

West Coast Hydrokinetic Energy Projects

	Location	Latest news	Next steps	Technology description	Footprint description
California					
Del Mar Landing Project (Sonoma County Water Agency)* P-13376 Updated: 8/13/2009 Preliminary permit issued 7/9/2009	Study location is 14.3 sq nautical miles. Three miles off the coast of Sonoma County, in state waters. Water depths of 20-50 meters.	Preliminary permit granted. Motions to intervene by NMFS, Surfrider, several other groups.	Schedule of proposed activities due within 45 days of permit issuance.	Looking at oscillating water column & buoy-type devices, including Pelamis.	In state waters. 14.3 square nm.
Fort Ross Project North (Sonoma County Water Agency)* P-13378 Updated: 8/13/2009 Preliminary permit issued 7/9/2009	Study area is 10.4 square nm.	Preliminary permit granted. Motions to intervene by NMFS, Surfrider, PGE, other organizations.	Schedule of proposed activities due within 45 days of permit issuance.		10.4 square nm, in state waters.
Fort Ross South Project South (Sonoma County Water Agency)* P-13377 Updated: 8/13/2009 Preliminary permit issued 7/9/2009	Study area is 15.3 square nm. In state waters off Sonoma County, near Fort Ross, 20-50 m deep.	Preliminary permit granted. Motions to intervene from NMFS, Surfrider, Mendocino County, others.	Schedule of proposed activities due within 45 days of permit issuance.		Initially 2-5 MW; eventually 40-200 MW.
Green Wave Mendocino Wave Park* P-13053 Updated: 8/13/2009 Preliminary permit issued 5/1/09	Mendocino	Preliminary permit for 3 years granted. FISH (Fishermen Interested in Safe Hydrokinetics, a broad coalition of groups & communities) requested a rehearing of the decision to grant the permit. Request denied.	Conducting meetings. Six-month progress report due October 31, 2009.	10-100 Pelamis or OPT devices, total capacity of 100 MW	2.5 x 6.9 miles (study area), up to 2.6 miles offshore, 120-390 feet deep.

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Green Wave San Luis Obispo Wave Park* P-13052 Updated: 8/12/2009 Preliminary permit issued 5/7/09	Morro Bay	Preliminary permit issued. Currently developing list of issues and studies to be addressed. Plans to file PAD in April 2010.		10-100 Pelamis or OPT devices with a total capacity of 100 MW.	3.1 x 7.1 miles. 1-3.5 miles from shore, 90-360 feet deep.
Humboldt WaveConnect Project (PGE)* P-12779 Updated: 10/5/2009 Preliminary permit issued 3/13/2008	Eureka/Samoa	According to NMFS, PG&E has begun pre-consultation meetings with the fisheries agencies (Arcata PRD and Santa Rosa HCD, CDFG) and the public to gather siting and environmental baseline information. Goal is to file a draft pilot project application in March 2010 to support environmental review. In July, PGE amended application to substantially reduce study area. No longer in Federal waters.	Will apply for pilot license.	10-20 buoys or other technology, 5 mW	10-20 buoys. 60-600 feet in depth. 2-3 miles from shore.
San Francisco Bay Tidal Energy Project (Golden Gate Energy) P-12585-001 Updated: 8/13/2009 Preliminary permit issued 10/11/2005	San Francisco Bay	Preliminary permit for pilot project found lacking by FERC. FERC dismissed application 1/14/09. FERC may issue subsequent preliminary permit; wants further information from applicant by 2/21/09. Applicant provided information 2/20/09. No action since February 2009.	Awaiting FERC decision on dismissing application.	60 turbines/square mile, 1000 mW	60 turbines per square mile, located on sea floor. Footprint not specified.

