



Exelon Generation®

50 CFR 402.14(i)(3)

December 19, 2014

RA-14-101

National Marine Fisheries Service Northeast Region
Protected Resources Division
One Blackburn Drive
Gloucester, MA 01930
Attention: Julie Crocker, Section 7 Coordinator

Oyster Creek Nuclear Generating Station
Renewed Facility Operating License No. DPR-16
NRC Docket No. 50-219

Subject: ANNUAL REPORT OF SEA TURTLE INCIDENTAL TAKES – 2014

Dear Ms. Crocker:

Enclosed is a copy of the 2014 Annual Sea Turtle Incidental Take Report for the Oyster Creek Nuclear Generating Station. The report is submitted in accordance with Terms and Conditions No. 8 of the Incidental Take Statement of the 2011 Endangered Species Act Section 7 Consultation Biological Opinion.

If you have any questions concerning this submittal, please contact Kathryn Houlahan, Environmental Scientist, at (609) 971-2588.

Sincerely,

Jeffrey P. Dostal
Plant Manager
Oyster Creek Nuclear Generating Station

Enclosures:

Annual Report of Sea Turtle Incidental Takes – 2014
2014 Incidental Take Reports

cc: NRC Document Control Desk ✓
Administrator, Region I
NRC Senior Project Manager
NRC Senior Resident Inspector

IE77
NRR

Enclosure to RA-14-101

Annual Report of Sea Turtle Incidental Takes - 2014

Oyster Creek Nuclear Generating Station

Renewed Facility Operating License No. DPR-16

Docket No. 50-219

Prepared by:
Kathryn Houlahan, Environmental Scientist
Kathy Paez, Regulatory Specialist

Exelon Generation

December 2014

Introduction

The Annual Report of Sea Turtle Incidental Takes provides a summary of the incidental takes of all species of sea turtles at the Oyster Creek Nuclear Generating Station (OCNGS) during the past year. The report is required by Terms and Conditions (T&C) # 8 of the Incidental Take Statement (ITS) of the OCNGS Endangered Species Act Section 7 Consultation Biological Opinion. This report covers all incidental takes and sightings of sea turtles that occurred during 2014.

Incidental Take Reports documenting the circumstances of incidental takes of sea turtles were completed following eight OCNGS sea turtle incidental takes during 2014 and were provided to the National Marine Fisheries Service (NMFS) and United States Nuclear Regulatory Commission (USNRC) within 30 days of each incidental take. Sea Turtle Incidental Take Reports 2014-1 through 2014-8 are summarized in Attachment 1. Photographs of the eight turtles, as well as the necropsy reports for the two sea turtles that died at the Marine Mammal Stranding Center, have already been supplied with the individual reports and therefore are not included in this report.

<u>Take</u>	<u>Incidental Take Date / Time (condition and species)</u>
2014-1	Sunday, June 15, 2014/ 1455 (Live juvenile Kemp's ridley)
2014-2	Monday, June 16, 2014/ 0020 (Live juvenile Kemp's ridley)
2014-3	Thursday, July 3, 2014/ 0802 (Live Loggerhead)
2014-4	Saturday, July 19, 2014/ 2000 (Live juvenile Kemp's ridley)
2014-5	Wednesday, August 6, 2014/ 0400 (Live juvenile Kemp's ridley)
2014-6	Wednesday, August 13, 2014/ 0406 (Live juvenile Kemp's ridley)
2014-7	Tuesday, September 2, 2014/ 0200 (Live juvenile Kemp's ridley)
2014-8	Monday, September 8, 2014/ 2245 (Live juvenile Kemp's ridley)

Comparison of Annual Sea Turtle Incidental Takes With Prior Years

The eight OCNGS incidental takes during 2014 is greater than the long-term average of approximately four incidental takes per year recorded over the last twenty years. However, the annual abundance of sea turtles in this vicinity appears to be highly variable, unpredictable, and unrelated to the operation of OCNGS. There are several factors that may influence the number of sea turtle incidental takes that occur at OCNGS. Barnegat Inlet, the only tidal inlet in the vicinity of Oyster Creek, which provides access to Barnegat Bay from the Atlantic Ocean, was deepened during dredging operations in the early 1990s. Completion of the Barnegat Inlet dredging operation resulted in an increase in the tidal prism, or volume of water entering and exiting the inlet on a single tidal cycle, as well as a slightly greater tidal range at Oyster Creek. The deepening of Barnegat Inlet and associated waterway channels was completed immediately prior to 1992, when incidental takes of sea turtles began to occur at OCNGS, and may partially explain the occurrence of the turtles. Increased regulatory protection of sea turtles under the Endangered Species Act also began in the early 1990s.

