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50 CFR 402.14(i)(3)

December 21, 2011

RA-11-097

Julie Crocker  
NOAA, National Marine Fisheries Service  
Northeast Region  
Protected Resources Division  
55 Great Republic Drive  
Gloucester, MA 01930

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

Subject: ANNUAL SEA TURTLE INCIDENTAL TAKE REPORT – 2011

Dear Ms. Crocker:

Enclosed is a copy of the 2011 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 2006 Endangered Species Act Section 7 Consultation Biological Opinion.

If you have any questions concerning this submittal, please contact Malcolm Browne, Environmental Scientist, at (609) 971-4124.

Sincerely,



Michael J. Massaro  
Vice President  
Oyster Creek Nuclear Generating Station

Enclosure

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

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**Enclosure to RA-11-097**

**Annual Report of Sea Turtle Incidental Takes - 2011**

**Oyster Creek Nuclear Generating Station**

**Renewed Facility Operating License No. DPR-16**

**Docket No. 50-219**

**Prepared by:**

**Malcolm Browne, Senior Environmental Scientist  
James Kerr, Senior Regulatory Specialist**

**Exelon Corporation**

**December 2011**

## 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 2011.

Incidental Take Reports documenting the circumstances of incidental takes of sea turtles were completed following eight (8) OCNGS sea turtle incidental takes during 2011 and were provided to the National Marine Fisheries Service (NMFS) and the United States Nuclear Regulatory Commission (US NRC) within 30 days of each incidental take. Sea Turtle Incidental Take Reports 2011-1 through 2011-8 are summarized in Attachment 1. Photographs of three of the eight turtles have already been supplied with the individual reports and therefore are not included in this report. Photographs of turtles 2011-3 through 2011-7 (i.e., those incidentally taken during August 2011 and not previously provided) are included with this report in Attachment 2. There was a delay in OCNGS receiving these photos from the Marine Mammal Stranding Center (MMSC) due to MMSC having to evacuate many of their animals and personnel from their facility because of the passage of Hurricane Irene.

<u>Take</u>	<u>Date / Time (condition and species)</u>
2011-1	Tuesday, June 7, 2011/ 0915 (Live juvenile Kemp's ridley)
2011-2	Thursday, June 9, 2011/ 1734 (Dead juvenile Kemp's ridley)
2011-3	Saturday, August 13, 2011/ 0055 (Live juvenile Green sea turtle)
2011-4	Monday, August 22, 2011/ 0040 (Live juvenile Kemp's ridley)
2011-5	Saturday, August 27, 2011/ 0030 (Live juvenile Kemp's ridley)
2011-6	Saturday, August 27, 2011/ 1630 (Live juvenile Kemp's ridley)
2011-7	Tuesday, August 30, 2011/ 0945 (Live juvenile Loggerhead)
2011-8	Wednesday, September 28, 2011/ 1434 (Dead juvenile Kemp's ridley)

<u>Sighting</u>	<u>Date / Time (species)</u>
2011-S1	Wednesday, August 10, 2011/ 1230 (Live sea turtle; species unknown)

## Comparison of Annual Sea Turtle Incidental Takes With Prior Years

Regarding trends in the number of incidental sea turtle takes at the OCNGS, a total of eight sea turtle incidental takes occurred during 2011. All but two of the sea turtles incidentally taken at OCNGS during 2011 were alive and in good condition when incidentally taken and were subsequently released after they were confirmed to be feeding well and moving about normally. The only two sea turtles that were not alive when incidentally taken at the OCNGS were partially decomposed when taken, and the necropsies conducted on them concluded that they were likely to have died prior to arriving at OCNGS.

The eight OCNGS incidental takes during 2011 is greater than the long-term average of approximately three 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 the 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 1990's.

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. In this regard, it is noteworthy that three of the sea turtles incidentally taken at Oyster Creek during 2011 occurred within days of the passage of Hurricane Irene. 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 2011 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 56 incidental takes occurred between 2002 and 2011 (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 have 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 and conservation measures such as Turtle Excluder Device (TED) implementation, nest and egg protection at sea turtle nesting sites, and turtle headstarting programs.

The massive oil plume released into the Gulf of Mexico during 2010 following the fire on the BP offshore drilling rig may also have a future effect on the number of sea turtles incidentally taken at OCNGS. Although the BP oil plume was probably not an important factor in 2011, it remains to be seen whether it may ultimately slow the general trend of increasing numbers of Atlantic coast sea turtle sightings and incidental takes.

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. 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 back to the environment. 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 warmer water locations further south due to the efforts of OCNGS and MMSC personnel.

