

Cobscook Bay Conference March 24, 2007

Representatives of three organizations proposing to generate electricity in the Cobscook region using tidal power shared their plans with the public at the first annual Cobscook Bay Conference at the Boat School in Eastport on Saturday, March 24. About 65 people attended the conference, sponsored by the Cobscook Bay Resource Center.

Ocean Renewable Power Company is proposing to place a submersible prototype turbine in the Western Passage or near Shackford Head. The Passamaquoddy Tribe is studying two sites for in-stream tidal power. Tidewalker Associates is proposing to build a 1200 foot dam and power facility at Half Moon Cove.

Ocean Renewable Power Company (ORPC)

Chris Sauer, the President and Chief Executive Officer of Ocean Renewable Power Company, told the gathering that ORPC Maine is evaluating potential sites in Western Passage and Cobscook Bay for development of commercial scale tidal energy projects. ORPC Maine applied to the Federal Energy Regulatory Commission (FERC) for Preliminary Permits for site areas in both waterways. ORPC intends to work with local community officials and stakeholders, as well as state agencies, to conduct studies and evaluations to identify the most feasible and acceptable sites for installation of tidal energy projects. Sauer stated that he is interested in working with the Passamaquoddy Tribe to find ways in which the two projects might complement each other.

Sauer described the advantages of the OCGen™ technology his company is developing including:

- the turbines rotation in one direction only, regardless of direction of the current flow;
- the slower turbine tip speed results in reduced “wear and tear”, noise, vibration and lower potential for impacts on sea life;
- each turbine has only one moving part – turbines and generator rotate on a single shaft;
- there are no gears, thereby eliminating the leading cause of failure for windmill-type turbines;
- the turbines are “stackable,” making them highly adaptable to a variety of project site conditions;
- there will be no impact on the surface of the water (except during brief installation and maintenance periods), which eliminates interference with commercial shipping and recreational boating;
- there are no visibility issues;
- minimal impact on the ocean floor, because mooring system anchors are used to hold them in place – there are no pilings or foundations; and
- “smart” submersible features allow OCGen™ modules to be submerged and raised to the surface for deployment, maintenance or emergency situations.

ORPC's development and commercialization plan will be conducted in 3 phases:

1. One-third scale prototype. A one-third scale turbine generator unit (20'x3'x3') prototype will be suspended below a barge or floating platform for about six weeks to help them confirm design efficiency.
2. Full scale prototype. This will consist of a single turbine generator unit with ballast and mooring. It will be deployed approximately 18 months after completion of the 1/3-scale demo project and operated for 12 to 18 months. Power generated will be transmitted to a buoy where it will be metered and dissipated. This will be the final testing of technology and performance. All important environmental and operating parameters, such as noise and effects on fish, will be monitored and data will be collected and analyzed. At this point they will go to FERC for licensing.
3. Commercial scale. FERC licensing and financing will be completed and project installation will occur within 12 months of completion of the prototype project (2011). At this stage, the electricity generated would be brought to shore and hooked into the existing grid.

Sauer told the group that ORPC is currently raising the money for phase one of their development plan. At this point they have raised about half of the money they need. They would like to install the phase one turbine in October or November of 2007. They plan to work with local people to determine the best location for deploying the one-third scale prototype.

They plan to have the turbines fabricated in Maine and shipped to the Boat School in Eastport. Final adjustments and fabrications will be done at the Boat School. They would like to involve local people in building the equipment as much as possible.

Tidewalker Associates

Normand Laberge of Tidewalker Associates is a professional engineer. He started working on the Half Moon Cove tidal power project in 1977 when he was employed by the Passamaquoddy Tribe. His project proposes to dam off Half Moon Cove at the point where the Old Toll Bridge Road used to cross from Perry to Eastport. The idea is that water will build up behind the dam during the incoming tide and be held in the impoundment. The water would then be released through a turbine in order to generate electricity.

