

# An Open Educational Resource Learning Management System for Sustainability and Environment Studies

**Preview Presentation**

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**April 13, 2020**

With the coronavirus outbreak, many schools were forced to rapidly convert to on-line education.

How successfully were they?

*Some were not so successful...*

*“So far with online classes, the workload seems more like **busywork**. My assignments have **stressed my learning process** and shifted my focus from absorbing information to finishing and submitting the many online assignments. Pre-recorded lectures are posted on teachers’ websites and those are, in my opinion, **the hardest to learn from**. At least with live Zoom lectures, students can interact with professors. A pre-recorded forty-minute lecture, however, has no breaks for questions. It’s also **harder to focus and process the information**.”*

– NC State University Student, April 13, 2020

# Understanding By Design Approach

- Promoting Enduring Understandings
- Backward Design
- Having a Big Idea
- Addressing Misunderstandings
- Using Hooks
- Chunking
- Repetition

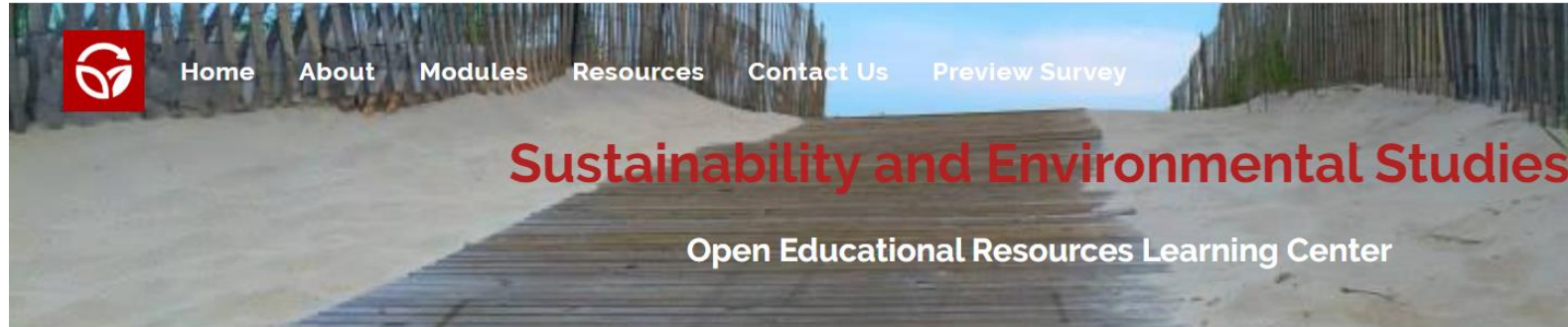
# The Learning Material of the LMS

- NOT intended to be introductory or replace textbooks or lectures
- Supplement the Instructor's teachings
- Delve deeper into specific issues to reinforce understandings

# So How Can the LMS Supplement the Instructor?

- Instructor creates lecture material
  - Recorded lecture
  - Interactive lecture (preferred)
  - Readings
  - Documentaries
- Instructor assigns LMS Lesson (Deep Dive)
  - 4 Lesson Units
  - Assessment Quiz
  - Reflection Questions
  - Instructional Activities

