

Sea Turtle Conservation Science & Management

International & Interdisciplinary Approaches to Endangered Species Management

We first learn about the biology of sea turtles (evolution, physiology, anatomy, behavior, life history and population dynamics), conservation status and ecological roles in coastal & marine ecosystems. Will then dive into socio-ecological systems to incorporate human connections to sea turtles, the ocean and governance. Emerging research and technology will be integrated with national and international law and policy to learn about management of endangered and migratory species.

Learning objectives: By the end of this course students will be able to:

- Identify and describe the seven species of sea turtles and summarize their biological characteristics, ecological roles, ethology and life-history;
- Learn international methodologies on sea turtle research and monitoring technics;
- Discuss and evaluate conservation and management actions for sea turtles;
- Synthesize information from primary literature, apply critical thinking and present research in an oral final presentation;
- Collaborate in teams to build solutions & ideas to a real sea turtle nesting assemblage management challenge (real data will be provided).

Evaluation

- Field Journal Entries (25%)
- Work Experience and Participation Evaluation (25%)
- Group Experiential memo (30%)
- Final Presentation (20%)

SYLLABUS

Students should read pre-assigned material prior to some specific lectures and discussions to facilitate a meaningful learning experience.

Week	Wednesday	Friday
<p>1</p> <p>Some References</p>	<p>Lecture 1: Introduction to Class + Syllabus.</p> <p>Sea Turtle evolution, biology, physiology and ecological roles. Understanding their unique characteristics and resilient capacity that help them survive previous mass extinctions.</p> <p>Musick, J. A., Lutz, P. L., & Wyneken, J. (1999). <i>The biology of sea turtles I</i>. CRC Press.</p> <p>Plotkin, P. T. (Ed.). (2007). <i>Biology and conservation of ridley sea turtles</i>. JHU Press.</p>	<p>Lecture 2: Life cycle, reproduction, behavior and sea turtle species identification.</p> <p>Spotila, J. R. (2004). <i>Sea turtles: a complete guide to their biology, behavior, and conservation</i>. JHU Press</p> <p>Lutz, P. L., Musick, J. A., & Wyneken, J. (2002). <i>The Biology of Sea Turtles, Volume II</i>. CRC press.</p>
<p>2</p> <p>Some References</p>	<p>Lecture 3. International protocols for sea turtle monitoring, research technics and the role of modern technology. We will be collecting our own field data on nesting females at both, solitary and a mass-nesting event.</p> <p>Eckert, K. L., Bjorndal, K. A., Abreu-Grobois, F. A., & Donnelly, M. (1999). Research and management techniques for the conservation of sea turtles.</p> <p>Hays, G. C., & Hawkes, L. A. (2018). Satellite Tracking Sea turtles: opportunities and challenges to address key questions. <i>Frontiers in Marine Science</i>, 5, 432</p>	<p>Lecture 4. Sea Turtle Temperature Sex Determination and Hatchery Management Strategies, including head-start programs and their potential role in the effect of Climate Change Temperature Changes.</p> <p>By invited Speaker: MSc. Florence Wen. Biology Department, Southeastern Louisiana University.</p>
<p>3</p> <p>Some References</p>	<p>Lecture 5. Community Base Conservation. A case study analysis to explore the linkages between local communities and sea turtles (using our current location example).</p> <p>Campbell, L. M., Haalboom, B. J., & Trow, J. (2007). Sustainability of community-based conservation: sea turtle egg harvesting in Ostional (Costa Rica) ten years later. <i>Environmental conservation</i>, 34(2), 122-131.</p>	<p>Lecture 6. Tourism and the Local management of natural sources: Using international case studies to analyze extractive and non-extractive uses of sea turtle products and sub-products Internationally</p> <p>2. Troeng, S., & Drews, C. (2004). Money talks: economic aspects of marine turtle use and conservation. Pp</p>

<p>4</p> <p>Required Readings</p>	<p>Lecture 7. Sea Turtles and Society: Linkages of sea turtles with ancient and current cultures. The evolution of how we humans have valued and used (past and present) such iconic species.</p> <p>1. Frazier, J. (2003). Prehistoric and ancient historic interactions between humans and marine turtles. <i>The biology of sea turtles</i>, 2, 1-38.</p>	<p>Lecture 8. Sea Turtles in Ostional and Sustainable Fisheries of San Juanillo, two local examples through the eye of social-ecological systems. Intro to socio-ecological systems and Common Pool Resources. The Tragedy of the Commons by Hardin, 1968 (Human Ecology Professor at UCSB) and the prisoner’s dilemma.</p> <p>Interactive learning exercise to explore governance structures for the “commons” and the socio-ecological systems framework.</p> <p>Hardin, G. (1968). The tragedy of the commons. <i>science</i>, 162(3859), 1243-1248.</p> <p>Ostrom, E. (2009). A general framework for analyzing sustainability of social-ecological systems. <i>Science</i>, 325(5939), 419-422</p>
<p>5</p>	<p>Lecture 9. BBC Video Documentary on cutting edge new field research technics of sea turtle research, science and conservation.</p> <p>Course Reflections and Experience Wrap up on Project.</p>	<p>Lecture 10. Final Course Presentations by students.</p>