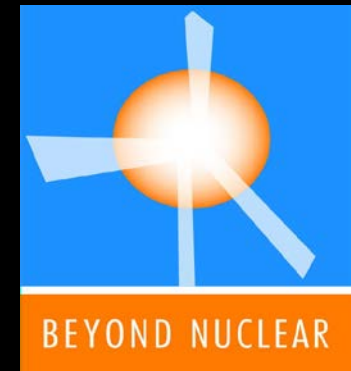




The Impact of Nuclear Power Once-Through Cooling Systems on Marine & Aquatic Life and Habitat

April 18, 2016
Paul Gunter
Beyond Nuclear



Using fission to boil water
at 33% thermal efficiency

“Like using
a cannon to ring a
door bell”



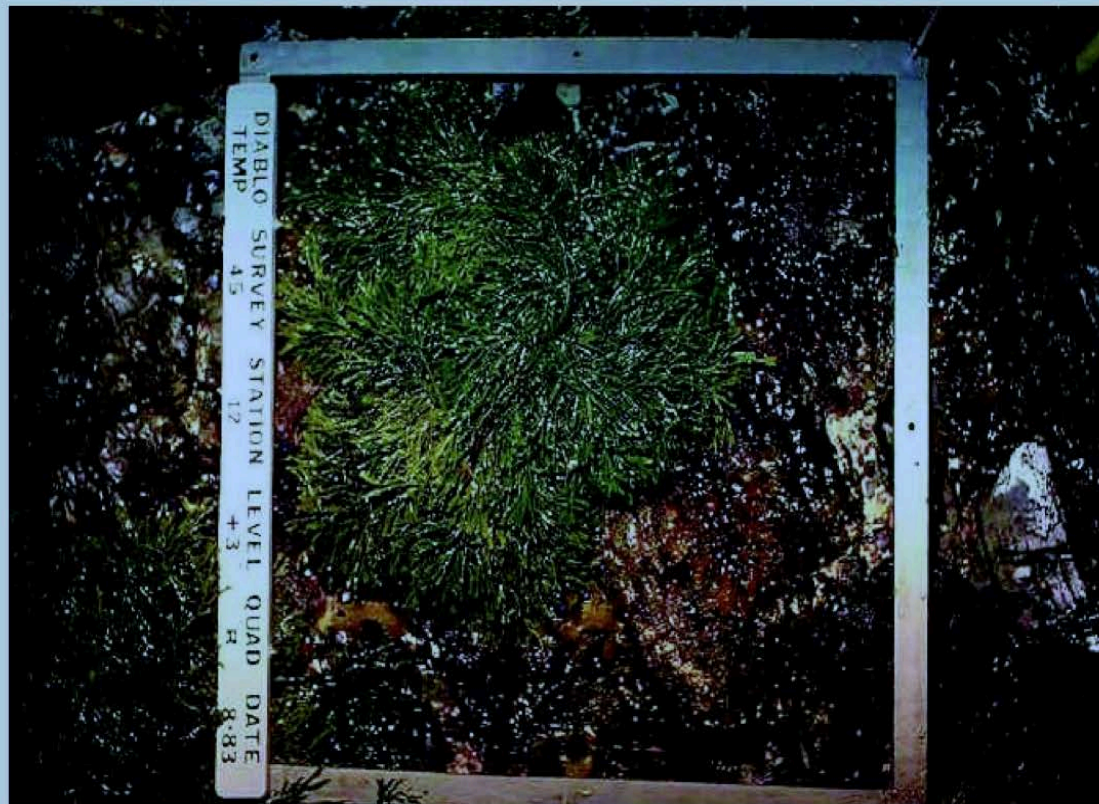
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Diablo Canyon nuclear power station on Diablo Cove San Luis Obispo, CA



Diablo Cove Survey before reactor operations (1983)



BEFORE: A 1983 photograph from an environmental impact study documenting a pristine and thriving marine ecosystem in Diablo Cove prior to the full power operation of the Diablo Canyon Nuclear Power Station in 1986.