# During Class, the Instructor will briefly review the Big Idea of each Lesson Unit



## Overfishing and Fisheries Management

Introduction

1. Long-term Effects of Overfishing
2. Ecosystem Impacts of Overfishing
3. Economic and Social Impacts

**3.1 Lesson Unit 1**

3.2 Lesson Unit 2

3.3 Lesson Unit 3

3.4 Lesson Unit 4

3.5 Assessment Quiz

3.6 Reflection Questions

3.7 Instructional Activity

4. Countermeasures and Enforcement

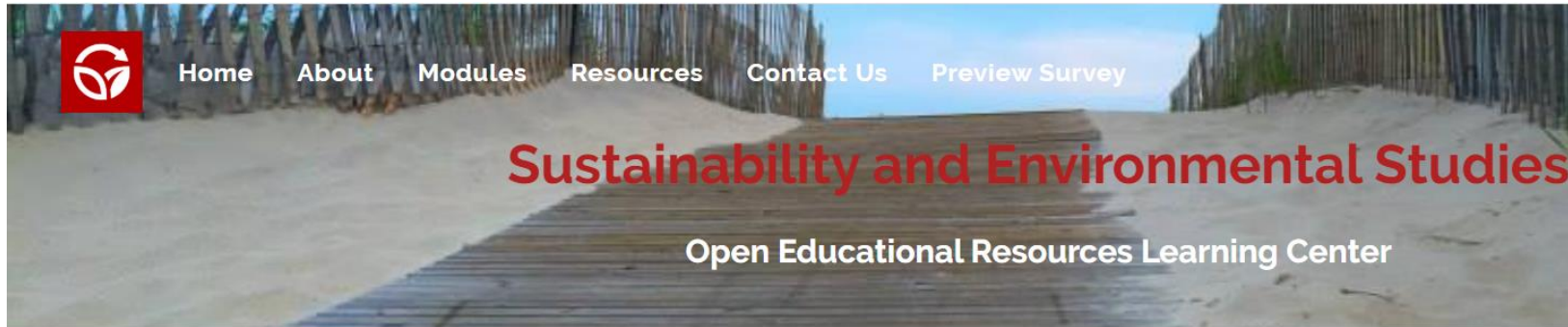
Instructor Notes

Instructor Reviews

*Millions of people rely on fishing for their livelihood and over a billion depend heavily on fishing as their main source of protein. How could the threat posed by overfishing impact the people and fishing communities who depend on fisheries for their income, nutrition, and ways of life?*



# Each Lesson Unit opens with a hook to capture the student's attention



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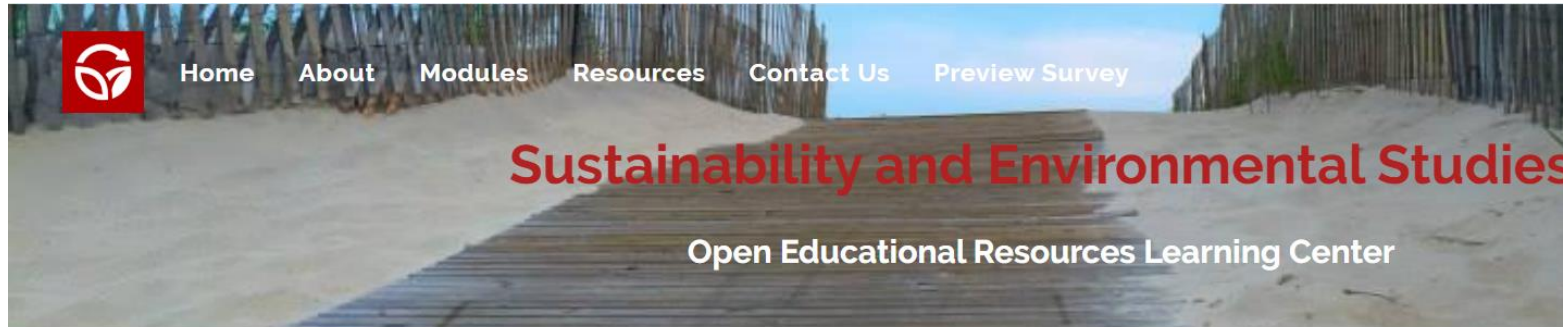
*"Communities around the world depend on the fishing industry for food and income. And for many people fishing is a way of life and a necessity, not a luxury. With increasing population levels and challenges such as climate change, sustainable fishing is vital to safeguard food security and the livelihoods of millions of people around the world." — Marine Stewardship Council*

Review the **economic** as well as the **social** impacts of overfishing. Why do you think social impacts tend to follow economic impacts, especially in developing nations?

