

NAWTEC18-3523

Fishing for Energy Partnership Cleans up Marine Debris Pollution and Promotes Benefits of Recycling & Energy-from-Waste

Christine McCoy

Manager of External Affairs
Covanta Energy, Fairfield, NJ, 07004, USA

ABSTRACT

Fishing for Energy (FfE) is a partnership of Covanta Energy Corporation, the National Fish and Wildlife Foundation (NFWF), the National Oceanic and Atmospheric Administration's (NOAA) Marine Debris Program, and Schnitzer Steel Industries, Inc. The purpose of the FfE partnership is to provide fishermen with a no-cost disposal option for old or derelict fishing gear and to convert it into clean, renewable energy, using state-of-the-art Energy-from-Waste technology. To date, nearly 270 tons of gear has been collected, metals are recovered for recycling, and the rest has generated approximately 330 MWh of electricity.

1. INTRODUCTION

Marine debris is any persistent solid material that is manufactured or processed and directly or indirectly, intentionally or unintentionally, disposed of or abandoned into the marine **environment** [1].

Commercial fishing contributes to marine debris pollution both directly and indirectly - through mismanagement of used and worn out gear, and more frequently the result of inadvertent losses due to hurricanes and storms. The high cost to retrieve and dispose of derelict or "ghost nets" has been a significant obstacle in developing sustainable programs that recover lost gear.

Modeled on a similar public-private partnership in Hawaii called *Nets-to-Energy*, the *Fishing for*

Energy (FfE) partners enlist commercial fishing ports to participate in the program, offering free collection, transportation, recycling and disposal services. The partners contract with local waste and recycling haulers to collect the gear and bring it to a nearby Schnitzer facility where any metals are recovered for recycling and the combustible portion is shredded for easier handling at Covanta facilities.

2. COMMERCIAL FISHING & MARINE DEBRIS

The FfE program offers a no-cost solution for gear disposal, encouraging fishermen to both manage their retired gear in an environmentally preferable way, and to bring in the nets and gear they encounter while fishing, if legally allowed. The program also gives fishermen an opportunity to become actively involved in addressing marine debris issues. Commercial fishing gear is lost for a number of reasons, including:

- Weather
- Shipping/Boating
- Gear conflicts
- Species conflicts
- Habitat interactions
- Vandalism [2].

In Chesapeake Bay and elsewhere, where pot loss impact research has been conducted, estimates

suggest that 20-30% of crab pots are lost each year on average. In Maryland it is estimated that there are more than 84,500 derelict traps in Chesapeake Bay from commercial fisheries. In the Puget Sound it is estimated that one lost pot will catch about 48 crabs/year, which equates to 744,000 lbs/year, or a loss of \$1.2 million [2].

Indeed, derelict fishing gear is one of the major types of debris impacting the marine environment today. It can continue to fish, known as “ghostfishing,” entangling and potentially killing marine life. Lost gear can smother marine habitats and also act as a hazard to navigation to both commercial and recreational boats. Ingestion of small pieces of plastic by marine life can lead to starvation or malnutrition and studies have reported incidents of entanglement and ingestion in more than 265 animal species worldwide [2].

4. PROGRAM ELEMENTS

Each partner brings a separate and unique role to the project. NOAA provides the link to the federal and state agencies that must be involved in activities to address old fishing gear, and provides the expertise to identify where the projects are most needed. NFWF serves as a link to local ports, non-governmental organizations and the fishing community, and overall has a history of facilitating government and private sector partnerships. The metal fraction of the recovered gear is recycled and the combustible fraction is sheared to make it easier to process at the EfW facility where the material is converted into clean, renewable energy.

The types of gear being collected include:

1. Nets (nylon, polypropylene, monofilament)

- Examples would include trawl netting, gillnet, cast netting, etc...
- Organic debris (algae, seaweed, or other marine animals) should be removed as best as possible
- All netting should be as dry as possible (not waterlogged)

2. Fishing gear rigging (trawl dragger cookies, cans, rollers, chain)

Traps/Pots (wood, vinyl coated wire)

- Traps or pots should be crushed to reduce volume

- Brick that might be housed within the trap should be removed if possible

3. Line (nylon, polypropylene)

- Line should be tightly coiled if possible

Here is how the partnership works:

1. Fishermen are encouraged to dispose of their old gear and any additional equipment and nets that they may encounter in the ocean at one of the designated drop-off sites, free of charge.
2. Permanent collection bins are located at ports, nearby transfer stations and other community facilities.
3. Once the bin is full, the gear is transported to a Schnitzer Steel facility where all metal gear is recovered for recycling and the combustible portion is chopped up into smaller, more manageable pieces for processing.
4. The material is then hauled to a nearby Energy-from-Waste (EfW) facility where it is combusted at high temperatures and converted into clean, renewable energy that is used by homes and businesses throughout the region.

