Comments on Coastal Nearshore and Offshore Leases and Related Applications For OCS Project Studies and Energy Development, Mendocino County 05/22/08

From:
Thomas DiFiore
POB 281 Little River, Ca 95456
707-937-4378
iamtomas@mcn.org

To:
Minerals Management Service

In Response To:
Notice of Nominations Received and Proposed Limited Alternative Energy Leases on the Outer Continental Shelf (OCS) and Initiation of Coordination and Consultation
On November 6, 2007, the Minerals Management Service (MMS) published in the Federal Register (72 FR 214, pp. 62673-62675) a request for information ... as of 05/22/08 the corrected Docket from

http://www.regulations.gov/fdmspublic/component/main?main=SubmitComment&o=090000648053d4aa

"This correction is effective immediately upon publication of this Notice. The 30-day and 60-day comment periods identified in the original Notice shall be deemed to commence upon the publication of this correction Notice" (April 30th, 2008).

Beginning with CEQA and the CPUC, then current monitoring programs and science, a review of California RPS, carbon offset trading, previous PG&E/Calpine bankruptcies and non-accountability, corporate hegemony of natural resources, misuse of both ratepayer and State tax revenues, Ocean protection, renewable food resources, local economic and environmental impacts, current baseline studies, cultural historic experience vs the half truths of PG&E ... these comments are submitted into the record per:

Minerals Management Service - Docket No. MMS-2008-OMM-0020-0002

In the April 29, 2008 CALIFORNIA PUBLIC UTILITY COMMISSION'S DRAFT INTERIM OPINION AUTHORIZING EMERGING RENEWABLE RESOURCE PROGRAMS ...
"only $2 million of PG&E's requested $6 million for its wave energy (WaveConnect) project is authorized at this time pending further review by the TRP consultants and approval by ED [Executive Director of PUC]." Page 3

CPUC CEQA RULES
* Rule 2.4 (CEQA Compliance)

(a) Applications for authority to undertake any projects that are subject to the California Environmental Quality Act of 1970, Public Resources Code Sections 21000 et seq. (CEQA) and the guidelines for implementation of CEQA, California Administrative Code Sections 15000 et seq., shall be consistent with these codes and this rule.
(b) Any application for authority to undertake a project that is not statutorily or categorically

exempt from CEQA requirements shall include a Proponents's Environmental Assessment (PEA). The PEA shall include all information and studies required under the Commission's Information and Criteria List adopted pursuant to Chapter 1200 of the Statutes of 1977 (Government Code Sections 65940 through 65942), which is published on the CPUC Internet website.

(c) Any application for authority to undertake a project that is statutorily or categorically exempt from CEQA requirements shall so state, with citation to the relevant authority.

* Information and Criteria List: The California Public Utilities Commission has adopted an Information and Criteria List in order to determine whether applications for projects are complete This list specifies the information required from any applicant for a project subject to the California Environmental Quality Act (CEQA), Ca. Pub. Res. Code Sections 21000 through 21176, or for development project subject to Cal. Gov. Code Sections 65920 through 65957. Submission of this information is necessary before an application can be determined to be complete.

How do the CEQA - Applications for authority to undertake any projects affect the criteria and project parameters for PG&E's WAVE Connect application? Are the communications regarding the new Oct 2006 CEQA rules between PG&E and the MMS available for public review? How can they be obtained? What criteria were used to define whether or not PG&E's WAVE Connect Study Project is a 'Project' under the new October 2006 rules? Does MMS have CEQA review authority over the CPUC?

From as far away as San Diego County, "We want an accountable, publicly responsible trading mechanism," said State Senator Christine Kehoe (D) San Diego. Southern California State Senator Christine Kehoe is among those who think the state is putting the cart before the horse. She worries that big polluters will simply buy up credits and never reduce their emissions.

"The question: Is trading carbon back and forth really the ability to pollute, are we going to bring down our greenhouse gas emissions fast enough and are the big polluters truly going to make the improvements they need to clean up," said Sen. Kehoe. Senator Kehoe says more regulation is needed to ensure carbon reductions will be made before any market is created.

Has MMS considered the merits of the natural carbon sink of the ocean offshore, the benthic layer depth, and the erosion that flowed seaward from 150 years of logging and burning (atmospheric deposition), offshore of what were once the largest terrestrial carbon sinks the Ancient Redwood forests?

What is the economic added value potential to the State and County of Mendocino in the new energy market of pollution regimes and carbon equivalence cap and trade offsets? Forests are already used within the State to offset carbon equivalence pollution. How will spatial requirements of overlapping multiple uses of the benthic layer of the OCS be structured? This

would include impacts to gray whale migrations and feeding (gray whales feed on their right side and scoop up the top benthic layer, filtering it with their baleen). *Gray Whale Obstacle Course –From the summer Arctic waters to winter in Mexico. A film by Jean-Michel Cousteau*

While I earnestly agree with the response to FERC's acceptance of several preliminary permit applications for hydrokinetic energy projects on the OCS off the coasts of California and Oregon, MMS filed formal protests with FERC citing specific points of contention. MMS indicated that it believes FERC jurisdiction does not extend to the OCS for three reasons and requested that the agency reject the application in question and stop processing preliminary permits for similar projects on the OCS.
MMS, *Protest of the United States Minerals Management Service*, FERC Docket P-12752-000 (January 30, 2007); MMS, *Protest of the United States Minerals Management Service*, FERC Docket P-12750-000 (February 20, 2007); and MMS, *Protest of the United States Minerals Management Service*, FERC Docket P-12753-000 (March 2, 2007).

Formally, the OCS is governed by Title 43, Chapter 29 "Submerged Lands", Subchapter III "Outer Continental Shelf Lands", of the U.S. Code. The term "outer Continental Shelf" refers to all submerged lands, its subsoil, and seabed that belong to the United States and are lying seaward and outside of the states' jurisdiction, the latter defined as the "lands beneath navigable waters" in Title 43, Chapter 29, Subchapter I, Section 1301.

Is it not true that proposed offshore development are within California State Waters seaward limits extending 3 international nautical miles (5.556 km/3.452 statute miles) seaward of the baseline from which the breadth of the territorial seaward is measured? Thus the landward boundary of the outer continental shelf is a legal construct rather than a physical construct, modified only at intervals by appropriate processes of law.

How is it then that PG&E's proposed project area, off Fort Bragg, which lies within the State of California Waters jurisdiction, and proposed seafloor construction including (buried) cable which impact the Navigable Waters of the State of California and are thus under the State's Jurisdiction, have come to be administered by MMS?

In regards to MMS and the OCS application review process itself:
On the East Coast, the Cape Cod Wind Farm (Cape Wind) proposal review by MMS has not proved to be any kind of attempt to produce a quality document*. Given these apparent inadequacies, what events on the East coast and results of the Cape Cod/MMS process and response by the public would provide a level of confidence in any research review by MMS?
By Patrick Cassidy
STAFF WRITER Cape Cod Times April 23, 2008

More than 40,000 individuals and organizations have submitted comments on an environmental review of the wind farm proposed for Nantucket Sound, according to federal officials.

"I've never seen anything like this before," said Rodney Cluck, Cape Wind project manager for the U.S. Minerals Management Service, the lead federal agency to review Cape Wind Associates' plan to build 130 wind turbines in the sound.

No other project reviewed by the agency during Cluck's 11 years with MMS has received as much attention, he said. The final number of public comments submitted on the agency's Cape Wind draft environmental report has yet to be tallied. A 2005 report on the project issued by the U.S. Army Corps of Engineers received one-tenth the number of comments the MMS document has so far.

Despite the difference in magnitude, there were similar criticisms leveled against the MMS and Army Corps of Engineers documents.

The MMS report took hits for conclusions drawn from studies of other projects, analysis of the impact of construction noise and alternatives considered in the document. The report, which was released in January, found little environmental impact across 117 areas under consideration.

Some federal agencies requested more information on the project and called parts of the report inadequate.

"At the very least, the (report) should explain why recommended studies and analyses were not conducted and the ramifications of not having that information," Michael Bartlett, supervisor for the New England Field Office of the U.S. Fish and Wildlife Service, wrote about bird and fisheries research in a letter sent to MMS on Monday.

The Alliance to Protect Nantucket Sound, the project's most vocal opponent, enlisted 40 experts to review the report and produced a 3,000-page critique, the organization's president, Glenn Wattley, said yesterday.

"Part of the dilemma here is that after three years the MMS hasn't produced a higher quality document," Wattley said, comparing the Army Corps review and the MMS report.

MMS took over the review of Cape Wind from the Army Corps as part of the Energy Policy Act of 2005.

