

Intellectual Merit Criterion

Overall Assessment of Intellectual Merit

Excellent

Explanation to Applicant

Student has clearly demonstrated potential for significant achievement in STEM having received many awards and accolades, numerous conference attendances (1 oral presentation at national meeting, and 2 poster presentations at conferences), finished a senior thesis, accomplished an internship with NAVY STEM. A comprehensive approach to research was very clearly outlined in the proposal, and the student applied a very balanced approach considering their past education, leadership, mentorship, etc. Student displayed a solid foundation and track record for their ability to plan, conduct research, and work with a team and as an individual. Was particularly impressed with their research on the 3-D habitat use of shortfin mako sharks for a senior thesis, which followed a sound hypothesis based approach and led to mentoring and engagement of high schools students in marine science and STEM. Student also displayed a good track record to be able to interpret and communicate research (as evidenced by aforementioned pubs, presentations, writing scientific articles on biology surrounding shipwrecks as Naval STEM intern). Student also shows solid Initiative to solve a problem.

Broader Impacts Criterion

Overall Assessment of Broader Impacts

Excellent

Explanation to Applicant

I found the Broader impacts of this proposal one of the best I read. Not only is the research beneficial to society in the region and globally (balancing consumer species), the student is clearly interested in helping to make science accessible to all--exemplified by past activities as leader of Scuba club to remove the financial burden, and specific mentioning that they would continue working with students at TAMU-CC, a Hispanic and minority serving institution during the course of their graduate career. Furthermore, they will include undergraduate students in the research project, and they plan to "use Spanish to share information about the conservation and management of shark populations with community members". Future outreach with K-12 and aquarium programs also explicitly mentioned. Community outreach: science clubs, radio, TV, blogs, social media-student displayed solid foundation with past activities, and with current initiatives (i.e., stated "will further the broad dissemination of my research findings by publishing and presenting my work to local communities", and "will work to further the inclusion of underrepresented voices in marine science").

Summary Comments

Student clearly demonstrates they have the initiative, drive, motivation, and scientific skills to solve a problem and has great potential to succeed in a graduate program.

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Excellent

Explanation to Applicant

Niche partitioning is an important ecological phenomenon that is relevant to the informed conservation of marine species. Sharks play a particularly important role in marine food chains because they are top-level carnivores. The research outlined in the application would use acoustic telemetry to follow the movements of three species of sharks that use the same embayments along

the Texas coast as pupping and nursery grounds. Niche partitioning is presumably accomplished through spatiotemporal partitioning of resources, and acoustic telemetry would seem to be an ideal tool for determining how that is accomplished. The applicant's background has prepared the applicant very well to carry out the research described in the application.

Broader Impacts Criterion

Overall Assessment of Broader Impacts

Excellent

Explanation to Applicant

The applicant has a very good record of mentoring other students, and the applicant's knowledge of Spanish will allow the applicant to reach out to students from underrepresented groups and to a broad community of both adults and children. The research described in the application will enable more informed efforts to conserve the populations of these species.

Summary Comments

This is a very solid application. The applicant is very well prepared to carry out the work described in the application. There are significant broader impacts both in terms of shark conservation and the involvement/education of minority communities.

Intellectual Merit Criterion

Overall Assessment of Intellectual Merit

Very Good

Explanation to Applicant

The applicant's initiative is evidenced by engagement in multiple research opportunities. The applicant describes many scientific skills acquired through these research experiences (largely methodological descriptions), but research engagement is largely focused on participation rather than contributions, leadership, and scholarship. Similarly, original and independent contributions to advancing knowledge frontiers are understated. The impact of the intellectual merit could be improved by leading with the focal research questions and problems that the applicant sought to address within each research experience. The motivation and rationale for the Graduate Research Plan is underdeveloped and could be further described by reducing or omitting the figure. The project objectives are clear, and the applicant has identified an excellent system to explore niche partitioning, habitat utilization, and movement. However, the methods are underdeveloped, and the overall scholarship the research could be strengthened by further describing what aspects of the planned research will advance knowledge within the field (beyond the study system).

Broader Impacts Criterion

Overall Assessment of Broader Impacts

Very Good

Explanation to Applicant

The applicant has engaged in numerous broader impacts (scuba club, marine bio liaison, and mentorship). However, the narrative arc is still in development, and the presentation of broader impact activities is unorganized (multiple thoughts and messaging centers are split across paragraph). The broader impacts of the Graduate Research Plan are underdeveloped and it is unclear how the planned research will directly advance desired societal outcomes. The applicant mentions numerous communities and sectors located within or adjacent to the study system, but a plan for engaging with these communities is missing. The applicant mentions that conservation management plans could benefit from an increased understanding of animal movement, but it is unclear what these plans are or how this potential application of the research would be facilitated.

Summary Comments

The applicant's materials demonstrate a history of engagement in research and broader impacts. The overall strength of the application could be improved through specific examples of leadership, and creative or original contributions. The applicant has identified an excellent study system and set of questions for graduate research. The proposed study area is also perfectly positioned for broader impacts. A detailed plan for connecting the research outcomes with broader impacts that have lasting impact (including a plan for assessment) is needed.

Intellectual Merit Criterion

Overall Assessment of Intellectual Merit

Very Good

Explanation to Applicant

The applicant is a first-year master's student at Texas A&M university and is interested in studying shark behavioral ecology. They have earned a variety of scholarships during their career journey so far. They have also presented their work at meetings and conferences. Their statements clearly articulate their research and career goals. The letters of support demonstrate that the applicant has qualities and commitment needed to be successful in research. Letter writers also underscore the applicant's diligence, and their analytical and organizational skills.

Broader Impacts Criterion

Overall Assessment of Broader Impacts

Very Good

Explanation to Applicant

The applicant has worked at Shedd Aquarium, volunteered at a local charity, mentored high school students, and is involved in URI's Scuba Club. They have worked towards making scuba diving more accessible to university community members. Their previous research has focused on management of shipwrecks. They plan to use Spanish to broaden engagement in research.

Summary Comments

The applicant has the aptitude and passion to make contributions and succeed in the marine science field. Their application could be strengthened even more with publications, participation in national meetings/conferences, and community service.