Most bins are permanently sited in secure locations, but in some cases temporary bins are placed in locations where gear has been accumulated, or the port can not guarantee illegal dumping will not occur. In such instances a bin is dropped off for a day-long fishing gear collection and then transported to the recycling facility for sorting and processing.

Program launch events are held at ports to promote the partnership and increase awareness of the growing problems related to marine debris and derelict fishing gear pollution. Speakers at these events usually include representatives of the FfE partnership, local fishermen, community organizations, and local, state and federal government officials. Media is also invited to increase public awareness of the problem and the FfE partnership’s innovative approach to address it in an environmentally sustainable manor.

Program costs for collection, transportation, shearing, and disposal totaled nearly \$70,000 in

FY 2009, and were shared between the private partners. Covanta has also committed to provide funding of \$200,000 per year through 2013 to NFWF to administer the partnership and grant awards.

5. RESULTS

Between in February 2008 and January 2010, the partnership has placed collection bins at eighteen locations in Maine, Massachusetts, New York, New Jersey, Rhode Island, Virginia and Oregon. To date, the program has collected nearly 300 tons of fishing gear;

Table 1: Total Gear Tonnage Received to Date [4]

Port Location	Tons Collected
New Bedford, MA	18.31
Gloucester, MA	9.16
Brookhaven, NY	16.89
Hyannis, MA	6.95
Scituate, MA	6.2464
Newport, RI	7.81
Cape May, NJ	46.3
Provincetown, MA	7.65
Wellfleet, MA	36.3557
Point Judith, RI	19.4407
Chatham, MA	12.7168
Sandwich, MA	17.515
Portland, ME	2.562
Garibaldi, OR	12.09
Newport, OR	45.19
Boston, MA	TBD
Southampton, NY	4.52
Newport News, VA	TBD
TOTAL	269.7

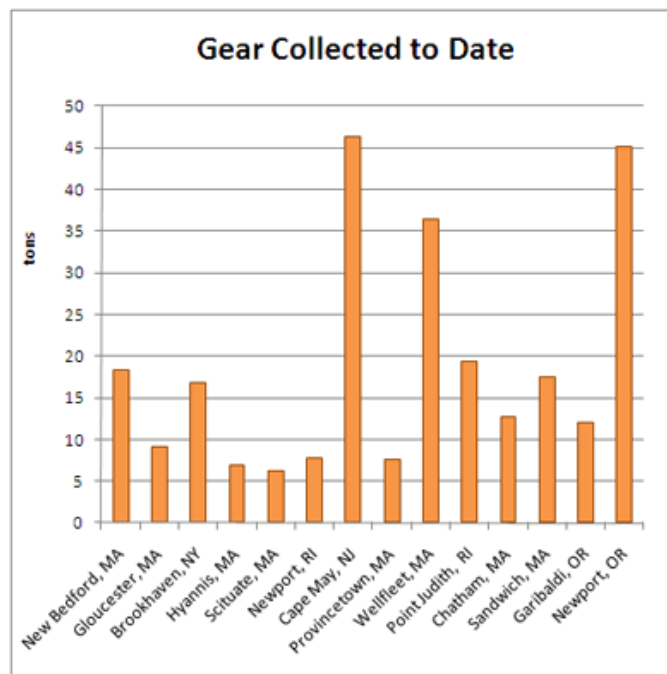


Chart 1: Gear Collected to Date [4]

Much of the gear initially collected is gear that has been stockpiled by fishermen either at their dock site, or at their home. Because purchasing the gear is expensive fishermen have a tendency to stockpile it, or in some cases dispose of damaged gear in the ocean. About 1/3 of the gear collected is metals that have been recovered for recycling, or about 100 tons to-date. Recycling the metal portion of the waste stream is also an important component of the program and reflects the partners' commitment to promoting the solid waste hierarchy – reduce, reuse, recycle, recover for energy, and landfilling as the last resort.

As part of the Fishing for Energy Partnership, NFWF will provide grant funding to partner entities to actually begin identifying gear dump sites and cleaning-up derelict gear from the ocean. Four gear removal grants that are estimated to recover another 140 tons of gear will be awarded in early 2010. Additionally, in 2010, the partnership intends to expand the program to ports in California, Florida, New York, and New Jersey.

[1] <http://marinedebris.noaa.gov/info/welcome.html>

[2] S. Morison, 2010, "The Fishing for Energy Partnership & Derelict Fishing Gear: *The Importance of Understanding the Impacts to Fisheries and Finding Solutions*, pg. 6.

[3] M. Lamont Horinko & J.R. Holmstead , Assistant Administrator, Office of Solid Waste and Emergency Response and Assistant Administrator, Office of Air and Radiation, letter to M. Zannes, President, Integrated Waste Services Association, February 14, 2003.

[4] www.nfwf.org/fishingforenergy