

# Measurement Protocol: Change in Recreational Fishing Activity and Expenditures Associated with Project Site Visitation

Project: GEMS  
<http://bit.ly/NI-GEMS>

If you are encountering GEMS protocols for the first time, please read:

- The GEMS protocols can help you develop a monitoring plan for a restoration project. They were developed based on existing published monitoring methods, but should not be considered prescriptive or the only appropriate way to monitor.
- Each protocol is written as if you are monitoring a single outcome, but it is very possible you will be measuring multiple outcomes and may be able to use the same or similar methods to do so. Think about ways to be strategic and efficient when combining methods from different protocols. For example, are there ways to ask questions about multiple outcomes using a single survey instrument? Or is there a way to host a workshop that asks community members about barriers to accessing multiple types of outcomes?
- Please be aware that the “who” methods—aimed at documenting who will be affected by social and economic changes caused by a restoration project—are quite similar across protocols. Where possible and sensible, you should consolidate community engagement methods that assess stakeholder perceptions of project outcomes to avoid stakeholder fatigue.

## Background

This document provides an overview of methods available for estimating total recreational fishing activity and expenditures associated with a restoration project site.

Recreational fishing expenditures are typically calculated by multiplying the number of recreational fishing trips to the project site (estimated from random sampling counts as part of structured monitoring) by the average trip expenditure (from [NOAA FEUS 2018 Report](#)). This method helps practitioners estimate and detect trends related to recreational fishing activity and expenditures following project implementation. It cannot estimate the economic impact or contribution of the site to local economies or easily account for surplus or redistribution of fishers into the area.

The “*how much*” methods provide options for data collection that allow practitioners to measure how much recreational fishing expenditures (and associated fishing activity) on the project site has changed with the installation of the project.

The “*who*” methods describe methods for the project to assess the distribution of recreational fishing activity and expenditures benefits among different communities and whether that distribution is representative of the community.

The tables below list when methods would benefit from the expertise of social scientists trained in survey design and implementation, statistics, and economics. These experts should have experience with [human subject research](#), following best practices and, if relevant, conducting research in a way that is accountable to their respective institution’s oversight body, often called an [Institutional Review Board](#). If you do not have such expertise in your project or program, many university programs and consulting firms should be able to assist.

## Relevant Coastal Restoration Approaches

**Habitat Restoration** – Oyster Reef, Salt Marsh, Seagrass, Mangrove restoration

**Recreational Enhancement** – Boat Ramps and Fishing Piers installation

**Oyster Reef Specific** – All

## “How much” methods:

*Overview.* These methods help the project answer: How much are recreational fishing expenditures (and associated fishing activity) changing at the project site due to project installation?

This method describes how social scientists and economists can use intercept surveys, where trained field interviewers visit public access sites or the restoration site itself and survey recreational anglers as they complete their trips. Data collected in these surveys is then used to estimate how recreational fishing activity and expenditures are changing due to the restoration project. Ideally, a project would want to track how recreational fishing expenditures (and associated fishing activity) are changing due to project installation, but depending on project resources and stage of project installation that might not be possible. **We provide three method options for how you might collect these types of data, below.**

### “How much” method options:

Method Option (with link to more detail)	Method Outcomes	Method Option Description	Human Subject Research Expertise Needed*	Effort Level
A. <a href="#">Surveys before and after</a>	Estimate of recreational fishing activity and expenditures before and after project installation.	Apply intercept-survey methods <b>before</b> and <b>after</b> the restoration project takes place. This is the most scientifically rigorous method and will enable monitoring the change in recreational fishing activity and expenditures due to the project.	Yes	High
B. <a href="#">Surveys after</a>	Estimate of recreational fishing activity and expenditures after project installation.	Apply intercept-survey methods <b>only after</b> the restoration project takes place, and include questions about fishing activities prior to the project. This is weaker than Option A because the before project data depends on fishers’ recall, and evidence shows that memory of activities is often inaccurate.	Yes	High
C. <a href="#">Observation-based (no surveys)</a>	Estimate of recreational boating activity and expenditures before and after project installation.	Apply experimental fishing trip count methods such as photography, counters, and manual counts <b>before</b> and/ or <b>after</b> the restoration takes place. This method most reliably measures change in recreational boating activity, but without an associated survey it cannot necessarily distinguish which trips were for fishing. As with the intercept survey, when used before and after the project, it can detect change caused by the project. When used only after the project, it can be used to tell a story or to compare to other similar sites.	No	High

\*Refer to the [NIH Definition of Human Subjects Research](#) for more information

If your project is interested in measuring subsistence harvest as well, refer to the [subsistence harvest protocol](#).