The following 25 pages are comments specific to:
Minerals Management Service - Docket No. MMS-2008-OMM-0020-0002
and
CPUC Docket # (Included by reference)
Proceeding Number: A0707015
Status: Active

1) What is the overlap of PGE's ERRP funded studies and the:

Cooperative Research and Assessment of Nearshore Ecosystems (CRANE)

In 2001, the CDFG and more than 15 universities and governmental agencies began to plan a cooperative sampling effort to provide information for managing California's nearshore rocky reef fish and invertebrate populations as well as information that can be used to evaluate rocky reef ecosystems as a whole. Specifically, the objectives of the sampling are: 1) to estimate the density of nearshore fish and invertebrates that are subject to fisheries, 2) to measure the size structure of these populations, and 3) to measure habitat and ecosystem components that can be associated with changes in density and size distributions over space and time. The goal is to sample approximately 90 sites in California from Oregon to the Mexican border. Divers will survey depths from 6 to 20m. If techniques for taking measurements with Remotely Operated Vehicles (ROVs) are validated, a subset of the sites will be surveyed to a depth of 100 m.
In 2002, the CDFG focused on technique development and validation for the surveys. To measure the variability of diver estimates and the power of the sampling to detect changes over space and time, repeated sampling was conducted over a period of 4 to 6 weeks at two sites. A draft report on the results of this work will be issued in June 2003. For ROVs, we are developing automated techniques for measuring transect length and width in order to reduce post-processing costs. We are also measuring the precision of estimates of fish size and density.

The newly adopted MPAs were implemented on April 9, 2003. They consist of 12 individual areas encompassing approximately 142 square nautical miles of State waters around the Channel Islands. Ten of the areas are State Marine Reserves where take of living, cultural, and geological resources is prohibited without a special permit. These ten areas encompass 132 square nautical miles. Two of the areas are State Marine Conservation Areas. One allows the commercial take of spiny lobster and the recreational take of lobster and pelagic finfish. The other allows only the recreational take of lobster and pelagic finifish.

An important part of the management of these new MPAs will be monitoring. With that in mind, the CDFG has taken several steps to ensure that the biological, social, and economic effects of the MPAs are measured over time. A comprehensive list of existing biological monitoring programs has been compiled and is available on the CDFG's Marine Region Web site. Input on potential monitoring programs was received by more than 100 representatives from the scientific, fishing, and environmental communities who joined the CDFG and other agency staff at a workshop. Participants split into focused groups discussing biological, social, and economic monitoring.

Has PG&E researched and acquired for the use of evaluation, validation and/or monitoring parameters, other associated scientific studies of the California, and Oregon coastlines and OCS to see how the study project area overlaps current data and historic use and the cummulative impacts of historic use (including economic) both nearshore and offshore? Current economic activities & cultural activities? Studies and recorded data from NOAA, CalTrout, CDFG, NASA, local native tribes, immigrants, geological and marine estuarine influences?

2) Results from CSCAPE (ongoing) show possible changes in species distribution, sometimes moving closer to immediate offshore waters. The potential to interfere with the California Upwelling Current nearshore and offshore is great due to slower movement of ocean energy between 'wave farms' and shore. This slower movement will likely lead to temperature increases having potential negative effects on salmonid fisheries restoration/recovery and all previous revenues spent through Senate Bills subsequent to the 1997-1998 Salmon and Steelhead Trout Restoration Account (sponsored by) Senator Mike Thompson's and many Stream Restoration Funds in NW California.

Potential effects of a slower and warmer gentler tide/waves onshore and nearshore as suggested* may include anomalies of near surface temperature and salinity, nitrate, chlorophyll and primary production anomalies.

*PG&E and EPRI favor the Pelamis: *according to EPRI*
"It is estimated that with current projections, a large wave energy facility with a maximum density of devices would cause the reduction in waves to be on the order of 10 to 15%, and this impact would rapidly dissipate within a few kilometers, but leave a slight lessening of waves in the overall vicinity. It is estimated that this will translate to a 5% decrease in wave height at shore."

The Pelamis Wave Energy Converter, is a floating wave device that generates 750 kW, enough energy to power over 500 homes. The device, **measures 140 m in length, 3.5 m diameter**, and **weighs 750 tons**, The machine operates utilizing the articulation of wave energy, which is transmitted through hydraulics, run through the accumulator, to the turbine and into the generator. **40 units** in an area of ocean??? Within view of the coastal bluffs?

And the Aquabuoy by Finavera? **76 feet overall height, 70' below the surface, weighs 75 tons.** Numerically the numbers and ocean space required is staggering and together pose risks that are cummulative and increase perils and impacts to marine and estuarine flows, food chain, even at the intertidal zone and the seaweeds (an added value resource of the Mendocino Coast supporting 5 local businesses and employees, gathering a nutritious food resource).

FERC 2007a
PG&E Mendocino WaveConnect Project Off the coast of Mendocino County, CA
40–200 wave generators, 40 MW

PG&E Humboldt WaveConnect Project Off the coast of Humboldt County, CA
8–200 buoys, 200 kW to 1 MW each

Mendocino Wave Energy Project Off the coast of Mendocino County, CA
2–60 devices, 2–60 MW

From: STATE OF THE CALIFORNIA CURRENT CalCOFI Rep., Vol. 47, 2006
The Fishery Ecology Division of the Southwest Fishery Science Center has conducted a standardized midwater trawl survey during May–June aboard the NOAA R/V *David Starr Jordan* every year since 1983. Historically, the survey was conducted between 36°30'–38°20'N latitude (Carmel to Bodega Bay, California), but starting in 2003, coverage has expanded to effectively sample the entire coast of California.

California Current System: Summer/Fall 2005.

During CSCAPE surveys, a total of 12,954 km were surveyed systematically using standard line-transect protocols, resulting in 1,498 sightings of 21 cetacean and 5 pinniped species. The diversity of species was comparable to previous years; however the distribution of a few species differed notably. Northern fur seals (*Callorhinus ursinus*), which are commonly found at least 50 km from shore, were unusually abundant within 10 km of the central California coast during July. Fin whales (*Balaenoptera physalus*) were encountered more frequently than during previous years, and a greater number of fin whales were seen in northern offshore waters than during previous surveys, particularly compared to the 1990s

Blue whales (*B. musculus*) were also distributed more widely throughout the study area than in previous years. This may have been related to the poor recruitment of their euphausiid prey in nearshore foraging areas during 2005. As in previous years, humpback whales (*Megaptera novaeangliae*) were concentrated in nearshore waters off central California and Oregon-Washington. They were observed foraging primarily on dense aggregations of small pelagic schooling fish, particularly in nearshore regions where small cetaceans that feed on fish and cephalopods were also abundant, including Pacific white-sided dolphin (*Lagenorhynchus obliquidens*), northern right whale dolphin (*Lissodelphis borealis*), Risso's dolphin (*Grampus griseus*), and Dall's porpoise (*Phocoenoides dalli*).

Although the distributions of cetacean species have varied between surveys, species-environment relationships for some species have been remarkably consistent. For example, the offshore extent of Dall's porpoise off California appears directly linked to the offshore extent of upwelling-modified waters (fig. 50). During all survey years, this species was primarily found in cool, upwelling-modified waters less than about 17°C, while avoiding the coldest, most recently upwelled waters near shore. Further analyses of the CSCAPE results in the context of oceanographic processes are planned in the future, and, combined with the results of other studies in this report, will enhance our understanding of the dynamic nature of the California Current and the marine predators that inhabit this region

Throughout most of the California Current, zooplankton biomass ended the season with anomalously low values. The results of either (or both) delayed upwelling and low zooplankton biomass were reduced catches of juvenile rockfish (lowest catches in 22 years occurred during summer 2005 off central California), poor recruitment of all forage fish off Oregon and Washington (sardines, anchovies, herring, and osmeriids), wide-spread recruitment failure and deaths of seabirds off central California and Oregon, and an apparent redistribution

of leatherback turtles, fur seals, and fin and blue whales. Although most of the California Current was affected by the warming, conditions off Baja California were anomalously cool and both copepod and euphausiid biomass values had strongly positive anomalies. This was true both for coastal and offshore waters. Another factor that could have contributed to the dramatic ecosystem impacts is that the northern California Current has been warmer than normal for the past three years, thus this three-year warming event may have led to chronic stress on animals.

3) In the past, State Tidelands Lands Oil Leases generated funds used for Salmon and Steelhead Trout Restoration Account. In the 2005 Budget Bill, the Legislature provided $8 million from tidelands oil money for fisheries restoration work, but Governor Schwarzenegger used his "blue pencil"to reduce this amount to $4 million.