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# Each Lesson Unit should take no more than 10 minutes to complete (the 10 Minute Rule)



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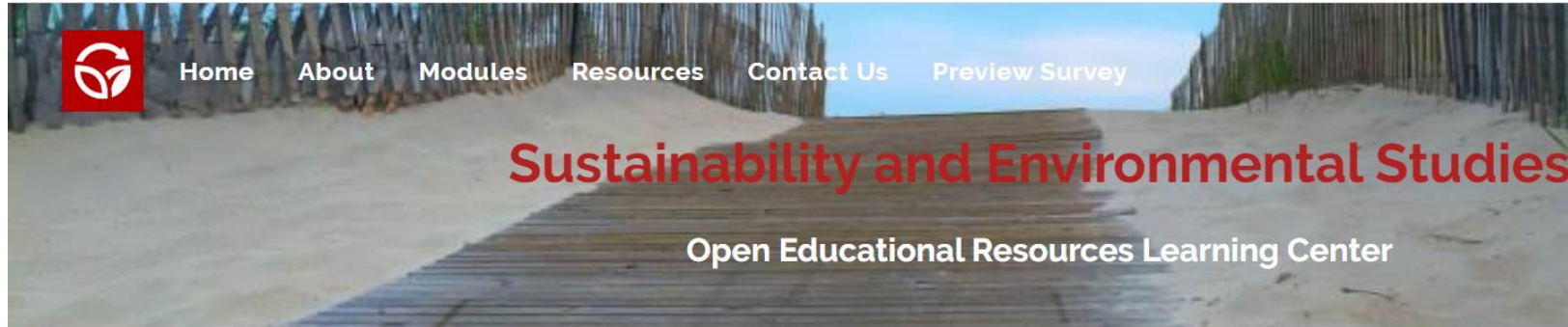
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*According to the Food and Agriculture Organization of the United Nations (FAO), one-third of the major commercial species are currently being fished at biologically unsustainable levels. With so many fisheries currently under strain from overfishing, aquaculture has become increasingly more important as an alternative source to help feed the world's growing population.*

So what is state of the world fisheries and aquaculture? Review this recent [summary](#) by the Food and Agriculture Organization of the United Nations to better understand the current conditions and implications for the future.

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# Variety of media content to make Lessons more interesting - videos, articles, papers, websites



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Many of the most productive tuna fisheries in the world reside within the vast exclusive economic zones of the small island nations of the Pacific. How can these developing countries be expected to effectively manage their fisheries when they cannot afford the necessary resources for proper management on their own?



# Class reviews the 5 comprehension questions of the Assessment Quiz (Explanation, Interpretation, Application, Perspective, Empathy, and Self-Knowledge)



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Assess your knowledge and understanding about the economic and social effects of overfishing by taking this short quiz.

**#1 Which statement about fish stocks in a no-take reserve compared to those in an adjacent fishery is not correct?**

☒ Smaller fish have a better chance to grow to maturity in the no-take reserve.

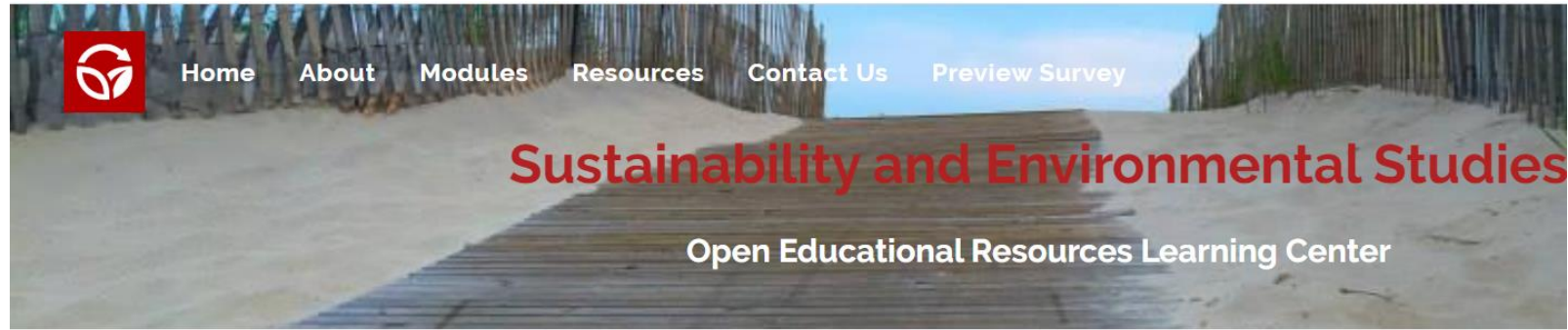
☒ Fish can spill out of the reserve and be legally caught in the adjacent fishery.