Physical factors, such as an oceanic front or an oceanic eddy occurring unusually close to Barnegat Inlet, may also play a part in the prevalence of sea turtles near Oyster Creek because oceanic fronts have been shown to be used as a migratory and forage habitat by sea turtles (Polovina et al, 2000). Experience has also shown that the passage of a severe storm or

pressure system near Barnegat Inlet can cause major increases in winds, waves, tides and tidal prism in shallow estuarine waters such as Barnegat Bay. These events could increase the likelihood of slowly swimming organisms such as sea turtles occurring in the estuary. It is likely that the local variability of sea turtle abundance is also related to biological factors including the abundance of organisms on which sea turtles prefer to feed, including crabs such as blue crabs, horseshoe crabs, and calico crabs, as well as sponges and various types of algae. The higher than average number of incidental takes in 2014 may have been an anomaly based on favorable physical conditions or prey abundance. However, an analysis of the number of incidental takes at OCNGS indicates that there has been a gradual increase in the average annual number of incidental takes in recent years in comparison to the previous decade. For example, a total of twenty sea turtle incidental takes occurred at OCNGS between 1992 and 2001 (an average of two takes per year) but 70 incidental takes occurred between 2002 and 2013 (an average of over five takes per year). This recent trend of increasing OCNGS incidental takes parallels a similar trend of generally increasing sea turtle strandings reported during that period by the Sea Turtle Stranding and Salvage Network (STSSN) along the Atlantic coast. The conduct of operations at the OCNGS intakes has not been changed in any manner that would explain the recent increase in takes. However, the increase may reflect the long-term success of turtle legislative protection and conservation measures such as TED implementation, nest and egg protection at sea turtle nesting sites, and turtle head-starting programs.

Many years of environmental sampling conducted near OCNGS have repeatedly demonstrated that the abundance of various marine organisms can vary considerably from year to year, often by orders of magnitude. This is particularly true for seasonal migrants, whose abundance in Barnegat Bay is highly dependent upon physical and biological factors along the migratory route. Therefore, the observed annual variation in sea turtle incidental takes at OCNGS from a minimum of zero to a maximum of eleven per year is not considered particularly significant.

In the most recent OCNGS Biological Opinion and ITS, issued in November 2011, NMFS determined that no more than 71 Kemp's ridley sea turtles, 6 loggerhead sea turtles, and 11 Atlantic green sea turtles are likely to be directly affected by interaction with OCNGS during the remainder of the OCNGS operating license (i.e., through 2029). The cumulative numbers of post-2011 incidental takes are listed below and can be used for comparison with the allowable species totals during the remainder of the OCNGS operating license:

<u>Turtle Species</u>	<u>Cumulative Total to Date 11/2011-12/2029</u>
Kemp's ridley	18
Loggerhead	3
Green	1

OCNGS expects ongoing support from the Marine Mammal Stranding Center (MMSC) for both transfers of live sea turtles for rehabilitation and as the primary facility for necropsies. OCNGS has noted the exceptional past efforts by the dedicated and capable MMSC staff in the care and rehabilitation of sea turtles transferred to the Brigantine facility, and that exceptional level of care was again apparent during 2014.

The ultimate goal of the considerable effort being put forward at OCNGS for the protection of sea turtles is to protect the turtles that do arrive at the plant, and to release as many turtles as possible to safety. The OCNGS program for the protection of threatened and endangered sea

turtles can be considered to be quite successful because most of the sea turtles incidentally captured at OCNGS since 1992 (with some in distress prior to being taken) have subsequently been rehabilitated and released alive and well, to the Atlantic Ocean in locations free from potential cold-shock owing to the efforts of OCNGS and MMSC personnel.

References

Polovina, J.J., D.R. Kobayashi, D.M. Ellis, M.P. Seki, and G.H. Balazs. 2000. Turtles on the edge: Movement of loggerhead turtles (*Caretta caretta*) along oceanic fronts in the central North Pacific, 1997-1998. Fish. Oceanogr., 9: 71-82.

Enclosure to RA-14-101

ATTACHMENT 1

2014 Incidental Take Reports

	Incidental Take 2014-1	Incidental Take 2014-2	Incidental Take 2014-3
OPERATIONS DEPARTMENT:			
Observer's full name:	Bryan Savick	Colin Wade	Brian Risley
Reporter's full name:	John Devenney	Thomas J. Busk	Jeremy Sharkey
Species Identification (Key attached):	Kemp's ridley	Kemp's ridley	Loggerhead
Site of Impingement (CWS or DWS):	DWS	CWS	DWS
Bay Number:	1	1	3
Date animal observed:	15-Jun-14	16-Jun-14	3-Jul-14
Time animal observed:	14:55	0:20	8:02
Date animal collected:	15-Jun-14	16-Jun-14	3-Jul-14
Time animal collected:	15:00	0:25	14:50
CONDITIONS AT COLLECTION:			
Tidal Stage:	High Tide	Low Tide	Low Tide
Cloud conditions:	Overcast/Cloudy	Overcast/Cloudy	Clear
Precipitation:	None	None	None
Intake water temperature:	73.8°F	73.9°F	84°F
Other conditions	None	Air temperature 60°F	None
Number of CW pumps running:	4	4	4
Number of DW pumps running:	2	2	2
Reactor power level at observation:	100%	100%	100%
Reactor power previous 48-hours:	100%	100%	100%
Date of last screen inspection:	15-Jun-14	15-Jun-14	3-Jul-14
Time of last screen inspection:	11:30	19:40	7:40
Date of last trash raking:	14-Jun-14	15-Jun-14	3-Jul-14
Time of last trash raking:	12:14	19:40	8:54

