

Oceans eyed as new energy source

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Researchers Look to Ocean Currents and Waves for Energy; ‘Cuisinart Effect’ on Fish Is Feared

1 Just 15 miles off Florida's coast, the world's most powerful sustained ocean current —
2 the mighty Gulf Stream — rushes by at nearly 8.5 billion gallons per second. *And* it
3 never stops.
4 To scientists, *it* represents a real possibility: a new, plentiful and uninterrupted source of
5 clean energy.
6 Florida Atlantic University researchers say the current can someday be used to drive
7 thousands of underwater turbines, produce as much energy as perhaps 10 nuclear plants
8 and supply one-third of Florida's electricity. A small test turbine is expected to be
9 installed in some months.
10 "We can produce power" said Frederick Driscoll, director of the university's Center of
11 Excellence in Ocean Energy Technology. Using a \$5 million research grant from the
12 state, the university is working to develop the technology and hopes that big energy and
13 engineering companies will build huge underwater turbines.
14 From Oregon to Maine, Europe to Australia and beyond, researchers are looking to the
15 sea — currents, tides and waves — for *its* infinite energy. So far, there are no
16 commercial-scale projects in the U.S. delivering electricity to the grid.
17 *Because* the technology is still taking shape, it is too soon to say how much it will cost.
18 But researchers hope to make it as cost-effective as fossil fuels. While the initial
19 investment may be higher, the currents that drive the machinery are free.
20 There are still many unknowns and risks. One fear is the "Cuisinart effect": that the
21 spinning underwater blades chop up fish and other creatures.
22 Researchers said the underwater turbines will pose little risk to passing ships. The
23 equipment will be installed in the ocean floor, with the tops of the blades spinning 30 to
24 40 feet below the surface, *because* that's where the Gulf Stream flows fastest. *But*
25 standard navigation equipment on ocean vessels could easily guide them around the
26 turbine fields, researchers said.
27 David White of the Ocean Conservancy said much of the technology is largely untested
28 in the outdoors, so it is too soon to say what the environmental effects will be.
29 "We understand that there are environmental trade-offs, and we need to start looking to
30 alternative energy and everything has to be on the table," *he* said. "But what are the
31 environmental consequences? We just don't know that yet."

A. Read the text and answer the following questions (in English).

1. What do researchers from Florida Atlantic University want to use the Gulf Stream for?
2. What do the university and energy and engineering companies have to do to carry out the project?
3. What are the economic advantages and disadvantages of this project?
4. What does the ‘Cuisinart Effect’ refer to?
5. What do researchers know about the impact of the underwater turbines on the environment?

B. Answer in Spanish

1. What do the following words refer to in the text?

it (L.4)

its (L.15).....

he (L.30)

2. What word/s are used instead of underwater blades?

.....

3. What kind of relation do these words express? (addition, opposition/contrast, cause/consequence, time)

And (L.2)

Because (L.17).....

because (L.24).....

But (L.24)

Key

1. What do researchers from Florida Atlantic University want to use the Gulf Stream for? They want to use it to produce energy using underwater turbines.
2. What do the university and energy and engineering companies have to do to carry out the project? The university has to develop the technology and the companies have to build huge underwater.
3. What are the economic advantages and disadvantages of this project? The advantage is that the currents that drive the machinery are free; the disadvantage is that the initial investment may be high (and the final cost is still unknown).
4. What does the 'Cuisinart Effect' refer to? It refers to the risk that the spinning underwater blades chop up fish and other creatures.
5. What do researchers know about the impact of the underwater turbines on the environment? Scientists say that the environmental consequences are still unknown.

1. it (1.4): the mighty Gulf Stream
its (1.15): the sea
he (130): David White

2. The words used are underwater turbines, blades.

3. And (1.2): addition
Because (1.17): cause
because (1.24): cause
But (124): contrast