



Scientific Research in Marine Protected Areas: Development of a Novel Ecological Impact Assessment Framework

Marine Resource Committee Fish and Game Commission



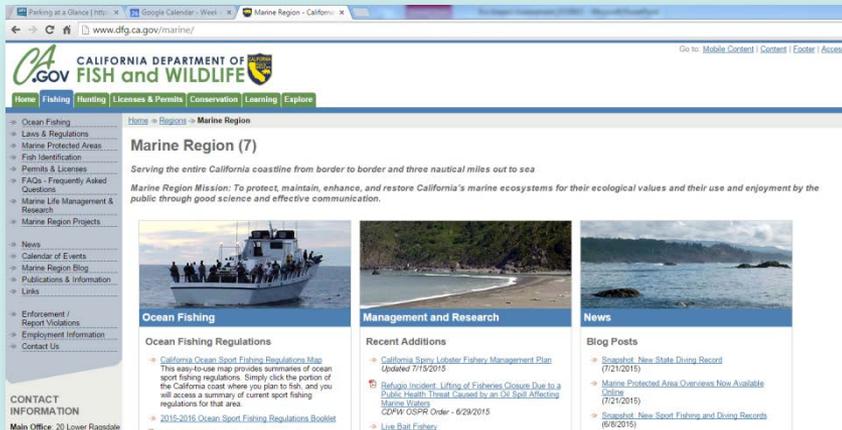
Research in Marine Protected Areas Working Group
Department of Fish and Wildlife

and

California Ocean Protection Council Science Advisory Team

July 21, 2016

CA Department of Fish and Wildlife & CA Ocean Protection Council Science Advisory Team -Working Group



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Presentation Outline

- Background on Scientific Collecting Permit (SCP) Program
- Assessment Need & Purpose
- Challenge & Approach
- Overview of Assessment
- Benefits
- Feedback & Questions



SCP Program Background

- SCPs authorized by Fish and Game Code § 1002 & 1002.5 and regulated by Title 14, 650
- Department currently undergoing a rulemaking to restructure the program
- Research is authorized via an SCP
- Process used to approve SCPs in MPAs
- SCPs issued by Marine Region since 2012:
 - Yearly average of 287 total permits, 107 in MPAs

Management Issue

- Marine protected areas (MPA) are important conservation and management tools
- Scientific research and monitoring are part of the MPA mission
- Scientific research in MPAs may impact the ecosystem and reduce MPA effectiveness



The Challenge

- MPA Managers Need to:
 - Evaluate research impacts while estimating ecological costs from cumulative impacts in MPAs to make informed permitting decisions.
- **Goal:** Develop a framework that enables MPA managers to quantify the ecological impacts of scientific research activities in an unbiased, transparent, and objective manner



Approach: Overview

A decision making tool was based on:

- Established ecological principles
- Quantitative, evidence-based process

The approach:

- Estimates potential ecological impacts of single and multiple scientific projects in an MPA
- Compares impacts against policy-set thresholds for each MPA
- Informs decision-making, doesn't prescribe

Approach: Elements

Four step assessment procedure to inform permitting decisions:

1. Filter out projects
2. Quantify ecological impacts
3. Calculate the cumulative impact of all projects
4. Compare the cumulative impacts with policy-based, acceptable impact thresholds for species, assemblages, and habitats



Estimating Ecological Impacts

- Quantitative models that capture ecological impacts to three ecosystem components
 - Populations of targeted species
 - Ecological assemblages
 - Physical habitat
- Calculations are based on proportionate loss or injury
 - Impacts are adjusted using multipliers
- Considers direct and indirect effects of each proposed study procedure
- Data tables that quantify ecological costs for a wide array of sampling activities are provided to facilitate model use

Impact Thresholds

Three impact threshold levels lead to four possible permitting decisions:

- Max of 10% of any population, assemblage, or habitat may be impacted by projects before MPA is compromised

Category	Threshold	Priority	Permit Status
De Minimis	Less than 2%	All research that passes the management review.	Approve
Negligible Impacts	Between 2% and 5%	Direct MPA related research or priority projects.	Approve
Impacts of Concern	Between 5% and 10%	Research that is critical for management.	Approve
Not Recommended	More than 10%	N/A	Deny or ask to modify or relocate.

Benefits of the Approach

- Quantitative, unbiased, and transparent
 - Enables identification of projects with highest impact
 - Allows Department to allocate resources to manage high-impact projects
- Allows for consistency in approving permits across staff changes and over time
- Enables applicants to know in advance impacts of their proposed research and to work with department to reduce them
- Should expedite the permitting process

Project Timeline

Past:

- Since June 2012, workgroup has met over 50 times

Current :

- Completed - Ecological Impact Assessment framework
- Early stages of developing data management system
- Present to Ocean Protection Council Science Advisory Team Meeting

Goals:

- Peer-reviewed manuscript (currently in preparation)
- Summer/Fall 2016- Implement assessment



Thank You Questions



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