	<u>Incidental Take 2014-1</u>	<u>Incidental Take 2014-2</u>	<u>Incidental Take 2014-3</u>
ENVIRONMENTAL DEPARTMENT:			
Date Brigantine MMSC contacted:	15-Jun-14	16-Jun-14	3-Jul-14
Time Brigantine MMSC contacted:	15:41	1:09	12:40
Date Animal picked up by MMSC:	15-Jun-14	16-Jun-14	3-Jul-14
Time Animal picked up by MMSC:	17:40	8:28	16:30
State of animal when first observed:	Alive	Alive	Alive
State of animal when collected:	Alive	Alive	Alive
State of animal when picked up:	Alive	Alive	Alive
State of animal arriving at MMSC:	Alive	Alive, but lethargic	Alive, part of the rear carapace and a few scutes.
Final disposition of animal:	Buried by MMSC, off beach	Alive, taken to rehab facility	Alive, taken to rehab facility
Carapace Length - Curved	27.0 cm	27.3 cm	63.5 cm
Carapace Length - Straight	22.7 cm	26.3 cm	56.3 cm
Carapace Width - Curved:	27.0 cm	27.8 cm	27.5 cm
Carapace Width - Straight:	25.1 cm	24.6 cm	55.5 cm
Weight - lbs (kgs)	5.4 lbs (2.4 kg)	5.9 lbs (2.7 kg)	91.4 lbs (41.5 kg)
Existing Tag Number	no tag	no tag	no tag
Photograph attached	Yes	Yes	Yes
Diagram of wounds, abnormalities, tag locations attached	Yes	Yes	Yes
Description of Animal	Alive, but lethargic. Several scars on carapace and body along with numerous barnacles and algae growth. Died later at stranding center. No cause of death identified, some evidence of long term illness.	Alive, slightly lethargic. Minor scrapes on carapace.	Alive, missing half of the RFF and part of the rear carapace. A few scutes are missing.
All information sent to: National Marine Fisheries Service, Northeast Region; Protected Resources Division; Attention: Endangered Species Coordinator; One Blackburn Drive; Gloucester, MA 01930	Yes	Yes	Yes

	Incidental Take 2014-4	Incidental Take 2014-5	Incidental Take 2014-6
OPERATIONS DEPARTMENT:			
Observer's full name:	Brian Breidinger	Steve Davis	Brian Briedinger
Reporter's full name:	Jeremy Sharkey	Steve Davis	Jeremy Sharkey
Species Identification (Key attached):	Kemp's ridley	Kemp's ridley	Kemp's ridley
Site of Impingement (CWS or DWS):	DWS	CWS	CWS
Bay Number:	2	1	2
Date animal observed:	19-Jul-14	6-Aug-14	13-Aug-14
Time animal observed:	20:00	4:00	4:06
Date animal collected:	19-Jul-14	6-Aug-14	13-Aug-14
Time animal collected:	20:10	4:05	4:06
CONDITIONS AT COLLECTION:			
Tidal Stage:	Low Tide	High Tide	Low Tide
Cloud conditions:	Cloudy	Clear	Overcast
Precipitation:	None	None	None
Intake water temperature:	79°F	79.7°F	79.2°F
Other conditions	None	None	None
Number of CW pumps running:	4	4	4
Number of DW pumps running:	2	2	2
Reactor power level at observation:	100%	84%	99.80%
Reactor power previous 48-hours:	100%	97.30%	99.80%
Date of last screen inspection:	19-Jul-14	6-Aug-14	13-Aug-14
Time of last screen inspection:	16:45	0:01	0:40
Date of last trash raking:	19-Jul-14	5-Aug-14	12-Aug-14
Time of last trash raking:	15:17	3:11	1:12

