



Smithsonian Environmental  
Research Center

## MOVEMENT OF LIFE: TRACKING SHARKS OF THE CHESAPEAKE BAY AND ATLANTIC COAST

You can learn more about MoL by watching this video: <https://www.youtube.com/watch?v=3CmP97NtMgI>

**Duration:** 3.5-4 Hours

**Maximum # Participants:** 30

**Price:** \$18/student or \$300 minimum

Uncover the world of SERC scientists studying Chesapeake Bay and Atlantic sharks and rays and the pan-Smithsonian Movement of Life (MoL) research tracking the movement of animals around the globe. Students will take on the role of shark biologists and scientists mapping shark migration, learn about acoustic tags and how they are implanted into sharks, and practice suturing bananas the same way scientists practice suturing sharks. The final activity involves designing a pop-off archival (PAT) tag that is neutrally buoyant and weight specific.. Students groups will present their designs as if they were persuading research funders to invest in their prototype



### ACTIVITY 1: Shark Migration Mapping

**Students will—**

- Discover the research that SERC scientists are conducting on sharks and rays and their migration (meet a scientist if available)
- Learn about the sharks that live in the Chesapeake Bay and along the Atlantic
- Be able to explain why sharks migrate
- Measure the average size of some of these sharks, focusing on Bull, Dusky, and Black Tip sharks
- Learn about the basics of budgeting and the different roles in a scientific lab
- Analyze to map the migration routes of Bull, Dusky, and Black Tip sharks and discuss the best areas to capture and tach each species.



### ACTIVITY 2: Shark Tag Implantation

**Students will—**

- Learn about how modern acoustic tags work for tracking shark migration
- Discover the implantation method used by scientists, on sharks, and the suturing knots for closing the implantation site
- Conduct suturing using a banana and “tag” implanted into the banana (which closely mimics shark skin thickness)

Updates 12/20/18

### ACTIVITY 3: Shark Tag Design and Testing

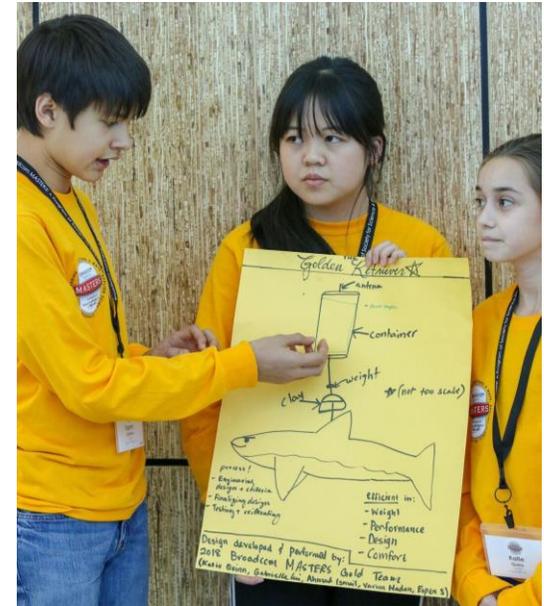
#### Students will—

- Learn about the future of shark tagging, Pop-up Satellite Archival Tags (PAT tags) and why they are more efficient than acoustic tags
- Design and develop a PAT tag that is neutrally buoyant in brackish water
- Create the tag in such a way that when it is released from the shark it floats to the surface of the water
- Build a PAT that has an inner “electronics” compartment, with antennae, and that is waterproof in the neutrally buoyant casing
- Develop a research and development (R&D) proposal, based on the design, to suggest for funding for future research
- Present tag, results, and R&D proposal

### ACTIVITY 4: Shark Biology and Necropsy

#### Students will—

- Review shark anatomy and learn about the sharks native to the Bay and Atlantic coast
- Examine a preserved spiny dogfish shark
- Conduct a mock shark necropsy (examining stomach contents) to learn about shark biodiversity and conservation
- Examine and sort shark teeth from the MD region of Calvert Cliffs



To book this program contact Karen McDonald (443) 482.2216 or [McDonaldK@si.edu](mailto:McDonaldK@si.edu)

