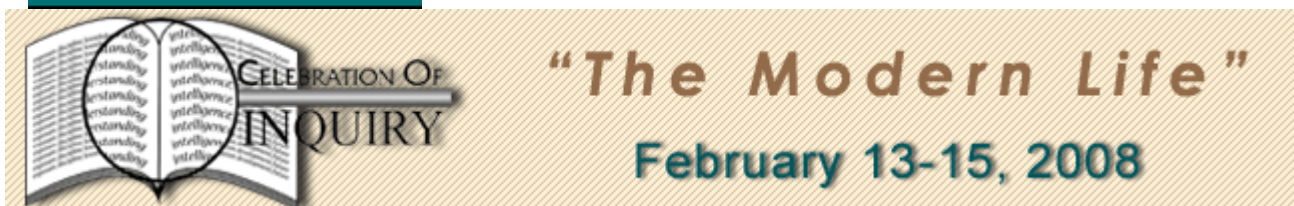




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**2008 Theme**

The Modern Life: the challenges and advantages to Living and Learning in the 21st Century.



**Session Information**

**Session Information**

<p><b>Title</b></p> <p><i>Abstract</i></p> <p><b>Description</b></p>	<p>Saving Sharks from Anthropogenic Devastation Through the Use of New Shark Repellent Technologies</p> <p><i>Worldwide, elasmobranchs (sharks, skates, rays) are exposed to heavy fishing pressures which continue to threaten their populations. One of the primary threats to elasmobranchs is bycatch, where elasmobranchs are being accidentally caught within fishing devices such as gill nets, longlines, or trawls. In response to this, SharkDefense is a company that has developed several shark repelling technologies that have successfully repelled some of the most dangerous and threatened elasmobranch species. In the future, these technologies hold the potential to keep these elasmobranchs from experiencing complete population devastation.</i></p> <p>Worldwide, elasmobranchs (sharks, skates, rays) are exposed to heavy fishing pressures which continue to threaten their populations. One of the primary threats to elasmobranchs is bycatch, where sharks, skates, and rays are being “accidentally” caught within or on fishing devices such as gill nets, longlines, or trawls. Due to the low reproductive rates of these chondrichthyan species, this anthropogenic influence alone has the potential to cause complete devastation to elasmobranch populations worldwide. One methodology to prevent the loss of these apex predators is to enforce stricter fisheries management strategies or develop new technologies that aim to exclude elasmobranchs from fishing entrapment. In relation to this, SharkDefense is a company that focuses on the development of a variety of gustatory, olfactory, and electropositive metal shark repellents that have the potential to decrease or even eliminate elasmobranch bycatch. For approximately five years, some shark repellents such as semiochemicals and</p>
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C8 Barium Ferrite permanent magnets have been tested on a variety of sharks such as the tiger shark (*Galeocerdo cuvier*), lemon shark (*Negaprion brevirostris*), nurse shark (*Ginglymostoma cirratum*), great hammerhead (*Sphyrna mokarran*), atlantic sharpnose shark (*Rhizoprionodon terraenovae*), bonnethead shark (*Sphyrna tiburo*), and bull shark (*Carcharhinus leucas*). This talk will demonstrate the impacts humans are having on elasmobranchs and how shark repellents can be applied to potentially reduce shark capture. Several studies will be presented that were conducted in both South Bimini, Bahamas and Key Vaca, Florida. At South Bimini, Bahamas, four species of elasmobranchs were studied in a controlled setting to observe their behavior towards C8 Barium-Ferrite magnets. Southern stingrays (*Dasyatis americana*), juvenile nurse sharks (*Ginglymostoma cirratum*), juvenile lemon sharks (*Negaprion brevirostris*), and a juvenile tiger shark (*Galeocerdo cuvier*) all produced a greater amount of avoidance behaviors (i.e. accelerations away from, 90° or 180° turns) towards various Barium-Ferrite magnet apparatuses than to the similarly constructed control apparatuses. Avoidance behaviors were observed to be more violent as these elasmobranchs made closer approaches towards the permanent magnets. Also, at Key Vaca, Florida, a study was conducted to protect bait from elasmobranch predators using permanent magnets. This experiment was conducted on two species of elasmobranchs, the southern stingray (*D. americana*) and the nurse shark (*G. cirratum*). The results presented in this study suggest that the species tested in these experiments were highly sensitive to these magnets and were successfully repelled from areas containing the magnetic apparatuses. Results will be demonstrated in the form of data and video analysis. This session is highly related to the conference theme because it poses a potential explanation for a method that could help endangered elasmobranch species rebound from harsh fishing pressures.

Subtheme(s)	TESTING
Room Assigned	WALL 317 - Ceiling Mounted Projector
Time Assigned	Th 10:00 am - 11:15 am
Student Host:	Turner, Katy

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### **Presenter(s)**

#### **Main Presenter or Moderator**

Name	Craig O'Connell
Affiliation with Coastal	Student
Class Rank	Graduate Student
Major	Master of Science Coastal Marine and Wetland

Studies

Department

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