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<p>Swave Catalina Green Wave Power Project (SARA, Inc.) * NEW * P-13498 Updated: 8/13/2009</p>	<p>3/4 mile off west coast of Santa Catalina Island, Los Angeles County, between China Point and Ben Westin Point. Not in Federal waters.</p>	<p>Preliminary permit application submitted 6/30/09. NMFS filed motion to intervene in August 2009.</p>	<p>More motions to intervene and comments.</p>	<p>10-40 SWAVE buoys mounted in a staggered array.</p>	<p>Buoys in water 225-300 feet deep. .875 nautical mile footprint. Undersea power cable to the city of Avalon.</p>
Oregon					
<p>Coos Bay OPT Wave Park P-12749 Updated: 8/13/2009 Preliminary permit issued 3/9/2007 PAD submitted</p>	<p>Coos bay</p>	<p>Submitted PAD 3/7/08. Filed progress report 8/20/08. Conducted agency meeting/site visit in November 2008. Comments of ODFW, others, received. ODFW believes planned project is too large. No activity on FERC site since February 2009.</p>	<p>OPT will use the traditional licensing process. Submitted progress report 2/27/09. Conducting various studies, meetings, etc.</p>	<p>200-400 buoys, 100 mW</p>	<p>200-400 buoys in 3-6 rows parallel to the beach, 25-40 fm deep. Currently, 1 mile wide by 5 miles long; eventually smaller. 2.5 miles from shore.</p>
<p>Douglas County Project (Douglas County)* P-12743 Updated: 8/13/2009 Preliminary permit issued 4/6/2007 PAD submitted</p>	<p>Winchester Bay</p>	<p>Submitted PAD 5/23/08. Conducting studies, meeting with stakeholders. Current aquaculture (oyster) operation in project area has concerns about water quality associated with project. Filed 6-month progress report in April 2009. Looking at potential alternative sites, including north jetty.</p>	<p>Will use the traditional licensing process. Various studies and meetings continuing through 2009.</p>	<p>One jetty-based structure</p>	<p>Varies from other proposed projects in that it is powered by wave-driven air currents created by infrastructure built into existing jetty; installed capacity of 3MW. Applying for 50-year license.</p>

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Oregon Coastal Wave Energy Project (Green Wave)*		Nehalem, Rockaway, Garibaldi, Netarts, Nestucca, and Neskowin.	Progress report filed 5/18/09. Conducting community meetings, consulted with Oregon Wave Energy Trust and Oregon Fishermen's Cable Committee.	Through 2010: Conduct meetings, studies, etc.	Buoys, 20-180 mW (total)	N/A
P-13047	Updated: 8/13/2009					
Preliminary permit issued	5/23/2008					
Principle Power Offshore Wind Project		Off Oceanside & Netarts, OR <i>In Federal waters</i>	9/26/08 - Tillamook Intergovernmental Development Agency and Principle Power signed MOU for phased development off offshore wind plant. 11/24/08 - signed MOU with Tillamook PUD.	Need MMS lease/license. Plan to begin Phase II expansion by 2012.	30 wind turbines, 5 MW each	Project will begin with a single WindFloat floating turbine (243 feet); eventually plan to expand to "an entire offshore wind farm, covering 12 to 15 square miles and capable of generating 150 to 200 megawatts."
MMS project	Updated: 8/13/2009					
Reedsport OPT Wave Park*		Reedsport	Filed 6-month progress report in July 2009. Has conducted consultations with NFMS on draft license application. Began discussions with property owner re leasing transmission cable route.	Will use TLP. Plans to file all relevant permitting applications by end of 2009. Plan to have settlement agreement signed by all parties by January 2010.	10 buoys, up to 4.14 mW per year	Depth: 204-225'. Footprint: 0.25 sq. miles, sandy bottom.
P-12713	Updated: 8/13/2009					
Preliminary permit issued						
PAD submitted						