CalTrout worked with Senator Chesbro's office in an effort to enact the provisions of SB 1125 as part of a package in the 2006 Budget Bill. Sen. Chesbro is the Chair of the Senate Budget Committee and fully appreciates the importance of our salmon and steelhead fisheries to California.

In addition to CalTrout SB 1125 was supported by the following organizations: American Land Conservancy, Cal Coast, California Council of Land Trusts, California Parks Foundation, California Waterfowl Association, Defenders of Wildlife, NRDC, The Ocean Conservancy, Planning and Conservation, Sierra Club, Trust for Public Land.

Chesbro's new bill sought to extend and expand a law originally authored by former State Senator Mike Thompson (D-St. Helena) nine years ago, Senate Bill 271. Before being elected to Congress in 1998, Thompson used his clout as Chair of the powerful Senate Budget Committee and authored SB 271 as a "trailer bill" to the Budget Act of 1997.

It established the Salmon and Steelhead Trout Restoration Account and created a dedicated source of revenue for financing salmonid habitat restoration projects, requiring that $8 million from revenues collected by the State Lands Commission (SLC) from tidelands oil and gas leases be annually allocated to this account through 2003. Funds deposited into the account are annually appropriated by the Legislature in the Budget Bill for expenditure by the Department of Fish and Game (DFG) SB 271 also established a citizen advisory committee, appointed by the DFG Director to provide oversight and make recommendations to the department on various grant and expenditure proposals for the $8 million. Tom Weseloh, CalTrout's North Coast Manager, is a member of this advisory committee now known as the Peer Review Committee.

As originally enacted, the 1997 legislation by Mike Thompson authorized unspecified amounts of tidelands oil revenue to be made annually available for other environmental and natural resource purposes:

DFG review and monitoring of projects subject to the California Environmental Quality Act (CEQA).
Land acquisition projects implementing Natural Community Conservation Plans (NCCPs) in Orange and San Diego Counties.
Habitat Conservation Fund projects.
Non-point source pollution abatement programs at the State Water Resources Control Board and California Coastal Commission.

The Legislature subsequently extended and expanded the provisions of SB 271 to authorize $2.2 million from tidelands oil revenues to be made available to DFG for implementation of the Marine Life Management Act (MLMA), plus $10 million to the State Department of Parks and Recreation for deferred maintenance projects. All of these provisions, including the $8 million for salmon and steelhead trout restoration projects, become inoperative on July 1, 2006, and are automatically repealed as of January 1, 2007.

The use of tidelands oil revenue to pay for natural resource conservation is an appropriate policy for the state to continue. The Legislature embraced this concept when it enacted SB 271 in 1997. SB 271, which is embodied in Section 6217 of the Public Resources Code (PRC), set forth four areas of investment: salmon and steelhead restoration; marine conservation; maintenance of our parks; and a natural resources infrastructure fund for the Department of Fish and Game, water quality, and regional conservation planning. SB 1125 would repeal the sunset on Public Resources Code section 6217, making this provision permanent.

Prior to 1997, most of the money collected from state tidelands oil leases was deposited as revenue in the state General Fund. The purpose of all these **Senate Bills and revenue appropriations** was to **restore the anadromous fisheries** on the North Coast and the fishing industry. It has been only 10 years.

Are all these people's efforts, and politicians' considerations on the floor to be tossed so soon?

One of the most often stated “environmental benefits” put forth concerning offshore WECs and platforms and lease areas in general is that potential conflicts of fisheries with alternative energy facilities exist, because commercial facilities could create large fishing exclusion zones depending on the type of equipment used for the fishing activity (e.g., the exclusion zone could be the entire area of a commercial facility). Also, assuming exclusion of commercial fishing within alternative energy facilities, increased fishing and shipping pressure may occur in areas outside of the facilities because of displacement of these activities from the exclusion areas. Such impacts to commercial fishing would be additive if more than one alternative energy facility were located in a fairly small geographic area. Fishing exclusion zones may also be associated with other activities such as military uses and oil and gas facilities.

What are the overlap areas of fishing exclusion zones from all current and proposed coastal near and offshore development? Other activities and facilities may include (not limited to)

- New energy, defense, telecommunications, MPA's, N&S shipping lanes which necessarily must include projected increases in freighters and research/maintenance ships in support of new energy development on the west coast associated with LNG, and any ocean energy conversion projects.
- WAVEConnect lease area boundaries/field arrays, any other proposed ocean WEC device/platform/arrays on the Mendocino Coast.
- Since most literature on ocean WECs include discussions on desalination the potential for a return of the water privateers seems inevitable. No longer will they have to apply for instream permits. Tug boats and bags off the coast, completely changing the ocean, and the nearshore ecosystem.
- The Department of Business, Economic Development, and Tourism P.O. Box 2359 Honolulu, HI 96804 states upfront – "other applications" pgs. 22,23,24,25.

House Resolution No. 8 (HR 8) - "Requesting the Department of Business, Economic Development, and Tourism (DBEDT) to **Study the Feasibility of Developing Wave Power** as a Renewable Energy Resource for Hawaii," was adopted by the House of Representatives of the Twenty-First Legislature of the State of Hawaii, Regular Session of 2001. This report is the DBEDT's response to HR 8.

From the:
Study of the Feasibility of Developing Wave Power as a Renewable Energy Resource, Hawaii
pgs 22, 23 24, 25, 26

- **Local Economic Development** - Use of wave energy allows the generation of electricity (and other applications) in the local area using a free, indigenous, renewable energy resource.

4) Potential influence from low frequency sound emission and electromagnetic fields in cables. Calculations of magnetic fields from submarine cables dug down one meter under the seabed show that the magnetic field on the seabed above the cable will be smaller than the geomagnetic field. While no impacts are expected if the cables are properly buried, (the geomagnetic field is the constant DC magnetic field surrounding the earth) WEC's produce AC and the transmission magnetic field will be AC. What is the effectual difference to the ocean environment, & fish that use magnetic field strengths for location, i.e. anadromous species?

Electric and magnetic fields around the cables may influence fish and fish breeding, but no research results have yet been found published on these issues, although seabed cables have existed during the last 80 years. This may be seen as an indication of the fact that sea cables have only little or no impact on marine life, but information on the impacts, if measurable, from the many existing seabed cables can be gained from monitoring studies. The **cables connecting wave energy converters, substations and the grid will tend to be buried** to avoid potential damage, for example from anchors or fishing activity.

While not specifically mentioned in the *Alternative Energy Programmatic EIS October 2007*
Chapter 7 ***ANALYSIS OF THE PROPOSED ACTION AND ITS ALTERNATIVES***
Chapter 7.6.2.7 **Electromagnetic Fields**
The use of submarine power cables that generate EMFs is very limited in the United States; cables power some oil and gas platforms and some island communities (see Sections 4.2.7, 4.3.7, and 4.4.7). There is one cable in use that brings power from Connecticut to New York.

According to Sections 5.2.7, 5.3.7, and 5.4.7, EMFs in the vicinity of alternative energy facilities or associated submarine transmission cables would have negligible impacts on human health or aquatic species. The proposed cable systems for alternative energy facilities would be shielded to effectively block the electric field produced by the conductors. Since there are few other power cables on the ocean floor, cumulative EMF impacts from multiple facilities would be negligible (this conclusion also assumes that other cables in use would be required to have shielding, and considers that attenuation of EMFs occurs with increasing distance).

The Energy Information Administration (EIA), a component of the U.S. Department of Energy (USDOE), issues an Annual Energy Outlook each year. In *Annual Energy Outlook 2006 with Projections to 2030* (EIA 2006), the EIA projects that new electrical generating capacity will include a mix of generating technologies. Of the new generating capacity to be added over the period 2004 to 2030, coal-fired plants are projected to account for 50%, natural gas–fired plants 40%, renewable technologies (primarily wind, biomass, and geothermal) 8%, and nuclear 2%. New 'clean coal' plants will add another 7% by 2030.

5) Changes in sedimentation and turbidity of water may impact on fish and fish larvae. This is predominantly a temporary effect during construction. However, these effects may be more important in fish breeding areas or shallow areas, which juvenile fish tend to inhabit and some care may be needed in these areas, such as avoiding breeding seasons. For cables, some guide to the potential level of impact can be taken from the laying of natural gas pipelines. Laying of such pipelines causes a disturbance corridor of around 5 meters, with effects from suspended sediment levels affecting organisms to 50 meters away.

