



Offshore Renewable Energy Development on the U.S. West Coast

Understanding Effects on Shipping,
Fisheries, and Maritime Activities

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Beach

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Consensus Study Report

Offshore Wind and Other Renewables

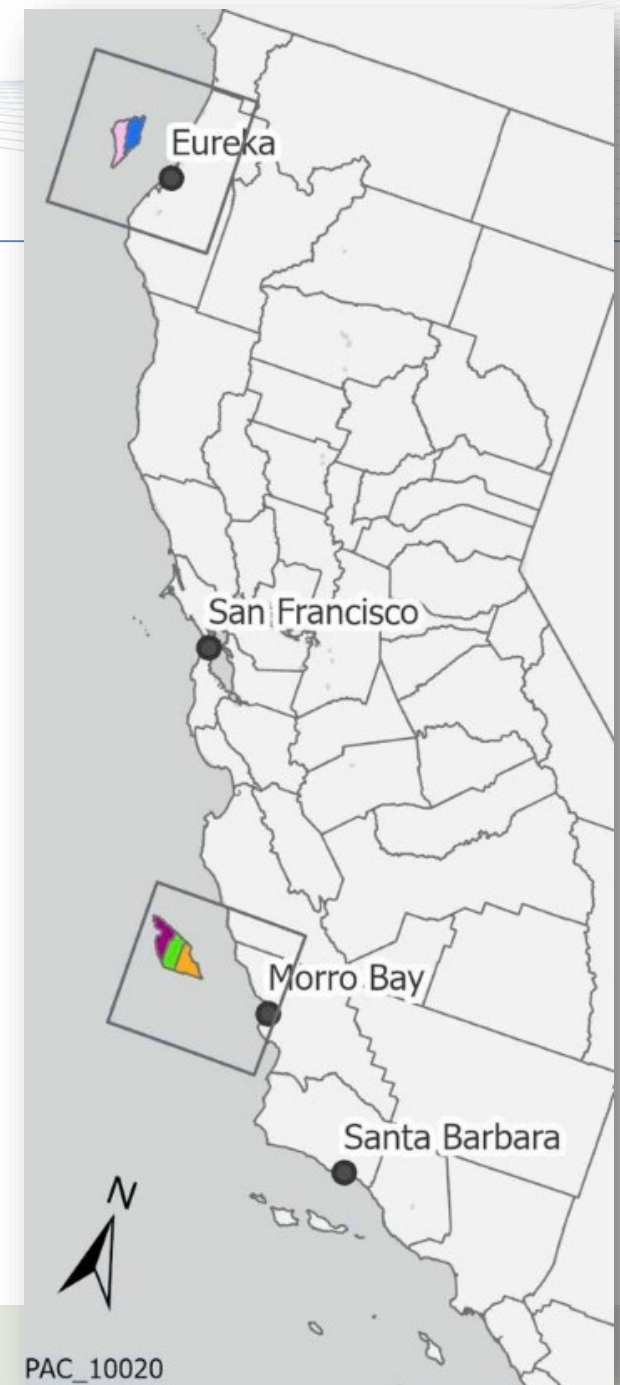
So What?

- **Industrial investment is substantial.** Offshore wind has more than **\$40B in investment**, including \$25B in supply-chain, \$4B in steel, and \$1.8B in shipbuilding.
- **Shipyards and vessels are one of the clearest success stories.** The industry has placed \$1.8B in orders with 50+ new-build or retrofitted vessels.
- **Ports are becoming industrial energy hubs.** More than **\$5B in U.S. port-related investment** has been announced.
- **The market has reset, not disappeared.** Policy uncertainty and inflation have slowed investment, but projects, port upgrades, and vessel launches continue.



