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# MANAGING OUR WEST COAST: THE CUMULATIVE IMPACTS CHALLENGE

**As the California Current ocean and coastal ecosystem is used in new ways, and pressure on resources increases, it is imperative to develop appropriate ocean governance systems that minimize cumulative human impacts.**



***“When we try to pick out anything by itself, we find it hitched to everything else in the Universe.”***

**-John Muir, 1911**

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### What Are Cumulative Impacts?

**Cumulative impacts** result when the effects of human activities and uses amass and affect resources and ecosystems. From an ecosystem perspective, the term “cumulative impacts” refers broadly to the net effect of all human activities across economic sectors and legal jurisdictions.

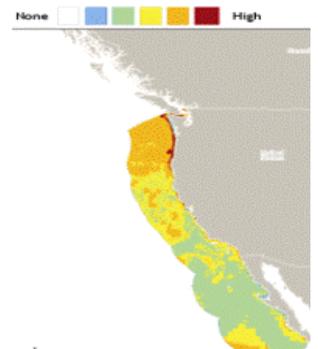
The typical legal definition of the term is narrower, and generally refers to “significant” impacts that result when the impacts of a proposed project or action, which on their own may not be significant, combine with those from a subset of other projects or actions within a defined geographic area.

### The California Current Large Marine Ecosystem (CCLME) and Cumulative Impacts

The **California Current Large Marine Ecosystem (CCLME)** includes the state and federal waters extending 200 miles offshore of California, Oregon, and Washington. The CCLME is home to kelp forest, rocky shores, sandy beaches, open ocean, estuaries, and marsh habitat. These habitats support marine fish, invertebrates, marine birds and shore-birds, mammals, and rare deep-sea corals, as well as plankton and microbes at the base of the food web that help ensure the productivity of these waters.

Ocean and coastal areas maintain an expanding range of human uses and activities that are critical to the West Coast’s quality of life, economic viability, and the character of its communities. For example, economic activity directly related to the ocean accounted for \$21.4 billion of California’s gross state product in 2000, \$6.5 billion of Washington’s, and \$767 million of Oregon’s.

Although human activities that impact the ocean are critical to U.S. communities and economies, these activities directly, indirectly, and cumulatively impact CCLME resources, leading to degraded water quality, resource depletion, and more. Indeed, cumulative impacts are ubiquitous in the CCLME. The highest impacts in marine waters occur near highly populated coastal areas, and on the continental shelves off Oregon and Washington. Also, long-standing human activities compete with new and emerging ocean activities such as offshore renewable energy development, sand and gravel mining, and aquaculture.



*Halpern et al. (2009).*

**The CCLME encompasses an area of 2,224,665 km<sup>2</sup>.**

## Regional Ocean Governance Framework

A number of existing ocean planning and management frameworks, including **the West Coast Governors Agreement, California Ocean Protection Council, Oregon Territorial Seas Plan, Puget Sound Partnership, and Washington Marine Spatial Plan**, provide an important start to regional governance for the CCLME. These frameworks offer significant opportunities to address regional cumulative impacts in West Coast waters, while allowing sustainable development.



**Key Ocean Laws and Policies:**

- National Ocean Policy
- National Marine Sanctuaries Act
- Federal Coastal Zone Management Act
- Shoreline Management Act (Wash.)
- Ocean Resources Management Act (Wash.)
- Aquatic Lands Act (Wash.)
- Growth Management Act (Wash.)
- Marine Life Protection Act (Cal.)
- Coastal Zone Management Programs (Cal. and Ore.)
- Ocean Resources Management Act (Ore.)

Regional Ocean Governance in the CCLME	
<b>West Coast Governors Agreement on Ocean Health</b>	Provides a coordinated, collaborative cross-jurisdictional mechanism for addressing regional ocean issues of mutual importance, addressing scientific and technological needs for regional management, and maximizing financial resources.
<b>Ocean Protection Council (California)</b>	Coordinates state activities related to ocean resource conservation and protection through development of a Strategic Action Plan that includes goals, objectives, and measurable actions to improve ocean and coastal resource protection.
<b>Puget Sound Partnership (Washington)</b>	Develops and implements an Action Agenda, allocates funds, produces progress reports, sets priorities and benchmarks, and adopts accountability measures to achieve a healthy Puget Sound by 2020.
<b>Marine Spatial Planning Law</b>	Creates an interagency team to recommend a framework for conducting marine spatial planning and integrating it into existing management plans, and harmonizes WA goals with national, CA, and OR goals.
<b>Territorial Sea Plan (Oregon)</b>	Establishes mandatory decision-making procedures for proposed ocean uses and activities (other than fishing), and requires applicants to consider specific factors in a cumulative effects evaluation.