Inside the impoundment the tidal range would be reduced to about a 9-12 foot tide. Areas that are intertidal now would become subtidal, losing about 1,000 acres of clamflats. The basin area is 1.2 square miles at high tide and .46 square miles at low tide.

Laberge explained that the power house and the filling gates would be built in the middle of the dam. The power house could consist of up to three turbines producing 4.5 kilowatts each. The dam itself would be 1,200 feet across. The dam would extend 25 feet above highest high tide. He believes the site of the dam is especially well situated because of the canyon in the middle of the channel, which is a natural fit for the power house. The dam would be a "rock fill" dam and would require rocks from local quarries. The schematics

of the power house include two bulb turbines, flap gates for filling and emptying, a roadway on the dam's surface, and high pool operation.

The electricity generated by a tidal power project needs to cost less than \$.05/kilowatt hour in order to be competitive, Laberge said. He believes that using a dam makes the production of energy predictable; you would know exactly when energy was going to be produced and when it was not. You might even be able to get a credit for times of peak generation.

Laberge noted that the strong tidal current at the proposed site of the dam might also be used for modular in-current devices such as those suggested by ORPC and the Tribe. He also entertained the possibility of opening the existing causeway between Pleasant Point and Carlow's Island and installing a powerhouse there. Another possibility raised was building a road across the top of the dam at the Old Toll Bridge, which might also afford rail access to Eastport.

He believes that the project is compatible with the Quoddy Bay LNG proposal. Benefits to the community include: economic development through construction jobs and dam operations jobs, possible aquaculture development within the containment area, and the possibility that the dam might become a tourist attraction.

Passamaquoddy Tribe

Steve Crawford, Director of the Environmental Department of the Pleasant Point Passamaquoddy Tribe, explained that the tribal approach to energy production is to provide a service to the community. The Tribe is currently involved in assessing the possibilities for energy production through wind power and tidal power. They currently have funding through the Bureau of Indian Affairs for \$200,000 and the EPA for \$20,000 for their energy development projects.

The Tribe is assessing the viability of generating commercial electricity through wind power on their lands in Township 19. The site has Class Three winds, so it does qualify as a commercially viable site. Wind power development in Maine is limited by the transmission line, which only allows for transmission of 50 megawatts. While the site has a 130 megawatt capacity, development will be limited to 25 turbines.

Crawford said that the Tribe has submitted an application to FERC to locate tidal power structures at two sites in the region, but that they have shifted their focus from the sites listed in the FERC application to two new sites. The first new site is located just off the reservation, near First Island. The second new site is just north of Kendall Head in Western Passage.

The First Island site is close to the Tribe's sewage treatment plant, which is the highest user of electricity on the reservation. The purpose of this site would be to place a 10' diameter in-current unit at the location, which would generate 12,000 kilowatts/month and provide power to the sewer treatment plant. The treatment plant currently uses about

13,000 kilowatts/month, so that installation might provide 92% of the power needed by the treatment plant.

The Tribe is working with UEK Corporation to develop their tidal power project. UEK was established in 1980. UEK has projects under development in Alaska, Switzerland, Manitoba, North Dakota, and Zambia. UEK has also been chosen to develop a project in the Bay of Fundy.

The technology that the Tribe is considering using only weighs 30 pounds under water. This means that maintenance can be performed by a diver. The design of the equipment is such that a screen is placed in front of the unit to keep fish from swimming into it. The depth of the equipment is controllable. The site would be identified by buoys.

In addition to powering the sewage treatment plant, the Tribe is considering different approaches to power generation and distribution. A bill currently before the Legislature, LD229, would allow the Tribe to form a power district similar to a municipality and float bonds to finance the project. Under this plan a Passamaquoddy Power Company could generate up to 5 megawatt for local use; over 5 megawatt would go into the ISO New England power grid. The Tribe would then act as an “aggregator,” selling power generated from the wind farm and from tidal power to people in the local communities. With the Tribe generating the electricity, each individual household would then have an opportunity to choose to purchase this power. This approach is similar to that used by the Maine Interfaith Power and Light Company, who offer “green” power to consumers throughout Maine.