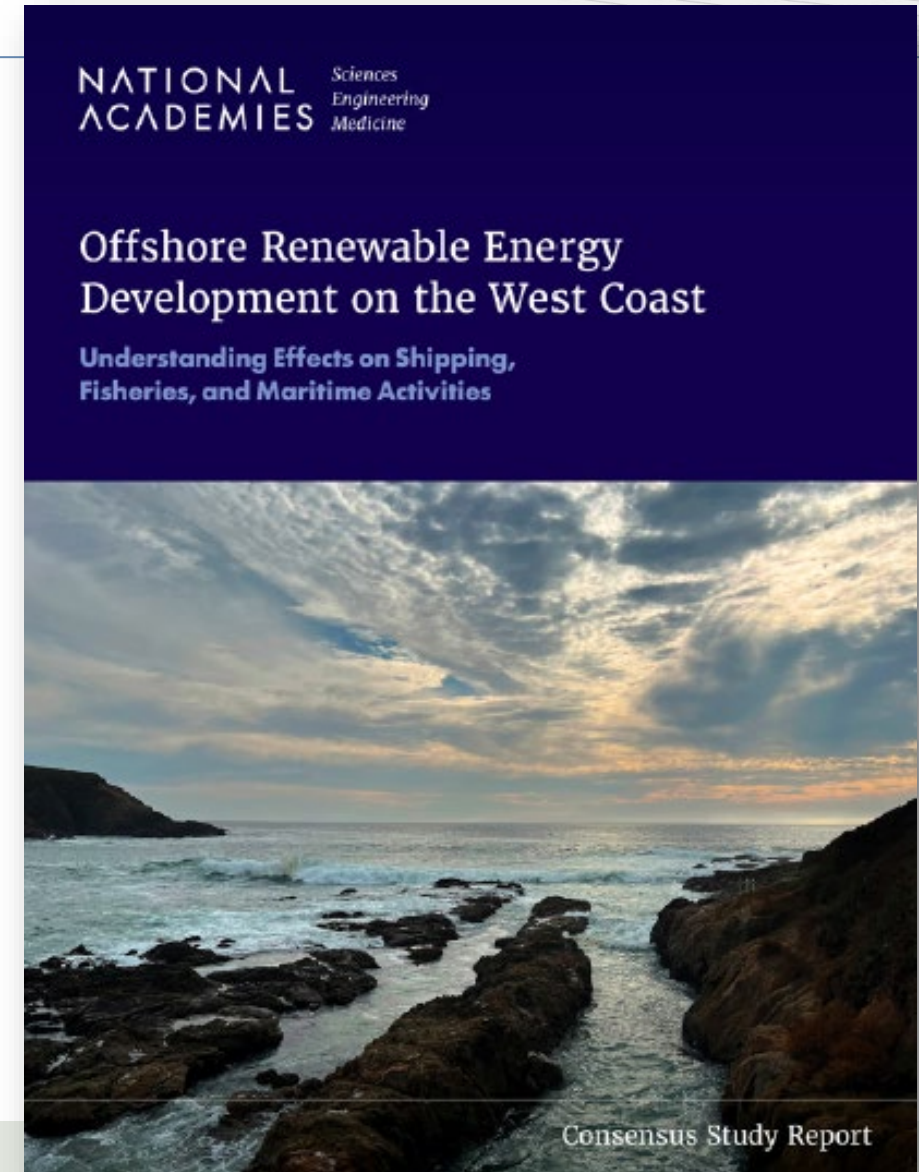
California – Early, but Strategic

- **California has real lease areas.** Five federal lease areas totaling roughly **583 square miles** for future development.
- **The Pacific lease auction was a major market signal.** The California lease sale generated more than **\$757M in winning bids.**
- **The state is investing in port readiness.** California's Proposition 4 Development Program includes **\$475M.**
- **Port needs are large and specialized.** Wind requires staging, O&M berths, heavy-lift capacity, workforce development, and coordination with shipping, fishing, and harbor uses.
- **California ports and harbors can be ready.**