While not specifically mentioned in the *Alternative Energy Programmatic EIS October 2007*
Chapter 7 ***ANALYSIS OF THE PROPOSED ACTION AND ITS ALTERNATIVES***
Chapter 7.1.1 **Construction**
All offshore construction activity will affect the transparency of water and the local bottom sediment. Drilling, trenching, pile- driving or dredging operations during foundation placement and cable-laying will lead to increased loading of suspended solids, which can affect benthic organisms. Similarly, the reinstatement of the trench around the cable or foundation base results in burial of existing habitats for a few meters either side of the structure. Benthic organisms are particularly vulnerable. Though impacts are small, bottom mounted structures tend to act as natural reefs and introduce fauna, however these artificial hard substrates may cause some changes to the biotope structure with consequences regarding benthos and

subsequent food chain that are as yet unclear.
During the disturbance phase, what will be the released carbon trade off? How will this be offset? Over what time frame? PGE & E will need to weight the release of CO2 to the atmosphere upon disturbance to be included in any subsequent RPS . Perhaps even the time of release (seasonal construction) will need to be analyzed and turbidity which may affect algae and plankton blooms having a gross negative effect on the active ocean atmosphere carbon pool and/or cycle. **How will the release of heavy metals and toxins during disturbance be addressed?** What is estimated cubic yards that would be dug from a trench how wide? How long? How Deep? Potential heavy metals and toxins may include but not be limited to:

a) Trace Inorganic Chemical Analysis Nutrients

b) Trace Metals ("Bulk Metal")

In order to determine harbor dredging and cable trenching impacts: specifically include the following metals: mercury, lead, zinc, iron, chromium, copper, arsenic, cadmium, and nickel. In addition, analyses may be requested for cobalt and silver on a site specific basis. All of these are routinely determined by atomic absorption spectroscopy or plasma emission spectroscopy with due consideration for chemical interferences and detection limit requirements and capabilities.

c) Trace Metals (Partial Leaching)

The use of bulk metal analysis simply characterizes the metal composition of the sample, but does not differentiate the geochemical distribution within the various sediment phases with which the metals are associated. The technique of partial chemical leaching can be used to describe the geochemical phase distribution of the metal(s) and has been used to provide an estimate of the bioavailability of the metal.

d) Other Inorganic Compounds

Include cyanide analysis, other inorganic compounds (e.g., organo-leads) may be required.

e) Trace Organic Chemical Analysis

There is an extremely large number of trace organic compounds that are of environmental concern. Many of these compounds may bioaccumulate and are suspected or known carcinogens or carcinogenic precursors.

f) PCB and Organochlorine Pesticides

PCB, BHC isomers, Chlordane (both isomers), DDD, DDT, DDE, Dieldrin, Endosulfan (isomers I, II and sulphate), Endrin, HCB, Heptachlor, Heptachlor Epoxide, Lindane and Methoxychlor.
Must include overspray and atmospheric deposition of all forest herbicides sprayed in the 1960's, 1970's, 1980's, 1990's, the first decade of 2000-2010. MRC still sprays in Mendocino County:
Forest Management and Stump-to-Forest Gate Chain-of-Custody
Certification Evaluation Report for the: Mendocino Redwood Company
Conducted under auspices of the SCS Forest Conservation Program
SCS is an FSC Accredited Certification Body Updated: September 2006 (See Section 6.1)
Glyphosate
Imazapyr
Triclopyr
Sulfometuron Meth

g) Polyaromatic Hydrocarbons (PAHs)

This is a particular sub-group of the aromatic fraction of petroleum hydrocarbons. These compounds are produced by the incomplete combustion of coal, coke, petroleum hydrocarbons and various aromatic

compounds. These compounds are generally considered to be carcinogenic or carcinogenic precursors: acenaphtylene benzo (a) anthracene benzo (b) fluoranthene benzo (ghi) perylene chrysene fluorene indeno (1,2,3,cd) pyrene pyrene anthracene acenaphthene benzo (a) pyrene benzo (e) pyrene benzo (k) fluoranthene dibenz (ah) anthracene fluoranthene naphthalene phenanthrene

h) All GP Mill Site (Fort Bragg) (including previous ownerships -Union Pacific,) toxins, residues, solvents, petrochemicals and paints that may have leached into the ocean and are now offshore under a benthic layer.

I) Miscellaneous Analyses

Analyses for chemical determinations (metals, nutrients, organics) should be made using a method that achieves the smallest, most accurate detection unit/limit.

6) Actual saving in emissions depends to a large extent on the mix of types of power generation for an individual country or region and the type of plant replaced. Any calculations on emissions savings must look realistically at the type of power generation likely to be replaced, and not just assume that the most polluting will be shut down.

Emissions associated with the manufacture of materials and components are dependent on industrial practices, the generation mix and pollution control regime in the country of manufacture. Given these parameters, PG&E has many studies to complete without ever getting in the water. PG&E, with complete transparency, must show in good faith, a chart/graph and text description of it's renewable energy portfolio

Despite the claim that Wave Energy is a renewable energy that produces no greenhouse gases or other atmospheric pollutants **while generating electricity**, environmental benefits will arise from the avoidance of typical electrical generation pollutant gasses. There is no foreseeable plan for reduction or preservation of raw materials like gas and coal. The actual saving in emissions and conservation/use of raw materials will of course depend on the ability of a particular WEC device to penetrate the wave energy market, and on the type of energy that is replaced by wave energy.

For wave energy technologies, the typical stages of the life cycle are:
Resource extraction;
Resource transportation;
Materials processing;
Component manufacture;
Component transportation;
Plant construction;
Plant operation;
Maintenance;
Decommissioning;
Product disposal.

Ideally, each of the life cycle stages listed above should be considered, in order to evaluate the total emissions from the life cycle of the technology. **And how long is the estimated life cycle of the WAVE-CONNECT hub/substation?** Additional extensions or hubs may be required opening up again the question of scale, ocean environment impacts, and carbon footprint. What upgrades at the GP mill site connect/station will be needed as wave energy is as variable as wind in terms of actual time scale energy production?

Electric Power Research Institute, an industry-supported think tank based in Palo Alto, California, judged the Pelamis one of the wave-energy systems advanced enough for use in trials scheduled for the waters of California. One can only imagine the sight—40 red serpents undulating in the sea, churning out 12 megawatts of power. Ocean Power Technologies (now Pelamis Wave Power Ltd. September 2007) engineers say that 40 sea snakes spread across 250 acres would supply enough electricity to feed as many as 20,000 households. *Current production machines are 140m long and 3.5m in diameter, 750 tons, with 3 power conversion modules per machine - (attenuators) states the MMS White Paper on WAVE Energy Potential On The US OCS.*

Each machine is rated at 750kW. The energy produced by Pelamis is dependent upon the conditions of the installation site. Depending on the wave resource, machines will on average produce 25-40% of the full rated output over the course of a year. "The EPRI wave energy feasibility demonstration project has selected the Pelamis as one of the technologies for design, performance, cost, and economic assessment (Bedard et al. 2005).Sites for evaluation were selected off the coasts of Hawaii (15.2 kW/m average annual wave energy), Oregon (21.2 kW/m), California (11.2 kW/m), Massachusetts (13.8 kW/m), and Maine (4.9 kW/m)".

7) *Alternative Energy Programmatic EIS October 2007*

Chapter 7 ANALYSIS OF THE PROPOSED ACTION AND ITS ALTERNATIVES

Chapter 7.1.2 Alternate Use of Oil and Gas Platforms

Impacts from alternate use of existing oil and gas platforms include fisheries enhancement and economic benefits to both platform operators and government agencies involved in natural resource protection. Platform removal is costly. Removal costs can be reduced by finding alternate uses for platforms. As discussed in Chapter 6, removal of a platform structure from the OCS would result in destruction of the ecological system developed around the invertebrate species and plant life that envelop a platform's structure after emplacement. This ecological system includes smaller fish feeding on plant life up to other marine life, including mammals and predator fish feeding off the smaller fish species, resulting in enhanced recreational and commercial fishing opportunities. With proper implementation, alternate uses of oil and gas platforms are expected to result in negligible to minor impacts.

Decommissioning and/or complete removal of all WEC devices and any and all pertinent infrastructure from the ocean as was discussed **01/19/08** meeting called WAVEConnect in Fort Bragg is of special concern and non-negotiable.

As shown also in a letter to CPUC: September 11, 1998
Bruce Kaneshiro CPUC EIR Project Manager
c/o Environmental Science Associates
225 Bush Street, Suite 1700
San Francisco, CA 94184-4207

Re: Proposed Divestiture of Electric Generation Assets by Pacific Gas and Electric Company Application No. 98-01-008

Dear Mr. Kaneshiro:

On behalf of the seven thousand Sierra Club members of the Redwood Chapter, we are commenting on the Draft Environmental Impact Report for the Divestiture of PG&E's 14 Power Plants at The Geysers.