## Cumulative Impacts Assessment Framework

The federal **National Environmental Policy Act (NEPA)**, **California Environmental Quality Act (CEQA)**, and Washington’s **State Environmental Policy Act (SEPA)** are environmental impact assessment (EIA) laws applicable to the CCLME. These laws require federal and state agencies to consider the environmental consequences of proposed actions or projects, evaluate possible alternatives, and disclose information to the public, before issuing final permits or other agency approvals. As part of

evaluating a project’s environmental consequences, the laws require cumulative impacts assessments. NEPA applies to actions that are proposed, funded, or permitted by the federal government, while SEPA and CEQA involve state projects or actions. (In Oregon, the EIA process is subsumed by the statewide land use planning process.)

NEPA, SEPA, and CEQA provide a number of opportunities for EIA to interact with the regional ocean governance (ROG) framework and minimize

cumulative impacts. Most notably, the laws allow for a “tiered” assessment approach that could directly link regional planning with project-level assessment. Agencies also could adopt ROG objectives as a basis for project-level decision-making. Additionally, data collected through any project monitoring required by the EIA laws could inform regional priorities, thus strengthening the integrity of the ROG system.



**“Tiering”** is a way for federal agencies to link broad regional planning with their obligations to conduct project-level environmental impact assessments. NEPA permits project proponents to prepare a **Programmatic Environmental Impact Statement (PEIS)** that assesses the impacts of and alternatives to broad programs and policies. Narrower, project-specific Environmental Impact Assessments then “tier” off the PEIS and incorporate it by reference, allowing decision-makers to analyze both cumulative and project-level impacts.



## What Is Missing?

In order to maintain important ecosystem services, we need to minimize cumulative impacts to the extent practicable. Existing legal requirements and regional structures contribute parts to a basic foundation for addressing cumulative impacts in the CCLME, but they have serious limitations on their own.

### What Is Missing from Regional Ocean Governance?

The majority of existing ocean governance policies are broad mandates or non-binding agreements (e.g., the West Coast Governors Agreement) that may call for consideration of cumulative impacts, but are unsupported by targeted requirements to gather the information or conduct the monitoring necessary to establish and achieve ecosystem goals. Conversely, concrete provisions that require assessing and/or minimizing cumulative impacts are typically limited by sector, site, or species. At the state level, Washington's and California's comprehensive ocean planning mechanisms are not

explicitly linked to regulatory systems. Further, none of the states' programs require ongoing monitoring or evaluation of cumulative impacts.

### What Is Missing from EIA?

The existing approach to EIA remains project-specific and fragmented, so that resulting assessments at best only inform the immediate project and not the broader management community. While NEPA, CEQA, and SEPA require cumulative impacts assessment, only CEQA demands that applicants undertake feasible measures for mitigating significant impacts; under NEPA and SEPA, agencies must merely analyze and report the predicted impacts. Significantly, NEPA, SEPA, and CEQA do *not* contain monitoring requirements to determine whether mitigation measures (when required) are actually implemented, or whether actual environmental impacts result from project implementation. In addition, SEPA is the only one of the three statutes that has been at least partially integrated with other comprehensive



**Harnessing federal, regional, and state governance to appropriately minimize human impacts to ocean and coastal environments can help prevent further loss of habitat and restore ecosystem functions.**

planning processes. Oregon altogether lacks an EIA statute requiring cumulative impacts assessment.

### Filling the Gaps

To be most effective, existing and emerging regional approaches in the CCLME should be integrated and aligned with one another, as well as with state and local decision-making and implementation activities, to ensure governance is cohesive and effective. Existing EIA processes are excellent mechanisms for implementing regional plans. Integration can ensure that the best available information is used in decision-making and advance regional goals and objectives.

## Best Practices for Project-Level Cumulative Impacts Assessment

ELI identified the following approaches to improve cumulative impact assessment:

- Follow the Council on Environmental Quality's five-step "predict, mitigate, monitor, evaluate, adapt" model.
- Require permittees to employ adequate scoping; use appropriate spatio-temporal scales; conduct meaningful analysis of past projects; and identify foreseeable future projects in the area.
- Establish impact thresholds that include an ample margin for scientific and management uncertainty.
- Evaluate cumulative impacts based on cultural, regulating, provisioning, and supporting "ecosystem services" that benefit human communities.
- Prioritize avoiding and minimizing



**Ecosystem Services:** Rather than analyze salt marsh impacts in terms of acreage lost or species impacts, an EIA could describe impacts to the marsh's storm buffering capacity, ability to improve water quality, and value as a fish nursery.