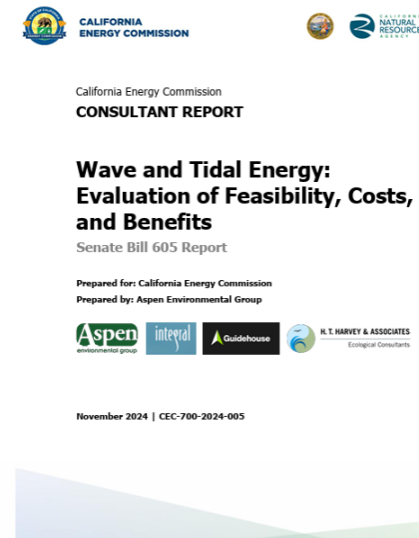
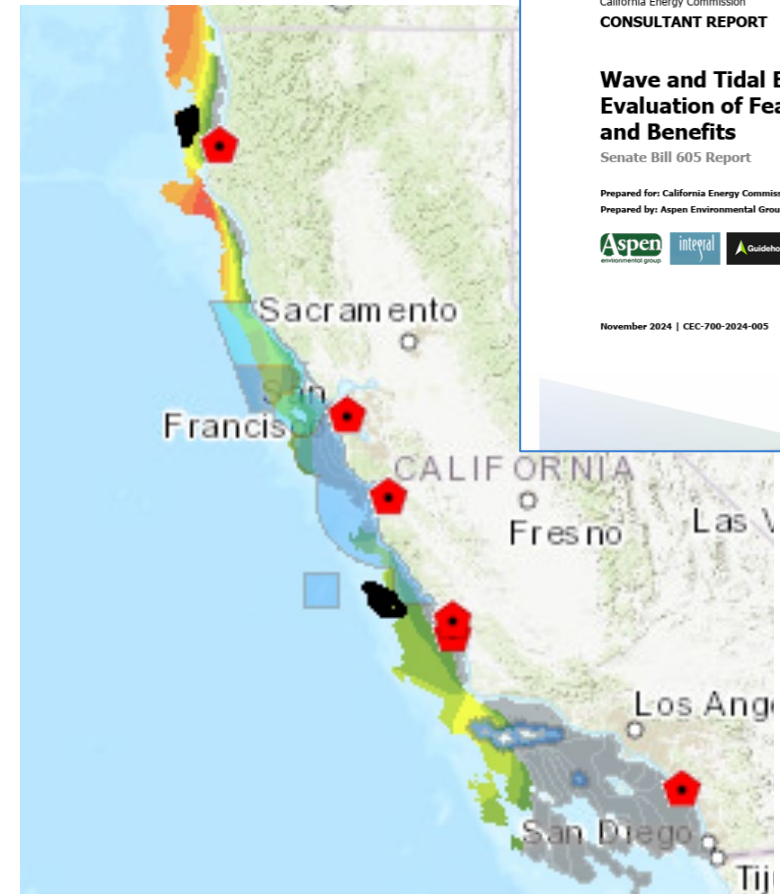
NASEM West Coast Offshore Renewables Report

- **Independent NASEM review** of how West Coast offshore renewable energy may affect California offshore.
- **The report focuses on practical coexistence:** how offshore renewable energy can be planned while reducing conflicts with existing uses.
- **The West Coast is still early in development:** creating an opportunity to improve siting, engagement, navigation planning, fisheries mitigation, and monitoring before construction occurs.



Committee Consensus Report

- **Built on regional planning work** in offshore renewables, marine spatial planning, and CEC Senate Bill 605 studies.
- **Expert input** on wave and tidal energy, marine spatial planning, recreational fishing, and spatial, temporal, and cultural resource conflicts.
- **The committee's recommendations are directly relevant to California ports and harbors:** spatial planning, navigation fairways, port access, search and rescue readiness, fisheries engagement, and long-term benefits.
- **Relevance to CMANC:** the findings connect directly to port access, navigation safety, fisheries, Coast Guard operations, monitoring, and coastal economic opportunity.



The Core Question: Can Offshore Renewables Coexist With Existing Ocean Uses?”

- **Where are existing ocean users today?**

Fishing, Tribal use areas, shipping lanes, port approaches, and future shifts in maritime activity.