### “How Much” Metric Summary:

Social or economic outcome this metric is linked to:	Economic Activity
Metric tier:	<input type="checkbox"/> 1 (easier) or <input checked="" type="checkbox"/> 2 (harder)
“How much: measurement interval:	Seasonally to annually
Use this protocol if:	The total number of recreational trips in the area affected by a project is expected to change due to the project. There is a public access site or vantage point from which random sample data collection can take place

### “Who” methods:

*Overview.* These methods help the project answer: Who has access to and is affected by changes in the distribution of recreational fishing activity and associated expenditures? Are those benefitting from these expenditures and this activity representative of the population around the site?

These methods can help restoration practitioners assess equity of recreational fishing activity and expenditures. Some of the methods suggested here can be integrated as modifications of the “how much” protocol described above. Others would require new methods. These methods will help identify a) vulnerable groups and historically underrepresented stakeholders in the project service area<sup>1</sup>; b) the accessibility and distribution of recreational fishing expenditures and activities to communities in the project service area; and c) whether groups may be disproportionately not accessing or benefitting from the expenditures or opportunities.

**The table below describes a suite of methods that build off each other to provide a more holistic understanding of the communities that are and can be receiving benefits from recreational fishing activities and expenditures from the project site, and how accessible the site is for these communities.**

The methods below that involve focus groups, surveys, or participatory exercises require inclusive stakeholder engagement<sup>2</sup> of all relevant communities within the project service area.

#### “Who” method steps:

Method (with link to more detail)	Method Outcomes	Method Description	Human Subject Research Expertise Needed*	Effort Level
<a href="#">Describe stakeholders</a>	Project service area boundaries	Identify geographic boundary that encompasses all communities that could be recreationally fishing at the project site and	No	Low

<sup>1</sup> The geographic boundary containing those stakeholders for whom a particular project outcome is relevant

<sup>2</sup> There are many resources available that provide best practices and guidance for inclusive engagement. Some examples include: [Five step approach to stakeholder engagement](#) (BSR); [Equitable Community Engagement Toolkit](#) (Boston Public Health Commission); [Designing equity-focused stakeholder engagement to inform state energy office programs and policies](#) (NASEO); [Inclusive community engagement](#) (C40 Cities), and; [Stakeholder engagement for inclusive water governance](#) (OECD).

		businesses that cater to recreational fishers in the area		
	Demographics and social vulnerability of those in the project service area	Collate comprehensive demographic data of the communities who fish (or would like to fish), and people who own businesses that cater to recreational fishers in the project service area	No	Low
	List of relevant stakeholders in the project service area)	Conduct a stakeholder assessment to understand who is interested in recreational fishing and which fishing-related businesses in the project service area	No	Low
<a href="#">Accessibility checklist</a> (from project perspective)	Status of recreational fishing accessibility	Fill out a project checklist to identify accessibility of the site and the information about fishing at the site that is provided by the project	No	Low
<a href="#">Assess stakeholder perceptions</a> on access and distribution of recreational activity and expenditures	Identification of access, barriers to access, and distribution of recreational fishing and associated expenditures. Understanding of whether access and distribution is disproportionate in the project service area.	Step 1. Use focus groups, workshops, surveys, and/or participatory mapping <i>targeting people in the project service area</i> to ask questions about access, distribution, and barriers to accessing recreational fishing opportunities or expenditures.  Step 2. Process information collected through step 1 in the context of the “who” information you already collected.	Yes	High

\*Refer to the [NIH Definition of Human Subjects Research](#) for more information

For more information on the GEMS project metrics and protocols, [visit this page](#).

