

Introduction:

Sharks have roamed the earth for over 400 million years, making them one of the oldest and most resilient species on the planet. These apex predators play a crucial role in maintaining the health of marine ecosystems, with the presence of a thriving shark population serving as a clear indicator of oceanic well-being. My fascination with sharks began at a young age, and for the past 18 years, I have eagerly devoured every piece of shark-related content available—particularly the annual Shark Week programming, which has only deepened my passion for these incredible creatures.

Over time, I have become acutely aware of two critical realities within the world of shark science. First, sharks face an immense and escalating threat from human activities. Pollution, overfishing, and habitat destruction have pushed shark populations to the brink of collapse. Immediate and decisive action is needed to reverse this trajectory and ensure the survival of these vital animals.

Second, the field of shark science is predominantly led by white, male researchers. At the school where I work, over 95% of the student population is Black and brown. This lack of diversity in shark science makes it difficult for my students to envision themselves in this field. Addressing this gap in representation is essential to fostering inclusivity, equity, and innovation in the marine sciences. Through participation in this fellowship, I aim to increase representation in marine science and inspire more students at our school to pursue marine sciences and conservation as a potential career path.

It is these two pressing issues—shark conservation and the need for greater diversity in shark science—that motivate me to apply for the Pat Cooke Fellowship.

Pat Cooke Project Proposal:

With the support of the Fellowship, I will travel to the Bimini Biological Field Station to explore the Shark Lab. This lab is renowned for its commitment to advancing shark research and conservation, and its dedication to educating the public about the importance of these species. One of the lab's standout initiatives is the Skulls Project, which combines art and science to teach students about shark anatomy by having them illustrate shark skeletal structures. This unique approach offers a powerful, hands-on opportunity to engage young minds in the study of marine biology.

During my time at the Shark Lab, I will participate in a week-long field course at the facility, meet with researchers, and learn about their educational efforts to better understand how they inspire the next generation of shark scientists. Building on this

experience, I aim to design a comprehensive, standards-aligned unit on shark anatomy and conservation specifically tailored for 6th and 7th-grade science students.

Measurable Goals:

My experience at the Shark Lab will serve as the foundation for several concrete goals that I hope to achieve:

1. **Design an Engaging Educational Unit:** Develop a dynamic, grade-level curriculum that educates students about shark anatomy, their vital role in the marine ecosystem, and the urgent need for shark conservation. The unit will align with relevant science standards (**6.MS-LS4**; **7.MS-LS2**) and incorporate hands-on activities, multimedia resources, and real-world data.
 2. **Inspire Future Marine Scientists:** Through a pre- and post-unit survey, I aim to track an increase in the number of students who consider a career in marine science or shark research as a viable and exciting option.
 3. **Facilitate Student Engagement:** For students who show a strong interest in shark research, I will provide opportunities for them to engage further—whether through virtual meetings with researchers at the Shark Lab, volunteering for conservation initiatives, or participating in advocacy efforts that amplify the message of shark protection.
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Project Timeline Proposal:

March - April:

- **Coordinate with Bimini Biological Field Station:** Collaborate with the research team to finalize ideal dates for the visit. Organize logistics for participating in the field course and initiating a collaboration with the Skulls Project.
- **Prepare for travel:** Ensure all necessary arrangements are made for the trip, including travel accommodations, permissions, and any pre-trip research.

Late May - Early June:

- **Visit the Bimini Biological Field Station:** Travel to Bimini to engage in the planned activities.
 - **Participate in a Week-Long Field Course:** Engage in a comprehensive field course that provides an in-depth understanding of the lab's operations. Collaborate with and learn directly from shark researchers.

Observe and participate in ongoing research projects, gaining valuable insights into shark biology, ecology, and conservation practices.

- **Gather information for educational unit development:** Collect notes, resources, and firsthand experiences to inform the creation of an educational unit on shark science and marine conservation for school students.

August - December:

- **Design Shark Science & Marine Conservation Unit:** Based on the experiences and insights gained during the visit, develop a comprehensive educational unit for 6th and 7th-grade science classes. The unit will focus on shark anatomy, the role of sharks in marine ecosystems, and the importance of conservation.
 - **Create lesson plans, activities, and multimedia resources.**
 - **Integrate real-world insights:** Use materials from the Shark Lab and the Skulls Project to enrich the curriculum with interactive, hands-on learning opportunities.
 - **Review and refine the unit** to ensure it aligns with educational standards and is engaging for students.