- **How will offshore renewables interact with maritime operations?**

Navigation, port access, vessel traffic, construction, O&M, fisheries, and Coast Guard operations.

- **What are the risks — and how can they be reduced?**

Better siting, design, transit corridors, fairways, operating protocols, and early coordination.

- **How should decisions be made?**

Strong consideration of coastal communities, Tribal governments, fisheries, ports, and safety.

- **What changes should be planned for?**

Port investment, workforce development, vessel services, climate monitoring, and opportunity.

Study Findings

Interactions with Fisheries

- **Offshore renewable energy can displace fishing activity** through access to fishing grounds, altered transit routes, and safety zones.
- **Impacts are not evenly distributed.** Effects vary by fishery, gear, season, vessel size, and ability to shift to other grounds or ports.
- **Port reliance matters.** Many fishing fleets are tied to specific harbors, buyers, fuel docks, gear storage, crew networks, and processing infrastructure.
- **Harbor access and operations can be affected.** Offshore energy vessel traffic, staging, surveys, and construction support can interact with existing fishing fleet movements.



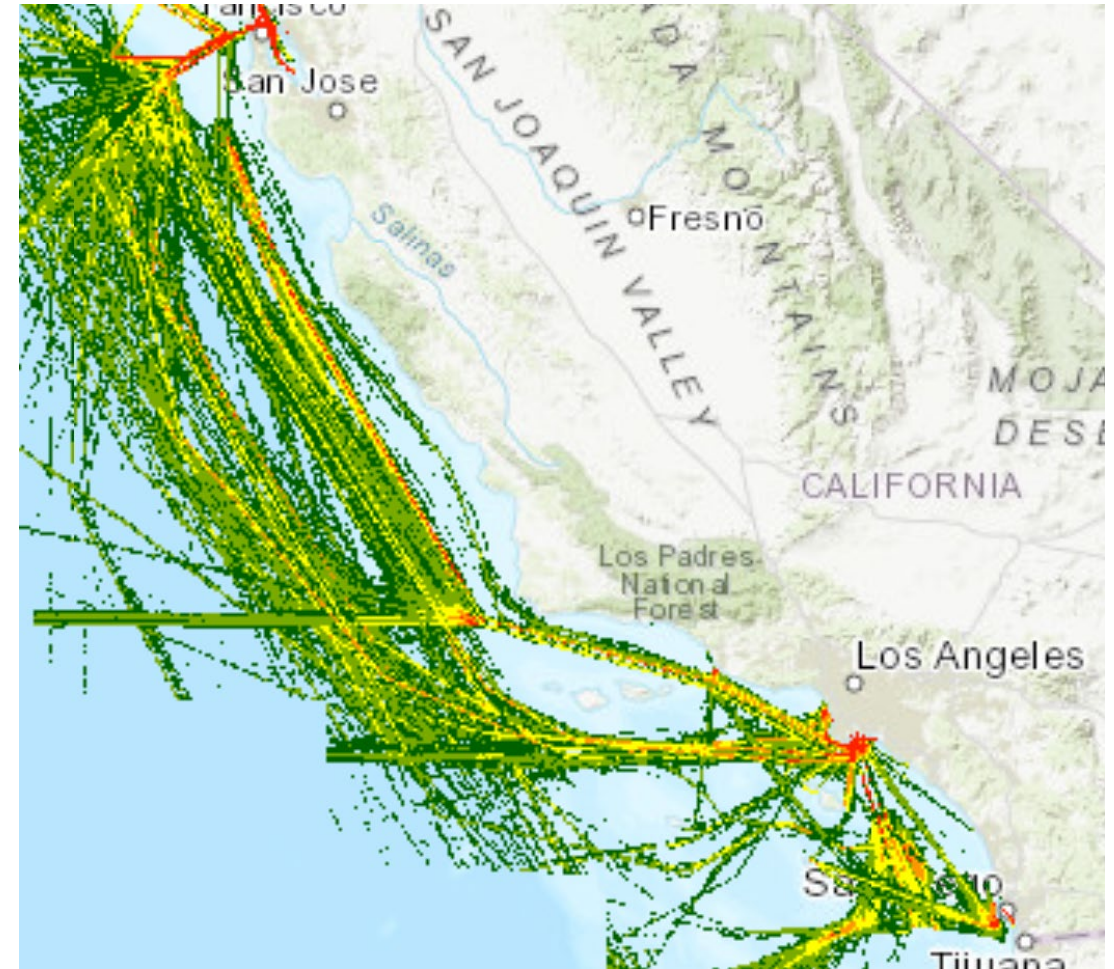
Impacts on Tribal Communities

- **Effects are not only economic** — they may involve cultural resources, subsistence uses, treaty-protected fishing areas, and ocean stewardship.
- **Planning areas can overlap with culturally significant seascapes**, including fisheries, sacred places, and Tribal connections to coastal waters.