Decommissioning cannot be dependent upon the absence of an approved alternate use, OCS oil and gas facilities would have to comply with the existing requirements under 30 CFR 250, Subpart Q, Decommissioning Activities.

PG&E put their Geysers Plants up for sale due to deregulation passing on unaccountability for the toxics left behind.
...13)On pg. 2-6 the sale of the power plants is to occur under the following terms and conditions, "The Geysers Power Plant will be offered for sale through a competitive bidding process to buyers who are qualified to ensure that the plant operates when needed for system reliability, and, when no longer needed, to conduct any required decommissioning in a responsible manner." Please give specific qualifications by which actions are to be ensured. What are the **specific study tasks** that they will conduct in order to **decommission** in a responsible manner? Decommission may include storm debris, sunken WEC devices and arrays.

Financial impacts on the environment are significant because of the potential that bankruptcy and insufficient bonds will result in an inability to clean up the environment. If a single owner, such as a steam field leaseholder, purchases a plant, then their capital is sunk deeper into the same potentially insolvent generation unit. Please see the results of the Geo Operator Corporation bankruptcy that resulted in 24 leaking wells in 1997 in Sonoma and Mendocino Counties. Geo's bonds were inadequate and could only address one well head in Mendocino, leaving the remaining 23 wells to be repaired with County and State funds of over $2 million. The wells had to be replugged because of leaking hydrogen sulfide killing any living thing within hundreds of yards. (4/11/97 Final Report on GEO Abandonment filed with Sonoma County Planning Dept. and available in local libraries.)

Steps should be included that would require a bonding requirement of any facilities by new owners to a level that would ensure that decommission and habitat restoration is done correctly and completely. This should be extended to address all directly related environmental damage. In addition, sufficient funds should be collected from plant operators to provide for inspections and monitoring by an independent party responsible to the public.

And previous ... Sierra Club to Bruce Kaneshiro CPUC EIR Project Manager

...3) The DEIR's alternatives analysis must consider decommissioning of the project plant(s) as one of the reasonable and feasible alternatives. (Id., 15126(d).) One reason alone would be the effect of Proposition 9. According to the Analysis of the California Energy Commission's "Preliminary Analysis of the Utility Rate Reduction and Reform Act", rate levels for residential customers of PG&E would plunge 26 percent starting in January, 1999. PG&E would be impacted due to a $2.9 billion debt for the Diablo Canyon plant in addition to The Geysers plants, including debts for Units 21, 22, 23 and 24 which were never built. Another reason you give on pg 3-7 is that "PG&E would not be required to sell its plants, and it is not certain that the plants would be sold" thus leaving it open ended to financial decisions to decommission.

8) The subject of marine growth is an important area both regarding marine growth inside the turbines and regarding marine growth in general. The systems will have to be treated and maintained in order to avoid the expected reduced efficiency over time. Evasion technologies, which are available e.g. within the ship industry, must be neutral to environment (marine fauna and flora, quality of water) according to the International Convention on the Control of Harmful Anti-Fouling Systems, developed by IMO's (International Maritime Organization's) Marine Environment Committee. As offshore oil and gas installations provide attachment surfaces for a variety of algae and invertebrates, so wave energy converters would be colonised by fouling organisms. The species recruited to these sites would depend on the species communities within the vicinity of the device, distance offshore, water depth and clarity, prevailing weather conditions and position relative to coastal currents and the speed of those currents. There would be a seasonal factor involved in the build up of this community It is ine vitable that anti-fouling measures would be necessary where, for instance, attached organisms cause changes in corrosion and fatigue behaviour, hinder inspection and maintenance, etc. Fouling prevention measures specific to wave energy converters have yet to be developed, but could include the use of anti-fouling paints or direct injection of biocides. Fouling of sea water conduits at coastal power stations has been controlled by injection or electrolytic generation of chlorine. Certainly chronic impacts may result if the chlorine was allowed to react to form chlorinated organics which tend to bio accumulate and persist in the environment,

9)Rather than absorb the costs of new distribution lines to the north from the south where population centers are greater and generation capacity already exceeds consumption, or explore (within Mendocino County) localized small projects (solar and wind) PG&E has chosen to maximize future profit portfolios. Using public funds and ratepayer charges to pay for permit processes, IP, and foreseeable future investments of both stockholders and stakeholders, of which the latter includes all people who live near the affected coastal areas, work in the affected coastal areas, pay PG&E for providing electricity, and visit the affected coastal areas.

At the grid proposed offshore energy displaces a fuel mix that is proportional to the anticipated generation mix in the market region into which the offshore projects would supply electricity. It would not be correct to assume offshore energy displaces coal-fired or nuclear generation, under the presumption that this will provide an indication of the maximum difference in externalities between onshore and offshore generation.

The ultimate metric for the CSI Program will be the amount of installed MW of new grid connected solar in California. The CPUC launched the investor-owned utility territory portion of the California Solar Initiative (CSI) on January 1, 2007, and the new program has already generated enormous new interest for solar in California. On January 1, 2007, the majority of the California solar market underwent two important transitions: (1) the state moved from capacity-based incentives (and a higher level for small systems) to fluctuating incentives based on performance factors and an entirely new application process; and (2) the state's two largest incentive programs reorganized into two new programs, switching from administration based on system size to one based on building type.

Despite the transition to a new program, demand is robust. In the first twelve months, demand for CPUC-administered California Solar Initiative incentives exceeds California's total installed solar from the previous 26 years. Since 1981, California installed 198 megawatts (MW) of grid integrated solar statewide.1 From January 1 through December 31, 2007, the California Solar Initiative program has applications for 208.6 MW of new solar. Disregarding applications that have been withdrawn or rejected, the program has received 7,541 applications, worth $558 million in incentives. Residential applications dwarf all others (6,712 applications) and are 89% of the total applications, but only comprise 15% of the total MW in the active applications. The 829 non-residential applications from commercial, government, and non-profit applicants make up 11% of the total applications. The non-residential applications are 176.8 MW in active applications.

In August 2004, Governor Schwarzenegger affirmed his support for solar energy, and announced the Million Solar Roofs program.

California Solar Initiative program demand remains robust in the first quarter of 2008.
• As of March 31, 2008, the California Solar Initiative has applications equaling 249.3 MW of new solar, including 40.7 MW added in the first quarter of 2008. Projects have twelve months to complete installation.
• The program has 33.4 MW of installed projects, including 14.2 MW completed in the first quarter of 2008.
• The active applications in the California Solar Initiative are worth an estimated $649 million of solar incentive payments.
• In the first fifteen months, the program has received over 10,000 applications for solar incentives -- 9,817 (and 249.3 MW) of which are still active applications. There were over 2,200 applications in the first quarter of 2008.

• Residential applications (8,786 active applications) make up 89% of all applications received.
•However, the total capacity of non-residential applications (207.3 MW) makes up 83% of the capacity of the applicant pool.
Solar installations in 2008 are expected to be at least 100 MW, which would exceed installations in 2007.
• The State of California installed 59 MW in 2006 and 81 MW in 2007.
• Also the California Energy Commission's (CEC) New Solar Homes Partnership (NSHP) which funds solar installations on new home construction & the dozens of small solar programs administered by the state's 40+ municipal utilities.

Renewables Portfolio Standard Program for the acquisition of renewable energy by entities serving retail load in California. Section 12 of the bill requires a utility subject to the CPUC's jurisdiction to develop and receive approval of a renewable procurement plan from the CPUC as an element of its overall procurement plan. Under the bill in print, a subject entity may meet the requirement in any of three ways –
(1) purchase of output from an eligible facility; (2) purchase of a tradable credit representing output from an eligible facility, as administered by the CEC; (3) payment to the CEC of a "proxy payment" of 1.5 cents per kwh "for each kilowatthour of eligible new renewable resources required to satisfy annual procurement obligations. The proxy payment is intended to provide a cap on ratepayer exposure for the costs of compliance. Failure to meet the standard in any year would result in a penalty of "twice the cost of compliance" as determined by the CEC. Proxy payments and penalties are deposited in a Renewable Resources Trust Fund created by the bill, and may be used to "preserve historical output from existing renewable resources," supplement the PGC funded programs, purchase credits from unmetered renewable sellers, and support renewable auctions.

AND what is missing from all this are the numerous independent homeowners not attached to the grid. New homes and rustic cabins converted to modern dwellings with solar, where people live, have families, grow food, go to work, and live off the grid.

