



**University  
of Victoria**

Graduate Studies

Notice of the Final Oral Examination  
for the Degree of Master of Science

of

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BSc (McGill University, 2010)

**“Designing marine protected areas that are ecologically  
representative and socially equitable”**

Department of Geography

Tuesday, June 5, 2018

10:00 A.M.

David Turpin Building

Room B215

Supervisory Committee:

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## **Abstract**

The overexploitation of coastal ecosystems continues to threaten global biodiversity and fisheries. This has prompted international conservation commitments, such as the Convention of Biological Diversity's Aichi Target 11, to improve the coverage and integrity of marine protected area (MPA) networks worldwide. As reflected in Target 11, MPA networks need to be both ecologically representative and socially equitable. Systematic conservation planning (SCP) is an effective and efficient process for designing MPA networks to achieve biodiversity targets at minimal impacts to society. However, SCP has rarely been used effectively to develop MPA networks in developing nations. Three key challenges contribute to this 'research-implementation' gap: (1) SCP research concepts and tools are biased towards developed countries, (2) complete and high-quality datasets are lacking in developing countries, and (3) socioeconomic complexities and needs of stakeholders tend to be oversimplified.

In working towards addressing these challenges, this thesis focuses on Sogod Bay as a Philippines case study to examine the following overarching research question: **“How can systematic conservation planning be applied as a framework for designing MPAs to achieve national biodiversity objectives in a manner that is socially equitable and accommodating to the needs of coastal communities?”** To help answer this question, the thesis addresses three research objectives:

1. Develop and document strategies for incorporating dimensions of equity (recognition, procedural, and distributive) for stakeholders and coastal communities in the planning stages of SCP.
2. Investigate how recognition and procedural equity can impact the systematic design of MPA plans in terms of biodiversity representation, spatial efficiency, and distributive equity for fisher stakeholder groups and communities.
3. Evaluate and compare MPAs designed using a SCP approach with more conventional planning approaches in terms of their impacts on representation and social equity.

Objective one and two were assessed in Chapter two of this thesis. The findings of this chapter demonstrate how equity considerations can be integrated in the planning stages of

SCP through consulting with local partners; integrating science-driven and participatory approaches; recognizing the key stakeholder groups of MPAs (recognition equity); engaging with representatives of each stakeholder group and community to inform MPA planning processes (procedural equity), and distributing costs of MPAs fairly across all stakeholder groups and communities (distributive equity). Additionally, the chapter demonstrates how inadequate inclusion of stakeholders and/or the variations between communities can disproportionately impact some fishers and communities more than others.

Objective three was achieved through the findings of Chapter three, which investigated impacts on representation and equity from MPA plans derived under a SCP approach and two conventional planning approaches. MPAs planned and selected by communities resulted in inadequately representation and unfair distributions of costs across fisheries and community. A donor-assisted approach that used local knowledge to select MPAs resulted in a plan with near-optimal representation but was inequitable for fisheries and communities. The SCP approach was the only approach to produce a representative and equitable MPA plan, thus highlighting the utility of SCP for achieving the representation and equity aspects of Target 11.