Crawford concluded by pointing out that, at present, existing transmission lines do not have capacity large enough to carry the power that could be generated.

Tidal Power: Costs and Benefits to Cobscook Communities

Will Hopkins started a discussion on the tidal power presentations by asking, “What will be the impact of each project on fisheries, aquaculture, boat traffic, and marine mammals? How will each project benefit people in the area? Will it create new jobs, lower our electric rates, or attract new businesses? Is it a viable project or just another grand scheme?”

He said that he did not expect that any of us would go home at the end of the day with instant answers about tidal power; for now it would be enough to ask the questions.

Question to Chris Sauer: You stated that the ORPC turbines would be kept at a depth of 40’ from the surface of the water. Ships currently transiting to Bayside draft 45’. If you figure a 10% safety factor over the draft, you should be planning to have your units 60’ below the surface for low water. This would mean they’d be about 80’ below the surface at high tide. We already know that LNG ships only have a 35-39’ draft so this depth would accommodate them as well.

Questions to Normand Laberge: You should really be talking to clambers as they will be greatly affected by your project. Have you contacted any neighbors along the Toll Bridge Road or any fishermen about your project?

Answer: No.

Will Hopkins, summarizing a general discussion about impacts on fisheries:

So, fisheries that would be affected by the proposed tidal power projects include scallop draggers, urchin draggers, cucumber draggers, mussel draggers, and clambers.

Question to Normand Laberge: How many acres will be lost to fishermen?

Answer: About 1000 acres will go from being intertidal to subtidal in Half Moon Cove.

Questions to Normand Laberge: The dam project will have traumatic consequences to the ecology of Half Moon Cove. Flushing time will change, temperature will rise in the summer, and the amount of nutrients will change. How much will water temperature change in the impoundment and how will this affect things? What about ice in the impoundment?

Answer: Estimate a temperature change of 3-5 degrees Celsius. There would be more ice in the winter than currently forms in Half Moon Cove.

Question to Chris Sauer: How many acres of bottom do you need for a profitable project?

Answer: Off the top of my head... each module produces 750kw. We need to produce at least 10 megawatts for a commercial venture, so estimate 15 modules. This will take up roughly 1600' x 500' of bottom for the full-scale commercial project.

Question to Chris Sauer: What is the deepest water you can put the modules in?

The deepest water in this area is 300'. We can deploy the modules at this depth. The modules are almost neutrally buoyant. Chris then noted that it is important to determine how many modules you can put in one area before the current flow in the whole region is affected. Dr. Huijie Xue at the University of Maine is working on modeling this.

Summary of discussion on deploying modules in Cobscook Bay: Inside Cobscook Bay the deepest parts are around 65'. The most boat draft you would see would be if someone was towing a fish pen with fish in it, with a draft about 30'. It was noted that the *Hailey and Matthew* has a draft of 15' and draggers have about a 10' draft.

Question to Chris Sauer and Steve Crawford: These tidal power units in the Western Passage could affect herring running up the Perry shore. Also, how deep do whales swim? Will these modules affect the whales?

The session ended with a discussion of where the fishing grounds are in Cobscook Bay and marking those areas on navigational charts. Will Hopkins invited people to send their questions, ideas or concerns to the Cobscook Bay Resource Center, where they will be forwarded to the appropriate person. Question and answers will then be posted on the website at www.cobscook.org.

Presentation Of Awards

Three awards were presented by Will Hopkins on behalf of the Cobscook Bay Resource Center.

Leo Murray of Lubec was presented with the **2007 Cobscook Fisheries Award** and a **check** for \$200 for his leadership during the efforts to protect the Cobscook scallop resource. In announcing the award Will Hopkins said, "Dozens of people were involved in changing the laws to protect the Cobscook scallop resource, but when it was time to drive to Augusta and testify before the Legislature, it was Leo Murray who stood up and let the legislators know that Cobscook fishermen wanted to limit themselves daily so they and their kids could keep fishing for years. Leo Murray was the right person, at the right place, at the right time, doing the right thing."