Washington

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Admiralty Inlet (Snohomish PUD)* P-12690 Updated: 8/13/2009 Preliminary permit issued 3/9/2007 PAD submitted	Admiralty Inlet, Puget Sound	Submitted PAD 1/31/08. Filed progress report in July 2009. Conducting meetings and consultations with various communities, tribes, and agencies (including NMFS). Deployed instrumentation to characterize the physical and biological environment in the Admiralty Inlet area. Conducted survey cruises as well. Have selected technology developer (OpenHydro Group Ltd.) and marine engineering contractor.	Conducting another survey in August 2009. Plan to submit draft license application in January 2010. Making plans for draft biological assessment.	1-5 turbines (type unknown), up to 5 mW	Bay/estuary habitat; 60-100 m deep; bottom is scoured pebbles and sand; much shipping & commercial traffic.
Deception Pass (Snohomish PUD)* P-12687 Updated: 8/13/2009 Preliminary permit issued 3/1/2007 PAD submitted	Deception Pass, Puget Sound	Submitted PAD 1/31/08. Filed progress report in July 2009. Conducting meetings and consultations with various communities, tribes, and agencies (including NMFS).	Plan to submit draft license application in January 2010.	Turbines (type, number unknown), 3 mW	Bay/estuary habitat; 30 m deep; rocky seafloor; mainly recreational use.
Grays Harbor Ocean Energy and Coastal Protection (Washington Wave Co.) P-13058 Updated: 8/13/2009 Preliminary permit issued 7/31/08	Grays Harbor <i>Possibly Federal waters</i>	Progress report filed July 2009. Have been conducting various agency & stakeholder meetings; "project proceeding as planned."	Plan to apply for a pilot license by July 2010.	12 oscillating water column units, 6MW (Eventually, wind turbines & buoys, 168-418 mW)	Up to 28 square miles. 1-3 miles offshore, 10-70 feet in depth. West of Ocean Shores and Westport.

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Green Hydropower Chief Joseph Project (inland waters) * NEW *		Just below Chief Joseph dam near Highway 17 bridge (salmon habitat)	Applied for preliminary permit 6/19/09.	FERC asked Bureau of Reclamation whether they believe a non-federal project is authorized at the site. Waiting for response.	One Sea Anchor Tidal Power device	An in-stream power device pilot project; device could potentially be used in saltwater applications as well. In salmon habitat.
P-13525	Updated: 8/13/2009					
Green Hydropower Grand Coulee Project (inland waters) * NEW *		One quarter mile below Grand Coulee dam.	Applied for preliminary permit 6/19/09.	FERC asked Bureau of Reclamation whether they believe a non-federal project is authorized at the site. Waiting for response.	One Sea Anchor Tidal Power device	An in-stream power device pilot project; device could potentially be used in saltwater applications as well.
P-13522	Updated: 8/13/2009					
Green Hydropower Rocky Reach Project (inland waters) * NEW *		On the Columbia River just below the Rocky Reach dam. (Salmon habitat)	Application for preliminary permit submitted 7/07/09. On 8/06 FERC notified Green Power that their application was deficient (needs more data about location and technology) and gave them 30 days to respond.	Green Power to respond to FERC; expect FERC to consult with Bureau of Reclamation about use of site.	One Sea Anchor Tidal Power device	An in-stream power device pilot project; device could potentially be used in saltwater applications as well. In salmon habitat.
P-13534	Updated: 8/13/2009					
Guemes Channel (Snohomish PUD)		Guemes Channel, Puget Sound	Submitted PAD 1/31/08. Filed progress report in July 2009. Conducting meetings and consultations with various communities, tribes, and agencies (including NMFS).	Plan to submit draft license application in January 2010.	Turbines (type, number unknown), 3.5 mW	Bay/estuary habitat; 15 m. deep; gravel seafloor; commercial shipping traffic.
P-12698	Updated: 8/13/2009					
Preliminary permit issued	2/22/2007					
PAD submitted						

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San Juan Channel (Snohomish PUD) P-12692 Updated: 8/13/2009 Preliminary permit issued 2/22/2007 PAD submitted	San Juan Channel, Puget Sound	Submitted PAD 1/31/08. Filed progress report in July 2009. Conducting meetings and consultations with various communities, tribes, and agencies (including NMFS).	Plan to submit draft license application in January 2010.	Turbines (type, number unknown), 6.8 mW	Bay/estuary habitat; 135+ m. deep; gravel seafloor; commercial fishing use (salmon)
Spieden Channel (Snohomish PUD) P-12689 Updated: 8/13/2009 Preliminary permit issued 2/22/2007 PAD submitted	Spieden Channel, Puget Sound	Submitted PAD 1/31/08. Filed progress report in July 2009. Conducting meetings and consultations with various communities, tribes, and agencies (including NMFS).	Plan to submit draft license application in January 2010.	Turbines (type, number unknown), 8.3 mW	Bay/estuary habitat; 80 m. deep; gravel seafloor; commercial fishing use (salmon)