**All testimony, newspaper interviews, articles, meeting notes, newsletter quotes or stories mentioned, is to be considered 'substantial evidence' … and meets the 'sufficiency requirements' in law, and are incorporated by reference.

Nancy Skinner B - 9 of the San Francisco Chronicle

Thursday, June 2, 2005

Although California has the largest population of the United States, in terms of carbon intensity, it is atypical. Whereas national annual per-capita greenhouse-gas emissions average 20 metric tons, Californians per-capita emissions average 12 metric tons, according to the California Energy Department. The reason: Since the early 1970s, California has been a leader in promoting efficiency, cleaner technologies and renewable energy. California acknowledged

early the threat of climate change, passing legislation in 1988 to assess impacts and identify mitigation strategies. Since that initial law, California became the first government to regulate greenhouse-gas emissions from vehicles; set a Renewable Portfolio Standard requiring 20 percent of electricity to be produced from renewables by 2010; established the first state-sponsored climate-change research program; and opened the California Climate Action Registry to facilitate public and private reporting of greenhouse-gas emissions.

The effect of the state's 30-year history of energy-efficient building codes and numerous financial and other incentives to reduce electricity use is pronounced. Per-capita electricity use has remained practically unchanged since the mid 1970s, compared to a growth in national per-capita electricity use of about 1.5 percent per year.

Take the city of San Francisco. It operates the largest city-owned solar power system in the United States. Every year, electricity-producing photovoltaic cells on Moscone Center save 4 million kilowatt hours of electricity and $305, 000 in energy costs. By the end of next year, more than 10 new solar systems will be installed at city-owned schools, libraries and health clinics. The installation of energy-efficient traffic signals is expected to cut 7.7 million kilowatt hours and save the city an additional $1.2 million per year in electricity costs.

Tuesday, April 1, 2008
PG&E backs 3 solar plants in the Mojave: Oakland firm will design, build installations; sunlight, groundwater will generate power for 375,000 homes. David R. Baker, Chronicle Staff Writer

Pacific Gas and Electric Co. will announce contracts today for three new large solar power plants in the Mojave Desert, whose open spaces and clear skies have placed it at the center of a renewable energy boom.

The three installations, together, will generate enough electricity for more than 375,000 homes. Fields of mirrors at each plant will focus sunlight on centralized towers, boiling water within the towers, creating steam and turning turbines.

"Solar thermal energy is an especially attractive renewable power source because it is available when needed most in California - during the peak midday summer period," said Fong Wan, PG&E vice president of energy purchasing.

All three will be designed and built by BrightSource Energy Inc. of Oakland, with the first plant starting operation as early as 2011. San Francisco's PG&E has signed contracts with BrightSource to buy power from the facilities. The companies won't disclose how much PG&E has agreed to spend.

Neither the energy market nor the ratepayer in the service area of PG&E is in need of WAVEConnect to meet any potential shortages as claimed by PG&E for energy preparedness.

Also add in: 02/17/2008 01:41:50 AM PST NORTHERN CALIFORNIA'S GEYSER COUNTRY IS HOTBED OF ELECTRICITY GENERATION

By Matt Nauman
Mercury News

Pacific Gas and Electric Co. said Friday it seeks regulatory approval for a 175 megawatt geothermal power deal with **Calpine Corp.**

The deal, if approved, would add 57 megawatts of new power to PG&E's supply and consolidate power from six plants totaling 118 megawatts.

Energy would come from the Geysers Geothermal Field in Northern California, 75 miles north of San Francisco, which has been producing power since 1960.

The Northern California Power Agency, a consortium that includes the cities of Palo Alto and Santa Clara, owns two plants that generate 110 megawatts of power.

Calpine the San Jose energy company fresh out of bankruptcy runs 17 plants and is in the midst of a five-year, $200 million rejuvenation plan to increase its steam-generation capacity.

As stated above

Neither the energy market nor the ratepayer in the service area of PG&E is in need of WAVEConnect to meet any potential shortages as claimed by PG&E for energy preparedness.

11) Perhaps PG&E is positioning itself to have an excess of carbon credits to sell/trade on the carbon market, or use to offset energy purchases from out-of-state. In any event, the argument can be made that the there are enough WAVE energy projects going on. The upwelling current as described by Richard Charter on 01/19/08 in Fort Bragg at the City's WAVE Energy Forum is mentioned by Senators Boxer and Feinstein and recognized for it's value as a food resource/ecosystem.

Thursday, May 15, 2008

Washington, D.C. – The U.S. Senate Commerce Committee today passed the Gulf of the Farallones and Cordell Bank National Marine Sanctuaries Boundary Modification and Protection Act, legislation introduced by Senators Barbara Boxer and Dianne Feinstein (both D-CA) to expand sanctuaries off the California coast.

The legislation, which passed the House in March, would permanently protect the coastal waters and estuaries of Sonoma County and portions of Mendocino County by extending the boundaries of the Gulf of the Farallones and Cordell Bank National Marine Sanctuaries.

Senator Boxer said, "Expanding the Gulf of the Farallones and Cordell Bank National Marine

Sanctuaries will protect one of the world's most productive ecosystems from pollution and preserve California's vital coastal economy. This legislation will also help maintain the pristine natural beauty of the Sonoma and Mendocino Coast for future generations."

Senator Feinstein said, "The Commerce Committee today approved a bill to extend the Marine Sanctuaries of the Gulf of Farallones and the Cordell Bank to cover virtually all of the coastal waters off of Northern California. This would provide lasting protection for one of the world's most remarkable marine habitats. So, this is an important step forward, and I thank Senator Boxer for her leadership in this effort."

The Gulf of the Farallones and Cordell Bank National Marine Sanctuaries Boundary Modification and Protection Act would expand the boundaries of the two existing National Marine Sanctuaries to protect the entire coastline in Sonoma County and as far north as Point Arena in Mendocino County. Senators Boxer and Feinstein introduced similar legislation in the 109th Congress. This year's bill includes even larger boundaries than originally proposed, adding a total of 2,100 square nautical miles to the sanctuaries. The new boundaries would protect the Russian and Gualala River estuaries and the nutrient-rich Bodega Canyon from off-shore oil drilling and pollution. The bill does not impose any additional regulations on fishing, which is under the jurisdiction of the State of California and the Pacific Fisheries Management Council.

The Sonoma and Mendocino coasts are one of the planet's most biologically productive marine environments. These areas support many species of marine mammals, birds and fishes, including endangered blue and humpback whales.

The bill now goes to the full Senate for consideration.

The unique productivity of this region is illustrated by the abundance and diversity of marine life it supports: 36 species of marine mammals, including the endangered blue and humpback whales; numerous coastal and migratory seabirds including the black-footed albatross; endangered leatherback turtles; and Coho salmon.

Expanding the existing sanctuaries to include this area is necessary to protect this remarkable ecosystem from pollution and habitat degradation.

ADVOCATE FOR WILD FREE HEALTHY OCEANS
SUPPORT RECOVERY OF FISH STOCKS AND OPEN OCEAN WATERS

Addendum:

This continues comments (final) on item 11 page 16.
Richard Charter's presentation at the 01/19/08 Fort Bragg WAVEConnect forum has been included (attached). It is posted at the Fort Bragg City site home page
http://ci.fort-bragg.ca.us/
and a link to all forum presentations.
http://city.fortbragg.com/pages/viewpage.lasso?pagename=11|Wave%20Energy%20Forum%20Presentations

Richard Charter, National Outer Continental Shelf Coalition (*Community & Fishing Issues Panel*)
Richard Charter has been working for nearly three decades to ensure continued protection for sensitive coastlines threatened by offshore oil and gas drilling by maintaining the 28-year bipartisan congressional moratorium on new federal hydrocarbon leasing in coastal waters. Richard coordinated the local government support that led to the creation of the Gulf of the Farallones, Cordell Bank, Channel Islands, and Monterey Bay National Marine Sanctuaries. He currently works on ocean protection issues for Defenders of Wildlife, including offshore oil and gas, ocean mining, and the creation of marine protected areas to restore damaged fisheries and coastal ecosystems. Richard presently serves as the Chair of the Gulf of the Farallones National Marine Sanctuary Advisory Council, and is also an appointee to the US Department of Energy's Methane Hydrates Advisory Committee, which advises Congress and the President on national energy and environmental policy matters related to planned commercial extraction of marine and permafrost natural gas hydrate resources.

In the DVD* version of his presentation Richard mentions that it is not so much that WAVE Energy Farms may obstruct the California Current, but that they will obstruct the food transport of nutrients south along California's shores and the impacts are unknown. These upwelling centers comprise 2% of the ocean but supply 50% of the world's fish catch.