☒ Fish can spill out of the reserve and thereby ensure increased populations in adjacent fishery.

☒ Adult fish can reproduce in greater numbers in the no-take reserve.



# Reflection questions can be given as an assignment to assess understanding



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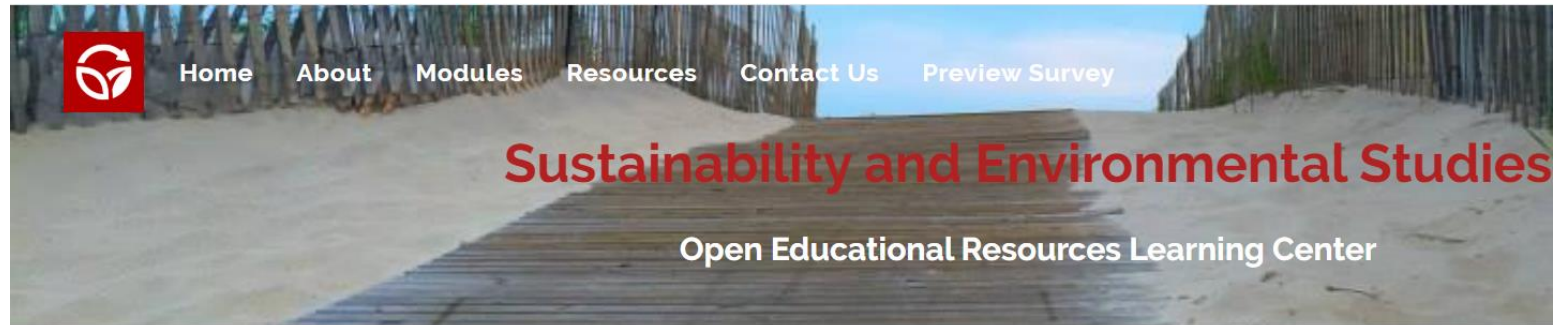
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Reflection Question 1: Why do you think overfishing poses such a significant threat to the economic and social welfare of developing nations which rely heavily on fishing?

Reflection Question 2: What are the global trends in aquaculture and capture fisheries production and how are they impacting total fish production?

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# Students assemble in breakout rooms to complete instructional activities meant to reinforcement understandings



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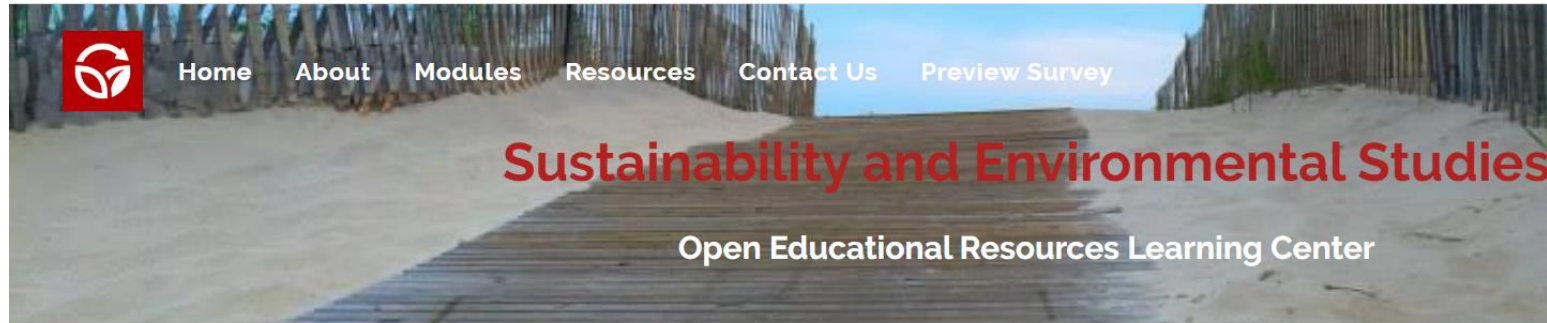
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Part 1: Discuss the steps individuals can take to help prevent overfishing and explain why these steps would be beneficial to fisheries if enough people participated.