Previous Cobscook Fisheries Award recipients were Reid Wilson and George Harris, Sr.

Paige Case, a senior at Lubec High School, was presented with the **Cobscook Scholarship Award** and a check for \$200. Paige is graduating a year early, has been accepted by the University of Maine and invited to participate in the Honors Program. She designed a working wetland to process bio-solids produced in the Lubec School's aquaculture program. She will be an Engineering major.

The previous Cobscook Scholarship Award recipient is Helen Pottle, of Perry, who is an Engineering major at the University of Maine.

Wesley Gove, a senior at Lubec High School, was presented with the **Future of the Fisheries Award** and a check for \$200. Wesley owns a 35' lobster boat which he has been restoring in the boat building program at Washington Academy. He has been lobster fishing since he was in first grade. Wesley's boat handling skills were put to good use when he participated in the Cobscook Drift Study as a freshman at Lubec. He plans to go lobstering this summer and attend the Maine Maritime Academy in the fall. The Future of the Fisheries Award was made possible by the generosity of the Bruce McInnis Memorial Fund.

Live Auction

A great selection of products and services generously donated by local businesses was auctioned off by volunteer auctioneer Harold Clossey, Executive Director of the Sunrise County Economic Council. All proceeds benefit the Head of the Breakwater Building Fund for construction of a new facility for the Cobscook Bay Resource Center.

Future of the Boat School

Bud Finch, City Manger of Eastport, Dean Pike, Boat School Instructor, and Sen. Kevin Raye spoke on the future of the Boat School. The good news is that there is a future for the Boat School. Many people have come together to make it possible to keep the Boat School going. The Legislature voted in favor of the preservation of the Boat School; requiring the Community College System to sit down with the City of Eastport, the

Friends of the Boat School, the University of Maine System, and Husson College to work out a way to keep the Boat School alive in Eastport.

Ownership of the property will be transferred to the City of Eastport, pending final approval by the Legislature. Washington County Community College will lease the equipment on the property to the City. Husson College will begin teaching classes at the Boat School this fall. The new official name of the public/private partnership will be the Maine Marine Technology Center. The instructors, curriculum and facility will remain the same, though we can expect to see some familiar programs added back into the curriculum, including marine painting and marine mechanics. The Travelift will remain available for hauling boats.

New sources of funding and new users are being sought for the facility, which is being viewed not only as an educational resource, but also as a center for economic development of the Cobscook region. It was emphasized that no local property taxes are being used.

Dean Pike said that the Boat School has been the best kept secret in Maine, but it shouldn't be a secret anymore.

Downeast Groundfish Initiative

Ted Hoskins is a pastor with the Maine Sea Coast Mission and a member of the Downeast Groundfish Initiative. He spoke about a unique coalition that is emerging to change the way groundfish are managed in the Gulf of Maine.

Hoskins pointed out that in this day and age, fishing is not just fishing. There is a whole coastal economy that depends upon fishing. This includes boat building and other marine related industries, schools, restaurants, and stores. Healthy communities in Downeast Maine are dependant upon healthy fisheries, but the present federal management system is not working to create healthy fisheries. He said that when it comes to managing groundfish, the federal management system ignores everything east of Mount Desert Island; that, in fact, eastern Maine is literally not even on the maps used by federal fisheries managers. He believes we need community-based management of our fisheries.

Maine fishermen have traditionally moved between fisheries at different times of the year. The current permitting system has driven fishermen into single species fishing. Fishermen have been penalized for not fishing on a particular species by the loss of a permit for that species.

We are learning that there are separate stocks of groundfish. We can't manage groundfish as if they all belong to one group. We need to recognize that what is happening in certain waters may not be happening in other waters. The people that are fishing in a certain area are the people that should be expected to take care of that area.

The group working on the Downeast Groundfish Initiative includes fishermen, marine scientists and conservationists. The goals of the project are to rebuild stocks and to give equitable access to fishermen who live local to these stocks.