- **Consultation must be early, ongoing, and resourced** so Tribes can meaningfully participate in siting, impact assessment, mitigation, and monitoring.
- **The key shift:** from consultation as process compliance to Tribal and community engagement as a core part of better project design.



Shipping and Port Operations

- **Offshore renewable energy will interact with existing vessel traffic** — shipping lanes, port approaches, fishing routes, survey vessels, construction traffic, and O&M operations.
- **Ports can benefit across the project lifecycle:** fabrication, staging, assembly, vessel support, O&M, monitoring, and maintenance.
- **Navigation planning is a core mitigation tool:** fairways, transit corridors, construction windows, traffic separation, and clear operating protocols.
- **CMANC relevance:** California ports and harbors should help shape the maritime operating plan before offshore wind projects reach construction.



Ecosystem and Monitoring: Uncertainty Can Be Managed With Better Data

- **Large floating wind arrays may affect circulation** — a key issue as upwelling supports productivity, fisheries, and coastal food webs.
- **The magnitude and ecological significance remain uncertain**, which makes baseline data, modeling, and monitoring essential.
- **ORE can also become monitoring infrastructure** by supporting sensors for oceanography, fisheries, marine mammals, seabirds, and climate observations.
- **Planning takeaway:** Treat wind areas as managed ocean observatories, not just energy infrastructure.

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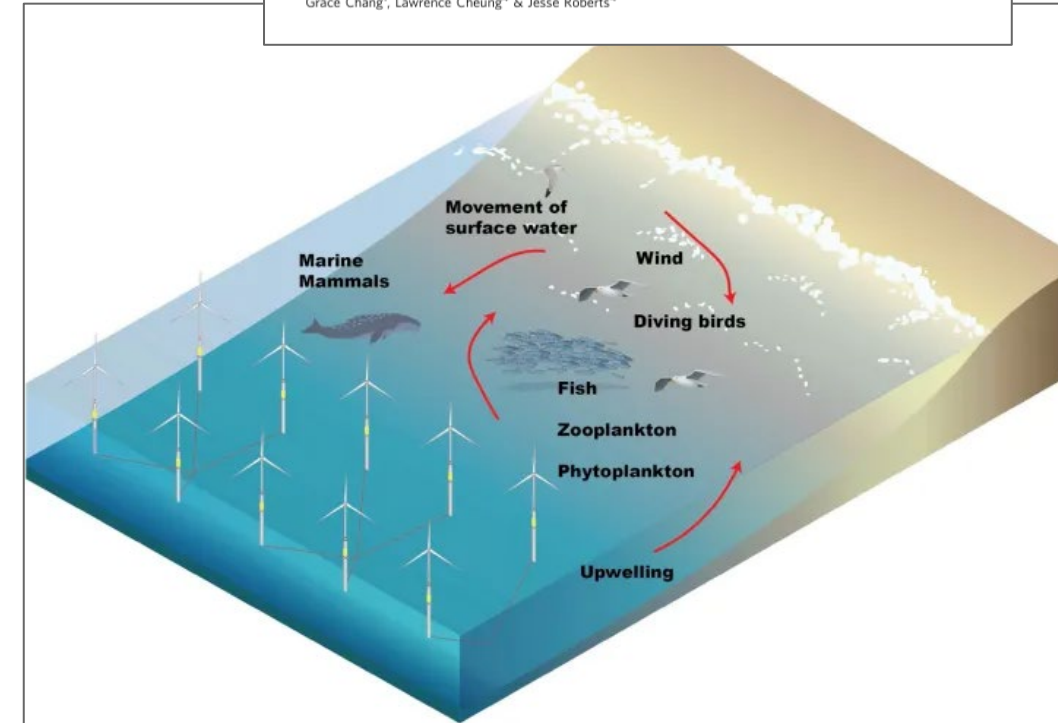
<https://doi.org/10.1038/s43247-023-00780-y>