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DEFUNCT PROJECTS						
California						
Centerville OPT Wave Energy Park*		Eureka	Permit surrendered 5/29/09 "to focus on Coos Bay & Reedsport projects."		40-80 buoys, 20 mW	7.025 square miles, 2.5 miles offshore.
P-13075	Updated: 8/13/2009					
<i>Defunct</i>	6/27/2008					
Fairhaven OPT Wave Power Project		Eureka	Competing application in same location chosen over this one.		40-80 buoys, 20+ mW	.5 mile wide by 4 miles long (n/s), 22-26 fm
P-12780	Updated: 3/27/2008					
<i>Defunct</i>						
Humboldt County Wave Project (PGE)*		Trinidad	Preliminary permit surrendered.		Unspecified; 100 mW	Research area: 8 square miles; final size between 2-3 square miles. 20-40 fm (120-240 feet). 2-4 miles off shore
P-12753	Updated: 3/19/2009					
<i>Defunct</i>						
Mendocino Wave Energy Project (Chevron)		Fort Bragg	Application withdrawn 8/31/07. Apparently the "lengthy approval process" in California led Chevron to pursue an opportunity in Alaska instead.		Pelamis machines, 2-60 mW	Unknown
P-12806	Updated: 1/15/2008					
<i>Defunct</i>						
Mendocino WaveConnect Project (PGE)*		Fort Bragg	According to NMFS, PG&E plans to cancel this project because the harbor was determined to be unsuitable (too dangerous) to barge big machinery back and forth.	Planning for environmental and technology studies. Working with CH2M Hill on work plan.	Buoys or other technology, 40 mW	Research area: 68 square miles. 60-600 feet in depth. 0.5 to 6 miles from shore.
P-12781	Updated: 5/21/2009					
<i>Defunct</i>	3/13/2008	<i>Possibly Federal waters</i>				

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San Francisco Ocean Energy Project (Grays Harbor Ocean Energy)* P-13308 Updated: 8/13/2009		20-30 miles off the coast, west of San Francisco, on the Outer Continental Shelf, within the boundaries of the Gulf of the Farallones NMS. Not visible from shore.	Permit dismissed by FERC 4/17/09 because this is on the outer continental shelf and now under the jurisdiction of MMS.	Would continue under the jurisdiction of MMS, but MMS cannot issue leases in marine sanctuaries. "There will be no project unless the Sanctuary managers decide to allow it and develop their own regulatory system, which seems unlikely."	100 WECs; may also use wind turbines on the WECs. May use oscillating water column technology.	Seafloor is sand, gravel, and mud. Considering using structures as artificial reefs.
<i>Defunct</i>		<i>Federal waters</i>				
Sonoma Coast Hydrokinetic Energy (Sonoma Co.) P-13076 Updated:		Sonoma Co.	Rejected - area too large, technology not specified.		?	N/A
<i>Defunct</i>						
Oregon						
Columbia River project (Oregon Tidal Energy Co.) P-12672 Updated: 3/27/2008		Lower Columbia River	Preliminary permit surrendered - "insufficient development potential exists for either a full development or tidal project."		TISECs	River bottom.
<i>Defunct</i>						
Coos County Wave Project (Finavera) P-12752 Updated: 6/2/2008 4/26/2007		Bandon	Permit cancelled 6/26/08 because no progress report or PAD was filed.		Buoys, 100-300 mW	5.5 square mile water footprint, 1.6 miles e/w by 3.4 miles n/s.
<i>Defunct</i>						
Florence Wave Park Project (Energetech) P-12793 Updated: 3/27/2008		Florence	Proposal withdrawn - no reason given.		Oscillating water column technology, 10 mW	Each structure's footprint is 35x15 meters, not counting cables. Structures extend 7 meters above water and 15 below.
<i>Defunct</i>						