A significant portion of Diablo Cove
"is essentially bare rock" (1991)



AFTER: The same quadrant photographed in 1991 after 5 years of thermal discharge from Diablo Canyon Nuclear Power Station showing bare rock, the complete reduction of a marine community throughout Diablo Cove.

St. Lucie nuclear generating station, Hutchinson Island, FL



St. Lucie once-through cooling system



St. Lucie is located among sea turtle nesting beaches



5 sea turtle species protected under the Endangered Species Act

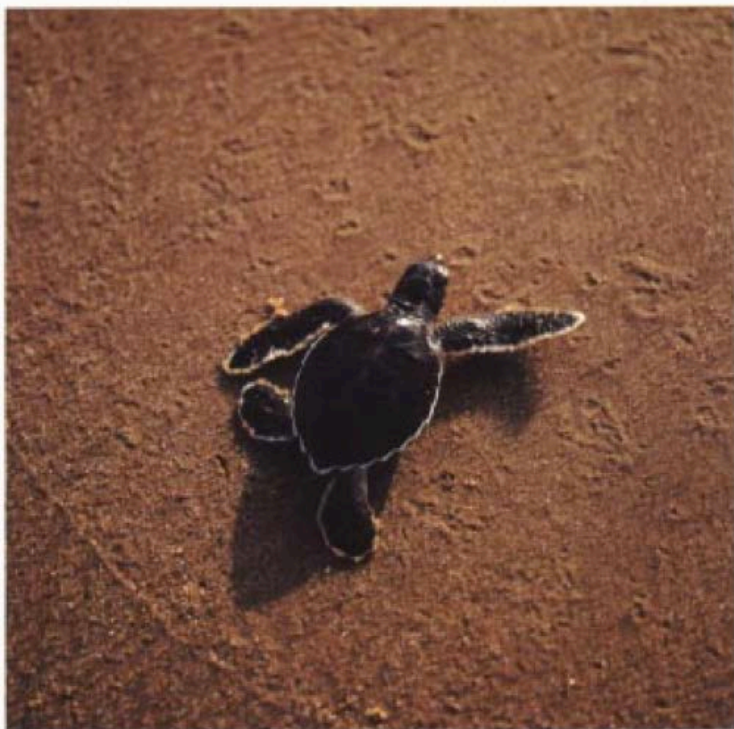


5" and 8" barrier nets



New Incidental Take Statement (ITS) with Turtle Excluder Device (TED) installed mid-2018

On March 24, 2016, the National Marine Fisheries Service (NMFS) approved a Biological Opinion modifying the NRC Operating License to allow the “taking” of 1,143 protected sea turtles per year until March 1, 2036.



SOME ARGUMENTS FOR NUCLEAR ENERGY ARE SMALLER THAN OTHERS.

Around the nuclear electric plant on Florida's
Hutchinson Island, endangered wildlife
have a safe haven. The baby sea turtles
hatching on nearby beaches are more
evidence of the truth about nuclear energy:
it peacefully coexists with the environment.

America's 110 operating nuclear plants
don't pollute the air, because they don't
burn anything to generate electricity. Nor do
they sit up valuable natural resources such
as oil and natural gas.

Still, more plants are needed—to help
satisfy the nation's growing need for elec-
tricity without sacrificing the quality of our
environment. For a free booklet on nuclear
energy, write to the U.S. Council for Energy
Awareness, P.O. Box 44080, Dept. HP06,
Washington, DC 20033.

NUCLEAR ENERGY MEANS CLEANER AIR.