Why we have the last good scallop grounds in Maine

Will Hopkins, Executive Director of the Cobscook Bay Resource Center told the story of why we have the last good scallop grounds in Maine.

The Downeast Groundfish Initiative is based on the idea of area management. With area management you define a geographical area and set rules for fishing in that particular area. Anyone can fish in that area, but they have to fish by those rules. Something like this has already happened in Cobscook Bay and like the Boat School, it is a well kept secret. The secret is that Cobscook has the best scallop grounds left in the state. The reason why is because the fishermen here have taken steps to limit themselves and protect the resource.

In 1990 there were about 25 local boats fishing scallops. In 1995, it was a very different story with 170 boats in the Bay on opening day. The boats ranged in size from skiffs to 100' draggers. There were near accidents. They would all fish for a week or so. Then the boats from away would leave the area, leaving the local boats with little to fish for during the rest of the season.

At that time, because of gear conflicts with lobstermen, the entire coast except for Cobscook Bay and Gouldsboro stayed closed for scallop fishing until sometime in mid or late November. A group of Cobscook fishermen decided to try to get a uniform opening date through the Legislature. They drove to Augusta in a snowstorm to testify at a public hearing on the issue. They stayed overnight and attended a worksession on the issue the next day. The Cobscook fishermen left feeling that they were in a good position, but fishermen who opposed the uniform opening day complained that they hadn't had a chance to make their opinions known because of the snowstorm. The Marine Resource Committee gave them another worksession which the Cobscook fishermen were unable to attend. The uniform opening day legislation did not pass.

Although they did not pass the legislation, the Marine Resource Committee felt that the Cobscook fishermen had put a lot of effort into trying to get things changed. The Committee decided to pass a law which said that, instead of the 10 foot wide scallop drag used statewide, only a five and half foot drag, eight rings deep, could be used for dragging scallops inside Cobscook Bay. In effect this decision treated Cobscook Bay as a separate scallop management area.

A couple of years later the December 1 uniform opening day was finally passed.

In 2000, the Resource Center held its annual Cobscook Fisheries Forum in February. Cobscook fishermen asked for help in putting together a broad based association that would represent all fishermen around the Bay. Many meetings were held in the next few

months. By May the Cobscook Bay Fishermen's Association had been formed. For the rest of the year, two times per month, the Association met to work on a scallop conservation plan.

The final plan included a daily catch limit of 15 gallons of scallop meats per day. Many things had been considered, but the fishermen realized that any plan they came up with had to be conservation oriented. It couldn't just keep people from fishing in the Bay. The plan couldn't be about limited allocation.

The final plan also included a meat count rule. This rule was aimed at making it easier for Marine Patrol to stop the shucking of small scallops.

At this time, then Senator Kevin Shorey introduced the bill for the Cobscook fishermen. The Maine Department of Marine Resources Commissioner opposed the bill saying that he didn't want to see the "Balkanization" of the Maine coast.

With opposition forming, the fishermen knew they needed help to convince the Legislature to pass the bill. They got advice from the Monhegan fishermen who had been successful in implementing a lobster conservation zone around their community. From them the fishermen learned they would need to hire a lobbyist.

After much fundraising, organizing, and too many trips to Augusta, the Legislature passed the 15 gallon daily catch limit and increased the minimum shell size for Cobscook Bay. They also passed a law requiring that no shucking could be done until all undersized scallops were removed from the boat.

The next year Marine Patrol proposed to extend the "no shucking until culling is done" rule statewide. The minimum shell size was also increased statewide. Three years later, the Cobscook Bay Fishermen's Association finally succeeded in getting a meat count rule passed for Cobscook Bay.

The days of 170 boats on opening day are gone. For the last few years 25 to 35 boats have fished scallops on opening day. Last December 1st scallopers found a fair number of legal sized scallops and "lots of little stuff," which hold the promise for next year. Along the rest of the Maine coast, scallops continue to be scarce. We still have some here.

Reception

Music for the end of conference reception was provided by Ohm Sweet Om.

For more information please visit the website www.cobscook.org .