In upwelling the nutrients come up from the depths driven by the winds to the surface and then move south along our coast. This upwelling (rises up on the western shore from Fort Bragg to Pt. Arena) provides nutrients that feed the entire marine ecosystem from Fort Bragg to the northern rim of Monterey Bay.

Where will the fisher people fish? How much is the added-value of renewable food supplies worth? John Innes at 01/19/08 forum estimated values by user days and catch. Salmon season and bottom fishing ($50 million, 480 jobs) just offshore from the "GP mill" in Fort Bragg.

Saltwater fishing for the State of California: 435,000 angler spent 5,650,000 days fishing in the ocean, and in our area 30,573 recreational angler trips, and 18,000 party boat trips.

Another valuable renewable food resource that has been harvested commercially locally is seaweeds. For over 30 years local companies have sustainably harvested seaweeds at the

intertidal zone on the rocks. Culturally the Pomo have harvested for centuries the seaweeds as a food resource. The tonnage that is removed every year and grows back each year is a phenomena in itself. High quality, nutrient rich, and clean. It is all harvested by hand and 4 local companies employ many people. The seaweeds are sold in major health food store chains, and independent grocery stores and large supermarkets. small retail venues, farmers markets, spas, and through internet sales.

1) One particular seaweed, the Sea Palm, grows nowhere else in the world. Also there are species of Nori, Turkish Towel, Bull Whip Kelp, Wakame, Oecan Ribbons, Kombu, Fucus.

Seaweed, Iodine, and Women's Breast Health
-- copyright 2008 by John Stephens-Lewallen, Mendocino Sea Vegetable Co.

"The most significant evolutionary event in eukaryote (nucleated cells organisms), including humans, occurred when seaweeds concentrated iodine. From this process came multicellular organisms, vertebrates, and humans."
David M. Derry, Breast Cancer and Iodine (2001, published by www.trafford.com, 108 pages with peer-reviewed scientific footnotes)

Many of our customers for dried wildcrafted sea vegetables now are people who regularly eat seaweed to make sure they are getting a sufficient supply of iodine in their diet for optimum health. Iodine is an essential trace element, meaning that human beings need iodine to survive, and people must constantly take up new iodine, because iodine is relentlessly excreted through the urinary tract. Every cell of a human in optimal health contains iodine, though people can live and function with very small levels of iodine in their bodies.

Iodine, discovered in 1811 by a man applying acid to seaweed to make gunpowder, remains an indigo mystery to the human race. A rare element, iodine is concentrated almost nowhere on Earth except in marine algae (multi-cellular seaweed). Iodine kills most single-celled organisms, but is spread thinly enough in the world's oceans to allow proliferation of single-celled creatures. Most single-celled organisms have the two amino acids tyrosine and histidine exposed to the environment; iodine combines with these same two amino acids and kills the organism.

Every cell in marine algae (seaweed), believed by current science to be the first multi-celled life on Earth, has a receptor which concentrates iodine from sea water. Today, as then, the world's leading means for concentrating iodine is seaweed. Iodine is in every cell of the healthy human body, and nobody knows what it is doing there. Many physicians have iodine theories; some doctors voice firm "scientific beliefs," having no foundation in, and often contradicted by, controlled, peer-reviewed scientific experiments.

Thus, according to Donald W. Miller, Jr., in his article "Iodine for Health" posted on

http://www.LewRockwell.com, establishment medicine; the American Medical Association, World Health Organization, etc. firmly believe that 100-150 micrograms a day of iodine will meet the requirements of 98 per cent of healthy people. "An intake of 150 micrograms a day of iodine will prevent goiters and the other recognized iodine deficiency disorders, but not breast disease," according to Dr. Miller, a surgeon and Professor of Surgery at University of Seattle. "Prevention of breast disease requires higher doses if iodine. Indeed, a reasonable hypothesis is that, like goiters and cretinism, fibrocystic disease of the breast and breast cancer are iodine deficiency disorders (also uterine fibroids)."

All doctors agree that iodine is essential for the thyroid gland, which regulates the whole body. Extreme iodine deficiency is known by all to cause goiter, a swelling of the thyroid gland, and cretinism, a birth defect. "Expert opinion on iodine is now the purview of thyroidoligists," laments Dr. Miller. "Mainstream physicians and surgeons accept their thyroid-only view of iodine and either ignore or discount studies that show iodine in larger amounts provides extrathyroidal benefits, particularly for women's breasts."

Drs. Derry and Miller are part of the growing number of physicians and natural healers who beleve there is an iodine deficiency crisis in the U.S. population today, causing a pandemic of breast cancer and other breast diseases. These healers believe that to prevent breast disease, and to achieve opitmum health, a person should consume the amount of iodine recommended by Dr. Guy Abraham, which is about 12.5 milligrams a day.

One microgram is one-thousandth of a milligram. One thousand milligrams makes a gram. There are about 28.5 grams in an ounce. So while most doctors are satisfied that 150 micrograms of iodine a day is plenty for good health, others cite clinical experience and controlled iodine feeding experiments to argue that iodine deficiency causes breast cancer and many other diseases, and that people should consume more like 12.5 milligrams of iodine a day. Twelve and a half milligrams of iodine is many thousands of times the average daily iodine intake in the United States, which Dr. Miller reported as being 240 micrograms per day.

Seaweed, Iodine and Cancer Rates in Japan and the United States

In Japan almost everybody eats a lot of seaweed every day. In 1964 a study found mainland Japanese eating an average of 4.5 grams of seaweed per day, or about one-sixth of an ounce of sea vegetables. This delivered them 13.8 milligrams of iodine per day, near the 12.5 milligrams daily recommended by Dr. Miller, whose article "Iodine for Health" is source of this comparison of two nations and iodine.

In the United States, except for a minority consisting primarily of Americans of Japanese, Chinese and Korean ancestry, along with health food advocates and therapeutic users, most people eat no sea vegetables (seaweed). The daily U.S. intake of 240 micrograms of iodine a day is about one-fiftieth of the iodine Japanese were getting daily in 1964.

Today, the Japanese have expanded their seaweed farming industry, and a more recent study found the seaweed-loving mainland Japanese eating 14.5 grams (about a half-ounce) of seaweed daily, giving them a full 45 milligrams of high-quality organic iodine.

There is good reason to believe modern Americans need a constant flood of high-quality iodine in their diets. The cellular uptake of iodine is blocked by the other halides, fluoride and bromide, which are increasingly eaten and absorbed from the environment. These halides can be cleared from the body by large doses of iodine. A nutrition brief by U.C. Davis cited a study which found perchlorate, a contaminant of vegetables from California, in the breast milk of all mothers examined in several states. Perchlorate prevents iodide from binding to the thyroid hormones.

Doctors Derry and Miller note that iodine consumption has declined radically in the United States. Iodized salt, which is the chief iodine source in the U.S., is eaten by only 45% of the population. Low-sodium diets and fast foods containing iodine-free salts are two factors in this decline. Also, until 1980 iodine was used as a dough conditioner for making bread; now bromine is used, a halide which blocks iodine uptake in the body. The traces of iodine in much farm soil have been exhausted, and radioactive iodine is a widespread environmental contaminant.

"Today 1 in 7 American women (almost 15 percent) will develop breast cancer during their lifetime," wrote Dr. Miller. "Thirty years ago, when iodine consumption was twice as high as it is now (480 micrograms a day) 1 in 20 women developed breast cancer...The incidence of breast cancer in the U.S. is the highest in the world, and in Japan, until recently, the lowest. Japanese women who emigrate from Japan or adopt a Western style diet have a higher rate of breast cancer compared with those that consume seaweed."

Iodine Supplementation Using Seaweed

Here are some comments for people who may seek to achieve a daily iodine intake of 13 milligrams or so strictly by eating whole foods, coming from my position as a wild seaweed harvester and thinking researcher. People seeking iodine therapy should find a health practitioner who knows the field.

Sea vegetables (seaweed) is the only food on Earth which can deliver 13 milligrams of iodine daily to a person. Using the Japanese measurements of the average iodine content in about one-sixth of an ounce of dried sea vegetables--13.8 milligrams--a person would have to eat about 25 pounds of fish, the leading non-seaweed food source of iodine, to get that much iodine. Land vegetables contain but microgram traces of iodine, and dairy products may be contaminated by the radioactive iodine taken up by cattle from atmospheric pollution falling on grass.

