-term popup tags)**



Attaching Satellite Tags—Leatherbacks:

- **Harnesses (not currently recommended)**
- **Pygal tether attachments (to caudal peduncle)**
- **Bone screws/attachments**
- **Medial ridge attachment**

Transmission Duration— Troubleshooting:

- **Do some species shed tags faster than others?**
- **Attachment method?**
- **Antenna placement?**
- **Antenna vulnerability?**
- **“Brittle” epoxy?**
- **Biofouling?**
- **Turtle behavior?**
- **Salt water switches (fouled/corroded)?**