	<u>Incidental Take 2014-4</u>	<u>Incidental Take 2014-5</u>	<u>Incidental Take 2014-6</u>
ENVIRONMENTAL DEPARTMENT:			
Date Brigantine MMSC contacted:	19-Jul-14	6-Aug-14	13-Aug-14
Time Brigantine MMSC contacted:	20:20	4:30	4:27
Date Animal picked up by MMSC:	19-Jul-14	19-Jul-14	13-Aug-14
Time Animal picked up by MMSC:	21:40	21:40	11:50
State of animal when first observed:	Alive	Alive	Alive
State of animal when collected:	Alive	Alive	Alive
State of animal when picked up:	Alive	Alive	Alive
State of animal arriving at MMSC:	Alive, with prop cut, damage to the right side of the carapace, and a broken beak.	Alive, with prop cut, damage to the right side of the carapace, and a broken beak.	Alive, bright, alert, and responsive. No obvious injuries or illness.
Final disposition of animal:	Buried by MMSC, off beach	Alive, released in Brigantine	Alive, released in Brigantine, NJ.
Carapace Length - Curved	28.6 cm	30.4 cm	26.2 cm
Carapace Length - Straight	27.6 cm	28.7 cm	25.1 cm
Carapace Width - Curved:	29.0 cm	30.4 cm	25.8 cm
Carapace Width - Straight:	25.3 cm	26.1 cm	23.1 cm
Weight - lbs (kgs)	6.6 lbs (3.0 kg)	7.9 lbs (3.6 kg)	4.8 lbs (2.2 kg)
Existing Tag Number	no tag	no tag	no tag
Photograph attached	Yes	Yes	Yes
Diagram of wounds, abnormalities, tag locations attached	Yes	Yes	Yes
Description of Animal	Alive, with prop cut to center left carapace and severe damage to beak. The animal was euthanized by MMSC because it could not eat, due to the extent of these injuries.	Alive, alert, responsive. No significant injuries. Old wound on left edge of carapace that had healed.	Alive, alert, and responsive. No obvious injury or illness.
All information sent to: National Marine Fisheries Service, Northeast Region; Protected Resources Division; Attention: Endangered Species Coordinator; One Blackburn Drive; Gloucester, MA 01930	Yes	Yes	Yes

	Incidental Take 2014-7	Incidental Take 2014-8
OPERATIONS DEPARTMENT:		
Observer's full name:	Christopher Phillips	Pete Frausto
Reporter's full name:	Christopher Phillips	Pete Frausto
Species Identification (Key attached):	Kemp's ridley	Kemp's ridley
Site of Impingement (CWS or DWS):	CWS	DWS
Bay Number:	1	3
Date animal observed:	2-Sep-14	8-Sep-14
Time animal observed:	2:00	22:45
Date animal collected:	2-Sep-14	8-Sep-14
Time animal collected:	2:00	22:45
CONDITIONS AT COLLECTION:		
Tidal Stage:	High Tide	Low Tide
Cloud conditions:	Clear	Clear
Precipitation:	None	None
Intake water temperature:	77.7°F	75.7°F
Other conditions	None	None
Number of CW pumps running:	4	4
Number of DW pumps running:	2	2
Reactor power level at observation:	100%	100%
Reactor power previous 48-hours:	100%	100%
Date of last screen inspection:	2-Sep-14	8-Sep-14
Time of last screen inspection:	0:01	21:00
Date of last trash raking:	1-Sep-14	8-Sep-14
Time of last trash raking:	5:13	16:59

	<u>Incidental Take 2014-7</u>	<u>Incidental Take 2014-8</u>
ENVIRONMENTAL DEPARTMENT:		
Date Brigantine MMSC contacted:	2-Sep-14	8-Sep-14
Time Brigantine MMSC contacted:	1:00	23:30
Date Animal picked up by MMSC:	2-Sep-14	9-Sep-14
Time Animal picked up by MMSC:	9:40	10:00
State of animal when first observed:	Alive	Alive
State of animal when collected:	Alive	Alive
State of animal when picked up:	Alive	Alive
State of animal arriving at MMSC:	Alive, bright, alert, and responsive. No obvious injuries or illness.	Alive, bright, alert, and responsive. No significant injuries.
Final disposition of animal:	Alive, released in Brigantine, NJ	Alive, released in Brigantine, NJ
Carapace Length - Curved	29.0 cm	32.5 cm
Carapace Length - Straight	28.0 cm	31.3 cm
Carapace Width - Curved:	30.0 cm	33.5 cm
Carapace Width - Straight:	26.0 cm	28.2 cm
Weight - lbs (kgs)	6.7 lbs (3.0 kg)	9.4 lbs (4.3 kg)
Existing Tag Number	no tag	no tag
Photograph attached	Yes	Yes
Diagram of wounds, abnormalities, tag locations attached	Yes	Yes
Description of Animal	Alive, bright, alert, and responsive. No obvious injuries or illness.	Alive, alert, and responsive. No significant injuries. Some minor abrasions on carapace and plastron.
All information sent to: National Marine Fisheries Service, Northeast Region; Protected Resources Division; Attention: Endangered Species Coordinator; One Blackburn Drive; Gloucester, MA 01930	Yes	Yes