- impacts, but when impact is unavoidable, give priority to onsite compensatory mitigation.
- Utilize conditional permitting and application requirements to ensure permittees contribute to data collection, monitoring, and reporting.
- Develop a clear mitigation and monitoring plan with measurable goals, and adopt the plan in an enforceable medium (e.g., as permit conditions). Impose mitigation and monitoring at both the project and regional levels.

## A Path Forward

To create a truly integrated system of regional governance, implementation activities ideally should build from, align with, and inform regional ocean governance (ROG).

### 1. Broad ecosystem assessments should be conducted to inform ROG.

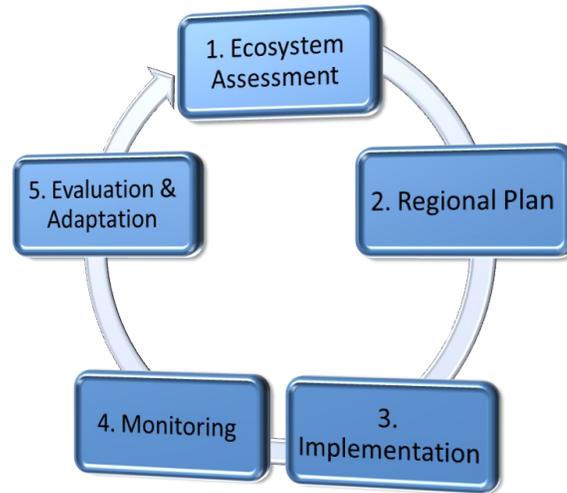
CCLME ecosystem assessments would supply valuable baseline data and information to improve predictions of the direct, indirect, and cumulative impacts of proposed projects. Improved baseline data also could reveal gaps in existing data, highlighting where the precautionary approach should be employed.

### 2. ROG should be used to set concrete goals and measurable objectives for the CCLME based on the ecosystem assessments that can then guide on-the-ground decision-making at local, state, and regional levels.

Any state-by-state goals and objectives set by existing West Coast laws and plans should be harmonized with these objectives. Regional plans could be integrated into project-level EIAs using tiering. If a PEIS were developed for the Pacific Coast, assessments for individual projects could build off of that PEIS, covering project-specific matters not addressed in the broader plan. Tiering would both enable a more comprehensive EIA system and potentially save time and money for project proponents and agencies.

### 3. Existing EIA laws could be used as the legal and regulatory basis for implementation of ROG.

Project-level decision-making could be aligned with regional ocean plans to ensure that projects support ROG objectives. Compliance with regional plans should



be required through legislative amendments or new statutes (or at least through less formal mechanisms, like memoranda of understanding) that explicitly require consideration of regional objectives during project permitting. Ocean and coastal activities could be evaluated on whether they individually or cumulatively exceed set objectives.

### 4. Regional ecosystem monitoring should be linked with EIA processes.

Not only can regional ecosystem assessment inform EIAs, but the reverse is true: project-specific EIAs can contribute to the growing record of ecosystem data. EIAs can supply information at a level of detail that an ecosystem assessment cannot, and can provide information related to the actual impacts of projects in a region. To be most effective, information about the CCLME should be stored in a common, central, and web-based database that is available to the public, managers, and practitioners. The information could be scalable and searchable by regions to inform cumulative impact analyses for proposed projects and sound mitigation and adaptation strategies.

Monitoring should occur at both the regional and project levels, and be coordinated so the information gathered at one level supplements that provided by the other. Such monitoring should evaluate the overall condition of the CCLME, track performance of regional objectives, and track project-specific objectives, impacts, and mitigation effectiveness. CCLME-wide monitoring could identify large-scale changes and cumulative impacts by evaluating changes from the baselines established in the ecosystem assessments. Project-specific monitoring can supplement regional information with focused detail about the ecology of a specific area or stressor. Additionally, monitoring programs can create accountability for meeting regional objectives and project-specific mitigation requirements.

### 5. Regional planners can integrate new scientific information into regional plans as it evolves from EIAs, ecosystem assessments, and monitoring.

“Ecosystem Assessment” is a science-based evaluation of the status and trends of coastal and marine ecosystems that is used to assess ecosystem health and support ecosystem-based management. Currently, ecosystem assessments are not legally mandated; however, West Coast non-binding agreements call for ecosystem assessments, and federal agencies are assisting with them.



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*ELI's Ocean Program works to identify and promote better tools, management approaches, and governance systems for ocean management.*