Seaweed is an unreliable source of specific quantities of iodine. The most authoritative book on all nutritional science about the world's leading sea vegetables is Vegetables From The Sea, by Seibin and Teruko Arasaki (1975, Japan Publications). In Table 16 the Arasakis present the iodine content ranges of various sea vegetables, expressed as milligrams per gram dry weight. Most strikingly, while the popular red seaweed Porphyra (Nori) has 0.5 milligrams, or 500 micrograms, of iodine per gram of weight, Laminaria, or Kombu, ranges from 193-471 milligrams of iodine per gram! "The Chinese for centuries have treated goiter, caused by an iodine deficiency by means of iodine obtained from Kombu (Laminaria) harvested from the waters around Japan, especially the vicinty of the northern island of Hokkaido. Brown algae are very high in iodine content," the Arasakis wrote on page 46 of their book. Undaria pinnatifida, Wakame, a brown seaweed similar to Mendocino Wakame, tested between 18 and 35 milligrams of iodine per gram.

According to Dr. Miller's article Iodine for Health cited above, to quote, "Researchers have determined that residents on the coast of Hokkaido eat a quantity of seaweed sufficient to provide a daily iodine intake of 200 milligrams a day." That's 200,000 micrograms of iodine per diem, a tsunami of iodine compared to the 240 micrograms most U.S. people get daily.

Iodine content of sea vegetables will vary a lot, not only from species to species, but from day to day. The Arasakis note that the more seaweed is processed, the less nutritional value it has. For example, fresh-water rinsing wildcrafted Porphyra removes a lot of the good taste of the Nori, and probably some of its nutritional value as well. Maybe that is why one nutritional analysis chart I saw drawn from various sources showed the Nori tested as having no iodine at all!

At the Mendocino Sea Vegetable Company, Barbara and I strive to harvest the best-quality seaweed at its prime, and sun-dry it quickly and completely. We offer our Pacific harvest, Mendocino Kombu (Laminaria setchelli) , as a gourmet food whole and flaked, and wildcrafted North Atlantic Laminarias of two species flaked and powdered.
Mendocino Seaweed Miracle Mix is a milled blend of the four leading Mendocino Sea Vegetables: Nori, Wakame, Kombu, and Sea Palm Fronds. A lot of our customers use the Miracle Mix regularly, hungry for the mysterious element iodine that it contains, and for the many other essential trace elements in wildcrafted sea vegetables.

2) Around the world:
World Bank Project **Carbon dioxide utilization and seaweed production**
V.R.P.Sinha, Bangladesh Fisheries Research Institute, Mymensingh, Bangladesh
Research needs are highlighted to evolve possible methods to sequester virtually all of the carbon dioxide emitted by the world's energy industries.

Aquatic Biomass Production:

Utilization of anthropogenic CO2 as an industrial by-product for seaweed production holds great promise not only in acting as a significant carbon sink, but also in meeting to some extent global food, fodder, fuel and pharmaceutical requirements, particularly in the tropics. CO2 can be utilized for stimulating the wild growth of seaweed in the sea or in culture on the shore and also possibilities exist for promoting growth of freshwater algae, fern and other submerged weed particularly *Hydrilla*, which is a choice feed for many fast growing fish. However, no such scientific studies have been done to evaluate this and to quantify the degree of stimulation of growth and enhanced productivity through anthropogenic CO2. It is important to note that 3.5 tons of alga production utilizes 1.27 tons of carbon and about 0.22 tons of nitrogen and 0.03 tons of phosphorus.

Status of Seaweed Harvest:

Seaweeds are produced through gathering and/or harvesting of natural stocks and through certain culture techniques (Sinha 1992). During the last over three decades especially in Asia and the Western Pacific region, the commercial farming of several important seaweed species has gained momentum and it is expected that their production in Asia and the Pacific will continue to change from a total dependence on harvesting natural stocks of commercially important species to the more controlled methods of production by cultivation (Trono 1986).

Presently, commercial production of seaweeds through culture is by and large limited to Japan, China, Republic of Korea, Taiwan (Province of China) and the Philippines. However, reports of seaweed culture are available from many Asian countries (such as India, Indonesia, Sri Lanka, Myanmar and Vietnam) but their production is not in bulk and does not constitute any significant component of world market.

Thus, significant increase in the production of the seaweed reflects the growing importance of seaweeds as marine biological resources, not only as an important primary producers in the shallow-water marine ecosystem, but are directly utilized as human food, as components of animal feeds and as organic fertilizer. Biological products derived from them, such as agars, alginates, furcellaran and carrageenans, have and will continue to have diverse applications in the food, chemical, pharmaceutical and other industries (Trono 1986)

The activities of the proposed project should basically include selection of the institutions and finalization of the collaborative mechanism, strengthening of facilities particularly in building facilities for Anthropogenic Free Air Co2 Enrichment (FACE) for aquatic weeds, planning and initiation of the research studies, co-ordination and management of the studies, pilot scale testing, packaging of the technology and Human Resource Development. However these activities should only supplement national efforts and thus this project should catalyze the present national endeavor and reorient their approach

toward utilization of anthropogenic CO2 for stimulated growth and for higher aquatic productivity.

It is important that under the new initiative of the USA, pilot scale studies undertaken preferably at suitable institutions dealing with mariculture R&D, to evolve a package of practices to obtain optimal harvest of such aquatic weeds with anthropogenic CO2.

Seems there are plans to colonize more of the Earth's food resources for energy development projects, carbon trading markets, food. Treating the ocean like the land has been treated for decades even centuries. Clearcuts, recruitment scenarios, herbicides, fertilizers, biomass utilization ... everything relates to energy production. The language of war and the marketplace are used to describe benefits and actions. Employment has been changed to deployment and fear based scarcity models are the baseline.

Deep sea injection to hide carbon, and fertilization of the ocean's upper tropic layer with urine and iron filings are being used to accelerate growth of plankton. Australia, Japan, Korea, China are all engaging in this assault on the oceans and the global food chain. Industrial chemistry is not the answer. Industrial sized WAVE Energy may be the answer in some places. But our local food supply is far more important.

Please help keep the North Coast, Mendocino's coast free
from any offshore developments and leases. The ocean commons
is for us all not to be industrialized at the expense of quality of life.

We would like to acknowledge and are thankful to the bill put forth by Representatives Thompson and Woolsey, and the recent bill by Senators Boxer and Feinstein protecting the northern California Coast.

ADVOCATE FOR WILD FREE HEALTHY OCEANS
SUPPORT RECOVERY OF FISH STOCKS AND OPEN OCEAN WATERS

Tomas DiFiore
POB 281 Little River, Ca 95456
707-937-4378
iamtomas@mcn.org

3) Included in this discussion and as substantiating evidence: added value in the inter-tidal zone, renewable food resources, and free choice in personal health and benefits:
4) 3 decades of harvesting by generations of locals would agree:

Comments on Coastal Nearshore and Offshore Leases and Related Applications For OCS Project Studies and Energy Development, Mendocino County 05/22/08

Seaweed on the Mendocino Coast is an indigenous plant. There are also particular types of seaweeds found only in the world on the Northern California coast line up into Southern Oregon. Two known rare seaweeds are Sea Palm and Sweet Kombu. Sea Palm is only found in large enough quantities on the Mendocino coast to be one of the seaweeds which make a small cottage industry possible.

Reduction in the arrival of nutrients onshore and fluctuating wave heights from a wave energy farm, bring up the possibilities of exposing the seaweeds to a habitat lacking the necessary nutrients and an overabundance of sunlight. Both nutrients and the balance of sun and water are needed to sustain the indigenous seaweed beds.

As part of a county wide nutrition education program, students throughout Mendocino County have been exposed to the values of eating and harvesting wild seaweeds. This is a wild food that is available (up to 10 lbs. wet) to the people of Mendocino County for the cost of a fishing license. Food insecurity is over 30% in Mendocino County, so all food sources are important for sustaining health.

Ocean Harvest Sea Vegetable Collective has been sustainably harvesting wild seaweed beds for the past 29 years. It is my belief that any proposed wave energy park would detrimentally effect wild seaweed on the Mendocino coast.

Terry Nieves
for Ocean Harvest
Sea Vegetable Collective
PO Box 1719
Mendocino, CA 95460
ohveggies@pacific.net
www.ohsv.net

Tomas DiFiore
POB 281 Little River, Ca 95456
707-937-4378
iamtomas@mcn.org

All comments, 27 pages were submitted to Senator Boxer's Committee: EPW (05/10/08 Oakland) Environmental Justice and Toxic Waste In Northern California Field Briefing extended comment period.

Re: GP Mill Site Cleanup, PG&E WAVEConnect, CPUC, RPS, Ratepayers, Fisheries, Coastal Development

As of 05/19/08 The Washington Department of Ecology just sued FERC in the D.C. Circuit Court of Appeals over its conditioned licenses policy for wave energy.