

COASTAL SOCIAL-ECOLOGICAL SYSTEMS

ERS 321 (Fall 2017)

Tuesday and Thursday

1:00 pm – 2:20 pm

Instructors:

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Office Hours:
Wed. 9:30-11am (D.A.) | Th. 3-4pm (J.B.)
or by appointment
Office: 2013 (D.A.) or 2031 (J.B.)

Overview

Approximately half the world's population lives within 60 km of a coast, and as a result, coastal spaces are some of the most threatened globally. Some of these threats and challenges include unchecked development and urbanization, tourism pressure, the loss of important coastal habitat (like sea grass beds, coral reefs, dune systems, and coastal forests), the introduction of invasive species, and the effects of climate change (e.g., sea level rise, storm intensity).

Understanding the relationships among coastal systems and people is also an important Canadian sustainability challenge, especially so because Canada has the longest stretch of coastline in the world. Much like water, energy, soils and wildlife, coasts are an important 'resource', and the livelihoods of millions of people in Canada and around the world are directly dependent on the ecosystem goods and services they provide.

Approach and objectives

The course will provide you with an opportunity to explore the relationships among people and the drivers of change that shape our coastal ecosystems. In doing so, we will consider coastal regions as linked systems of people and nature, and examine sustainability challenges and opportunities using an interdisciplinary perspective.

Course activities will involve a mix of lecture, discussion and assessment of coastal cases, both close to home (Ontario is a coastal province) and internationally. Case studies and assignments will emphasize current issues and drivers of change, as well as frameworks and approaches to understand and sustainably govern coastal systems. Guest speakers and multi-media (e.g., video) will be used to supplement course content.

At the end of this course, you should be able to:

- Understand the major challenges and drivers of coastal change (social and ecological) and the implications for management and governance;
- Consider and assess various applications (e.g., ecosystem-based management, marine protected areas, development of living shorelines, community conservation schemes) applied at local to national scales to deal with coastal change;
- Critically assess the assumptions underlying these applications, their limitations and the opportunities they provide for a transition to more social and ecologically sustainable coastal-marine contexts; and
- Apply an understanding of course material to coastal cases in Canada and internationally.

Required readings/texts

Berkes, F. 2015. *Coasts for People: Interdisciplinary Approaches to Coastal and Marine Resource Management*. Routledge, New York. 372 pp. (Copies are available through the UW bookstore OR you can purchase an ebook via the publisher website: <https://www.routledge.com/Coasts-for-People-Interdisciplinary-Approaches-to-Coastal-and-Marine-Resource/Berkes/p/book/97811387798150>)

Lemmen, D.S., Warren, F.J., James, T.S. and Mercer Clarke, C.S.L. editors (2016): *Canada's Marine Coasts in a Changing Climate*. Government of Canada, Ottawa, ON, 274p. (*The full text will be posted and made freely available on the course LEARN site*)

Readings will be assigned on a weekly basis depending on the specific topic and issue being covered. Additional readings and resources will be posted on the LEARN site as appropriate. A useful popular media source on coastal issues is available here: <https://www.hakaimagazine.com>

Course requirements and evaluation

This is a 0.5 credit weight course. Evaluation in this course is based on: (i) three critical reflection pieces; (ii) a mid-term exam; and (iii) a coastal case study 'needs assessment' (individual major project). A summary of each expectation is provided below:

i) Critical reflections (45%)

You will be responsible for completing **three** individual reflections based on key issues or concepts covered in the class. The purpose of these assignments is to help you highlight and critically reflect on various dimensions of coastal system change –

both biophysical and socio-economic, and to apply these insights to your case study assessment project (see below). Additional guidelines on the reflections assignment will be provided. Each reflection is worth 15%.

ii) 'Mid'-term exam (30%)

The mid-term will be administered in class and consist of a number of general questions based on the materials and information covered up to that point, including materials covered in the readings, discussions, guest lectures and films. The mid-term is intended to emphasize your understanding of basic facts, concepts and methods in coastal systems in recognition of specific coastal challenges.

iii) Coastal case study needs assessment (25%)

A key course outcome is the preparation of an integrated coastal assessment using a selected coastal region of particular interest to you (i.e., a coastal region from the east or west coast of Canada, Canada's Arctic, the Canadian Great Lakes, or internationally). Additional details (structure, content, length) about this report will be provided. In regards to your major report, keep in mind the following:

- The needs assessment is linked to the 'reflections' assignments – we will leave some time in class to discuss these reflections and how they can be a useful foundation for your final report
- Your final report is due on Friday, December 8th, 2017 (4:00pm).

General Course schedule

Specific weekly themes and readings are outlined below. General themes to be covered are as follows:

Week 1: Introduction and overview

Week 2 and 3: Coastal challenges and opportunities

Week 4 and 5: Coastal change through a social-ecological systems lens

Week 5 and 7: Livelihoods and coastal economic development

Week 8 and 9: Coastal commons and resilience

Week 9 and 10: Management and governance issues

Week 11 and 12: Coastal conservation

Week 13: Synthesis

**no class on October 11 (study day)*

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Week	Dates and Activities	Readings (course text or on LEARN)
1	September 7 – Introduction to class	- Berkes ch. 1, 3
2	September 12 – Coastal systems overview September 14 – Coastal systems overview	- Berkes ch. 1, 3 - Agardy and Alder (sections 19.1-19.6) - NRCAN report (ch. 1 and 2) - Barbier 2017
3	September 19 – Coastal systems overview September 21 – Understanding coastal change: Social-ecological systems approach (Reflection 1)	- Revisit ch. 3; Berkes ch. 4; Sale et al. 2014; - See also Sendzimir et al 2008 and Lord 2011 for examples of causal diagrams - Revisit NRCAN report (ch. 1 and 2), especially if you are exploring a coastal marine case in Canada (i.e., review the relevant regional chapter in the NRCAN report)
4	September 26 – Guest Lecture – Community Aquatic Monitoring Program (CAMP) in coastal estuaries September 28 – Coastal economies and livelihoods (Reflection 1 due)	- Berkes ch. 9
5	October 3 – Coastal governance October 5 – Coastal governance	- Berkes ch. 2, 7 and 11; see also Katona et al. 2017
6	October 10 – no class October 12 – Coastal governance (Reflection 2)	- Berkes ch. 2, 7 and 11; see also Katona et al. 2017
7	October 17 – Guest Lecture – Lake Huron Coastal Conservation Centre October 19 – Coastal commons	- Berkes ch. 5; see also Berkes 2005 (posted on LEARN)

8	October 24 – Coastal grabbing and access (Reflection 2 due) October 26 – Entry points and needs assessment check-in (Reflection 3)	- Berkes ch. 5
9	October 31 – Coastal conservation November 2 – Coastal conservation	- Berkes ch. 8 and 10
10	November 7 – Co-management of coasts (Reflection 3 due) November 9 – Marine spatial planning	- Berkes ch. 6
11	November 14 – ‘Late’ Mid-term November 16 – Guest speaker	
12	November 21 – Entry points for coastal sustainability and transformation November 23 – Human rights, justice and equity	- Berkes ch. 12; see also Benham et al. 2016
13	November 28 – Interdisciplinary coastal science – a synthesis November 30 – Final project: Coastal Needs Assessment	- Berkes ch. 12; see also Benham et al. 2016