Part 2: Discuss how and why the nations of the Pacific Islands collaborate in managing their fisheries. Elaborate on the role played by the United Nations Development Program (UNDP).

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# Instructors can supplement the Lesson by posting to the Instructor Notes



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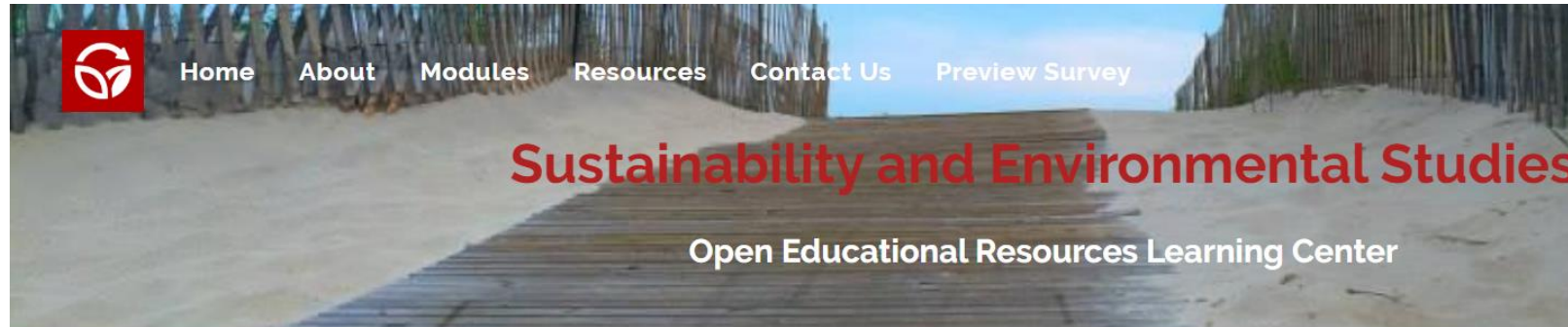
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*1. Long-term Effects of Overfishing* - In the documentary film *An Ocean Mystery: The Missing Catch*, marine biologist Dr. Daniel Pauly, argues that the number of fish caught worldwide is drastically underestimated and that without significant change we face disaster. Watch an excerpt from this film to appreciate how this looming environmental catastrophe could permanently alter communities and ways of life worldwide.





# Finally, instructors can refine the Lesson and understandings by posting to the Instructor Reviews



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*2. Ecosystem Impacts of Overfishing* – The oceans are under assault by both overfishing and climate change. However, these two issues do not need to be addressed mutually exclusively. Climate change is already causing shifts in the distributions of some fish stocks. Fisheries Management can help alleviate the pressure on stocks from overfishing, making them more resilient to the stressors of climate change.

*4. Countermeasures and Enforcement* – While aquaculture can help alleviate the effects of overfishing, it must be done sustainably or risk contributing to the reduction of wild fish stocks worldwide. Many large, carnivorous farmed fish like salmon and tuna can actually consume more fish biomass from wild stocks than they produce. Poorly managed aquaculture can also result in habitat degradation and loss, applying further pressure on wild fish populations.