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Lincoln County Wave Energy Research & Demonstration Center (Lincoln Co.) P-12727 <i>Defunct</i>	Updated: 5/5/2008	Lincoln County	Dismissed by FERC		Various.	Unknown
Newport OPT Wave Park P-12750 <i>Defunct</i>	Updated: 5/21/2009	Newport/ Waldport <i>Possibly Federal waters</i>	Preliminary permit surrendered 4/15/2009 in order to focus on Coos Bay and Reedsport projects.	Licensee must develop NOI and PAD by 1/29/10	200-400 buoys, 100+ mW	200-400 buoys in 3-6 rows parallel to the beach. 3.5 miles wide (e/w) by 5 miles long (n/s); eventually as little as 0.4 miles by 3.1 miles, 20-35 fm, 3-6 miles off coast of Lincoln County
Washington						
Agate Passage (Snohomish PUD) P-12691 <i>Defunct</i> PAD submitted	Updated: 5/21/2009	Agate Passage, Puget Sound	Surrendered preliminary permit 10/07/08	Defunct	Turbines (type, number unknown), 0.4 mW	Bay/estuary habitat; 10 m. deep; sand/gravel floor; used by pleasure craft
Makah Bay Offshore Wave Energy Pilot Project (Finavera)* DI02-3 <i>Defunct</i>	Updated: 2/11/2009	Makah Bay (Neah Bay)	Five-year license issued December 21, 2007.	Finavera withdrew project in order to focus on wind energy.	1 buoy, 1 mW	60x240 feet at ocean surface; 625x450 feet at ocean floor. Sandy bottom with rocky outcroppings.
Rich Passage (Snohomish PUD) P-12688 <i>Defunct</i> PAD submitted	Updated: 5/21/2009	Rich Passage, Puget Sound	Surrendered preliminary permit 10/7/08.	Defunct.	Turbines (type, number unknown), 1.4 mW	Bay/estuary habitat; 15-22 m deep; gravel seafloor; commercial & naval traffic.

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Tacoma Narrows (Tacoma Power) P-12612 <i>Defunct</i>	Updated: 2/18/2009	Tacoma Narrows, Puget Sound	Doing feasibility studies. Issued progress report 7/30/08. Found that tidal power in Tacoma Narrows may not be economically or technically feasible at this time. Independent analysis underway, but permit will probably expire with no further action.	Prelim permit issued 2/22/06; expressed intent to use pilot process; but now looks unfeasible.	Up to 64 turbines, 1-20 mW	In estuary (HAPC). Footprint unknown.
Willapa Bay Tidal Energy Plant Water Power Project (Natural Currents)* P-12729 <i>Defunct</i>	Updated: 8/13/2009	Willapa Bay	Permit canceled because applicant did not file NOI and draft permit application.		1-3 turbines (Red Hawk-2), 1-2 mW	825 meters SSW of State Road 105, 365 m offshore. Footprint unknown. Estuarine habitat. Aiming for installation in 2010.

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DEFUNCT PROJECTS						
California						
San Francisco Oceanside Wave Energy Project (City and County of S.F.)	P-13779	Updated: 8/13/2009	Eight miles west of San Francisco in the "exclusion zone" of the Monterey Bay National Marine Sanctuary (the area excluded from the sanctuary), near the outfall of a waste water treatment plant (therefore minimizing project impacts).	FERC dismissed application 4/30/09 because it is on the outer continental shelf and MMS now has jurisdiction.	Applicant must get a lease from MMS first, and then apply for a FERC license.	Not yet determined. Looking at several fully submerged devices.
			<i>On hold (MMS project)</i>	<i>In Federal waters</i>		
Ventura Ocean Energy Project (Grays Harbor Ocean Energy)*	P-13309	Updated: 8/13/2009	20-25 miles off the coast, on the Outer Continental Shelf (but elsewhere in the application it says 5-10 miles offshore). Not visible from shore.	Permit dismissed by FERC 4/17/09 because this is on the outer continental shelf and now under the jurisdiction of MMS.	Project currently on hold or defunct because of change to FERC rules. No indication on their website of pursuing project under MMS. Would have to get MMS lease and then re-apply to FERC.	100 WECs; may also use wind turbines on the WECs. May use oscillating water column technology.
			<i>On hold (MMS project)</i>	<i>Federal waters</i>		

DEFUNCT PROJECTS