



REEDSPORT WAVE ENERGY PROJECT Recreation/Public Safety

February 5, 2007

In attendance:

Steve Kopf, OPT
Therese Hampton, Oregon Solutions
Randy Henry, Oregon Marine Board
Laurel Hillman, State Parks
Maggie Sommers, ODFW
Lucia Mack, U.S. Coast Guard

Mihi Leta, U.S. Coast Guard
Michelle Duty, U.S. Coast Guard
Robin Hartmann, Ocean Shores
Pete Stauffer, Surfrider
Greg McMurray, DLCD

Meeting Summary

The purpose of the meeting was to more narrowly focus on recreation and public safety issues associated with the project. Steve Kopf had provided advance materials identifying some major recreation and public safety issues. This material was not intended to be definitive, but to start conversation. The intended outcome of the meeting was to fully define the issues that need to be addressed and assess information sources or processes to be pursued.

Project Overview

Steve Kopf provided a general overview of the project.

Phase 1 will comprise a single buoy to be installed this summer. The buoy will not be connected to the grid. The single buoy will provide a winter's worth of mooring and wave data.

Phase 2 will include the addition of 13 buoys (14 buoys in total) to be installed summer 2008. Those buoys will be grid connected and produce about 2 MW of power. Phase 2 configuration includes the following:

- **Subsea Pod:** There will be subsea pods that are approximately 15' x 6' that will sit on the ocean floor under the buoys. The pods are required to condition the power for the grid. Approximately 1 pod per 10 buoys will be needed. It is uncertain at this time, but there will likely be 2 pods for the 14 buoys in Phase 2.
- **Interconnection/Subsea Cable:** Armored subsea cable will be used to interconnect the wave park to the grid. The existing outfall pipe will be used from east of the vegetation line at the beach to the end of the pipe. From the outfall pipe to the wave park, the subsea cable will be buried about 2 meters underground. The use of the outfall pipe requires permit modifications, but no new easements or access roads. Port of Umpqua is working on easement for use of pipe.

Recreation Impacts

Wave Height Extraction

OPT estimates a 3% reduction in wave energy for each north-south row of buoys. The park is intended to be configured in 4 rows of 50. Therefore, cumulative wave energy impact would be 12%. Surfrider provided independent analysis that confirmed an impact of less than 15% given current level of technology and density and placement of buoys for this project.

Pete Stauffer indicated that Winchester Bay is the premier surf spot and they expect to see minimal wave reduction at that location. However, they could see more impact if the project was moved towards the south or the west. Steve Kopf clarified that the FERC permit request was for a 5 mile by 1 mile area and that the project would not be located outside of that area. Further, the ultimate buoy array is expected to occupy 3 mile by ½ mile of the permit area.

Overall, Surfrider is not too concerned with impacts from this project due to location and limited wave extraction.

Shark Behavior

OPT provided initial information that indicates sharks have orientation sensitivity to weak magnetic fields at a low frequency (1/8 to 8 cycles per second) with no demonstrated sensitivity at higher frequencies. The subsea cable is operating at higher frequencies and, therefore, does not create a potential for attraction. The buoys will produce power at frequencies between 1/12 and 1/8 cycles per second. This weak field of frequency will not be perceptible beyond 100 meters, so it will not attract sharks from great distances. Indigenous sharks may reorient toward the buoys, but initial literature search indicates they may be able to discern that it is not prey and therefore not respond.

Surfrider indicates this is a key area of interest and concern for its members. They have had 12 independent inquiries on this subject in the last year. There are sharks off the Oregon Coast (there have been 2-3 shark attacks in Oregon in the last 18 months) and therefore it is a public safety issue. At the same time, they would like us to deal with this as factually as possible so that it does not become an ill-informed issue that can be blown out of proportion.

Surfrider's review of literature was similar to OPT's information. Sharks are attracted to low frequencies at distances up to 100m. Surfrider information indicates that there is not clear information about how they respond to electromagnetic fields of this scale.

Steve Kopf will provide the literature that he has collected to date. The group agrees that more research is needed and that monitoring on this issue with the 14 buoys will be required. There was only a brief discussion that if information indicates there will be shark attraction, there may be a way to shield the buoy.

Aesthetics

There will be limited visibility of the project during the daylight. The park is not visible from the beach and there are limited elevated viewpoints in this area. There is some concern about the visual impact of lighting at night. It is expected that some of the buoys will be lit for navigation safety. In the determination of what lighting is used and how many buoys are lighted, the visual impact should be considered.

Public Safety

Process Requirements

It was determined that to ensure public safety the wave park should be excluded from other activities. The following actions were discussed as beneficial and appropriate steps to take to exclude the wave park from other uses:

- Designate the wave park as a Restricted Navigation Area through the Coast Guard process.
- Designate the wave park as a No Fishing Area through the Oregon Fish and Wildlife Commission.
- Pursue similar designations with Department of State Lands.
- Establish appropriate Chart Modifications through the Coast Guard. There is still a question as to whether to include a buffer zone for the undersea floats and cables or not.
- Launch a Public Information campaign that informs commercial and recreational users of the change. Provide information about location, hazards, and how to manage if inadvertently in the area.
- Coordinate with Law enforcement (Oregon State Policy) about how to approach enforcement of the area.

There was discussion about whether this area posed any national security issues and/or if Homeland Security needed to be engaged. There does not appear to be any connection to national security issues.

Project Lighting

OPT has proposed a method for lighting the wave park. The types of lights used and how they are marked is governed and must be approved by the Coast Guard. Lucia Mack provided initial information about the process. This information will be reviewed and follow-up can be done as appropriate.

Response Plans

There have been many questions about response in the event a buoy comes loose.

- The mooring system has a built in double redundancy. Further, the mooring system has been planned to withstand a 200-yearr storm. This design work is intended to reduce the probability of an event.
- The buoys will be linked into the SCADA system and have GPS which will provide alarm and information in the event buoy is loose.

- OPT will have full-time maintenance crews. If or when the ocean is safe, the crews will be dispatched to retrieve the buoy and get it back on line.
- If weather conditions limit maintenance crews from retrieving the buoy, a Notice to Mariners can be issued with the location of the buoy.
- Finally, the buoys will be insured. The insurance will include coverage for a private salvage company to rescue and remove the buoy as needed.

There was some discussion about whether to include an emergency locator beacon on each buoy which will signal location directly to the Coast Guard. There is a question as to whether that is appropriate given it is property and not life. More research/thought will be given to this concept.

Next Steps

- Share shark behavior information/data
- One-on-one follow-up to pursue Coast Guard, ODFW and DSL processes to restrict the project area to other uses.
- Pursue buoy navigational lighting through Coast Guard process
- Greater detail on the response plan

It is not clear when this group will get together again. Major issues were identified and discussed. Once progress is made in these areas, the group will reconvene.