OPEN

Check for updates

Projected cross-shore changes in upwelling induced by offshore wind farm development along the California coast

Kaustubha Raghukumar¹, Timothy Nelson¹, Michael Jacox^{2,3}, Christopher Chartrand⁴, Jerome Fiechter⁵, Grace Chang¹, Lawrence Cheung⁴ & Jesse Roberts⁴



PRACTICAL MESSAGE: PLAN BEFORE YOU BUILD

Smart planning today prevents conflicts tomorrow and protects California's ocean, communities, and economy.

1 PROTECT LONG-TERM FISHERIES AND ECOSYSTEM MONITORING.



Offshore energy development should be planned so it does not disrupt federal and state surveys used for stock assessments, fisheries management, and ecosystem trend tracking.



2 UPDATE AND INTEGRATE EXISTING OCEAN-USE PLANNING.



- Fisheries
- Shipping Lanes
- Port Areas
- Tribal Areas
- Environmental
- Wind Energy Areas
- Transit Corridors

Build from PacPARs, BOEM/NCCOS, AB 525, fisheries, Tribal, and port data to refine lease areas, transit corridors, port access, and mitigation.



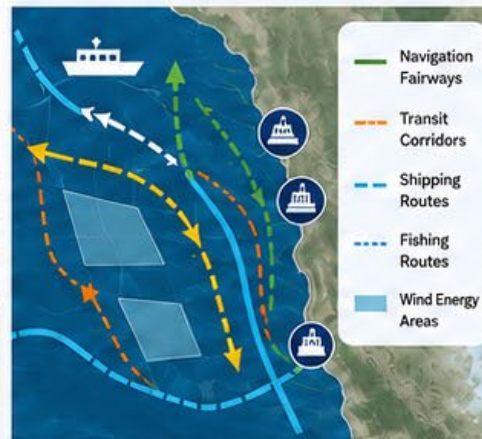
3 STRENGTHEN TRIBAL CONSULTATION AND COMMUNITY ENGAGEMENT.



Provide enough time, resources, and information for Tribes, fisheries, ports, and communities to shape decisions early.



4 LOCK IN NAVIGATION AND TRANSIT SOLUTIONS EARLY.



Implement West Coast navigation fairways and evaluate transit corridors through or around offshore renewable energy areas for fishing, shipping, and Coast Guard operations.



5 PREPARE FOR OFFSHORE SAFETY AND RESPONSE.



- Search and Rescue
- Navigation Safety
- Communications
- Enforcement
- Maritime Domain Awareness

Standardize risk mitigation for Coast Guard operations — search and rescue, navigation safety, communications, enforcement, and a maritime domain awareness.



California ports and harbors should help define the operating rules before project layouts, routes, and mitigation plans are locked in.

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Closing Message: Be Ready Before the Market Arrives

- **Offshore wind is slower, but real** — investment, ports, vessels, and supply chains are already moving.
- **California is early, not absent** — lease areas, state planning, port funding, and strategic work are underway.
- **Ports and harbors are central** — staging, O&M, vessel support, fisheries access, safety, and monitoring all run through the waterfront.
- **The planning window is now** — California ports and harbors can help shape offshore wind.



State Pier in New London, Conn., serves as a staging site for wind farm construction and supplies. AP Photo/Ted Shaffrey

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