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	<u>Live Captures</u>	<u>Lethal Takes</u>
◆ Hawksbill	7 / yr	1 / 2 yrs
◆ Kemp's ridley	8 / yr	1 / 2 yrs
◆ Leatherback	5 / yr	1 / 2 yrs
◆ Green	500 / yr	5 / yr
◆ Loggerhead	625 / yr	3 / yr

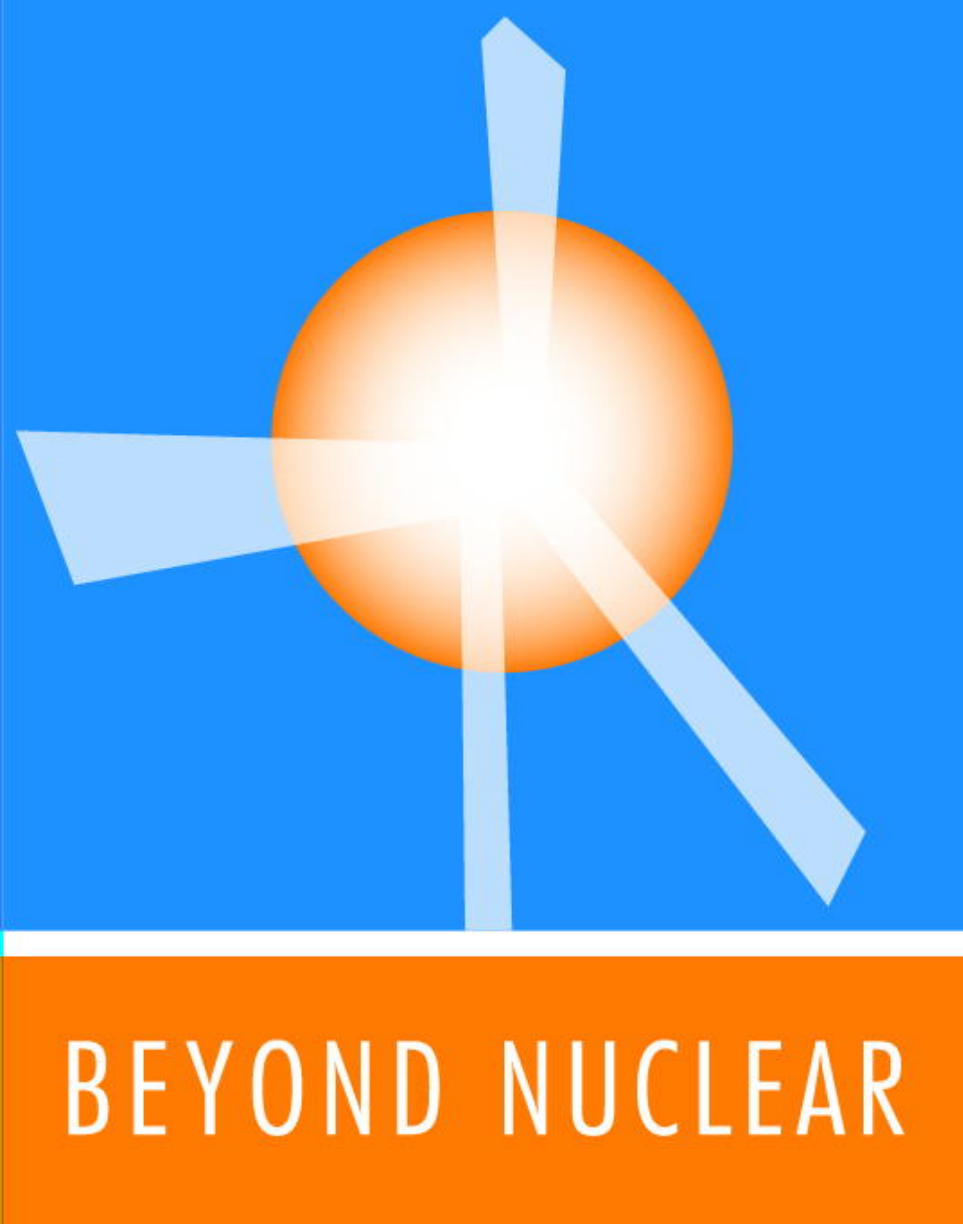
NMFS / Why is the FPL's Turtle Excluder Device design only 23% effective?

"The cooling system is critical to plant operation and flows cannot be compromised."

FPL Environmental Services

07-09-2012 / Unit 1 approved for 11.9 % power uprate---320 MWe

09-24-2012 / Unit 2 approved for 11.9% power uprate---320 MWe



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