The eight incidental takes of sea turtles during 2011 at the OCNGS did not exceed the ITS limit, which is currently a maximum of eight total turtles per year. There were two incidental takes of dead Kemp's ridley sea turtles at the OCNGS during 2011. The necropsies for those turtles by MMSC determined that both were postmortem impingements, so their deaths were apparently unrelated to the operation of OCNGS.

OCNGS expects ongoing support from the Marine Mammal Stranding Center in Brigantine, New Jersey for both transfers of live sea turtles for rehabilitation and as the primary facility for necropsies. OCNGS has noted the exceptional efforts by the dedicated and capable MMSC staff in the care and rehabilitation of sea turtles transferred to the Brigantine facility, which was especially apparent during 2011 when support by MMSC personnel was provided to Oyster Creek despite severe weather conditions prior to and following the passage of Hurricane Irene.

#### 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-11-097**

**ATTACHMENT 1**

**2011 Incidental Take Reports**

**Attachment 1 to RA-11-097, Oyster Creek Nuclear Generating Station Annual Sea Turtle Incidental Take Report - 2011**

	<b>Incidental Take 2011-1</b>	<b>Incidental Take 2011-2</b>	<b>Incidental Take 2011-3</b>
<b>OPERATIONS DEPARTMENT:</b>			
Observer's full name:	William Tolbert	William Tolbert	Daniel Megill
Reporter's full name:	David Shaffer	Brian Now	Mark Baratta
Species Identification (Key attached):	Kemp's Ridley	Kemp's Ridley	Green
Site of Impingement (CWS or DWS):	DWS	DWS	CWS
Bay Number:	1	4	5
Date animal observed:	7-Jun-11	9-Jun-11	13-Aug-11
Time animal observed:	9:15	17:34	0:55
Date animal collected:	7-Jun-11	9-Jun-11	13-Aug-11
Time animal collected:	9:15	17:34	0:55
<b>CONDITIONS AT COLLECTION:</b>			
Tidal Stage:	Ebb Tide	High Tide	High Tide
Cloud conditions:	Partly Cloudy	Sunny	Clear
Precipitation:	None	None	None
Intake water temperature:	70.3°F / 21.3°C	80.8°F / 27.1°C	83.8°F / 28.8°C
Other conditions	None Recorded	None Recorded	Wind 3.8MPH from 259 deg.
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:	7-Jun-11	9-Jun-11	12-Aug-11
Time of last screen inspection:	8:10	16:15	20:18
Date of last trash raking:	7-Jun-11	9-Jun-11	12-Aug-11
Time of last trash raking:	9:11	17:00	0:42

**Attachment 1 to RA-11-097, Oyster Creek Nuclear Generating Station Annual Sea Turtle Incidental Take Report - 2011**

	<b>Incidental Take 2011-1</b>	<b>Incidental Take 2011-2</b>	<b>Incidental Take 2011-3</b>
<b>ENVIRONMENTAL DEPARTMENT:</b>			
Date Brigantine MMSC contacted:	7-Jun-11	9-Jun-11	13-Aug-11
Time Brigantine MMSC contacted:	10:07	17:45	1:32
Date Animal picked up by MMSC:	7-Jun-11	9-Jun-11	13-Aug-11
Time Animal picked up by MMSC:	11:30	19:50	3:20
State of animal when first observed:	Alive	Dead	Alive
State of animal when collected:	Turtle was alive, active, no visible scars or punctures.	Scrape rear center top of shell. Piece of shell missing front center. Turtle was not responsive.	Alive
State of animal when picked up:	Alive	Dead	Alive
State of animal arriving at MMSC:	Alive	Dead	Alive



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	<b>Incidental Take 2011-1</b>	<b>Incidental Take 2011-2</b>	<b>Incidental Take 2011-3</b>
Final disposition of animal:	Released at Brigantine, NJ	Necropsied at MMSC and buried at north end of Brigantine Island, NJ	Alive and released at north end of Brigantine, NJ
Carapace Length - Curved	28.1 cm	22.5 cm	23.1 cm
Carapace Length - Straight	26.1 cm	21.5 cm	22.0 cm
Carapace Width - Curved:	29.1 cm	22.3 cm	19.6 cm
Carapace Width - Straight:	25.1 cm	19.3 cm	18.2 cm
Weight - lbs (kgs)	6.4 lbs (2.9 kg)	3.0 lbs (1.4 kg)	3.1 lbs (1.4 kg)
Existing Tag Number	None	None	None
Photograph attached	Yes	Yes	Yes
Diagram of wounds, abnormalities, tag locations attached	None	Yes	Yes
Description of Animal	Alive and active Juvenile.	Deceased juvenile Kemp's ridley sea turtle, determined by necropsy to be female	Juvenile, Indeterminant sex. Alive, active, and responsive. Eating on its own. Animal was in good condition. Good weight with minor scrapes to 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	Yes

**Attachment 1 to RA-11-097, Oyster Creek Nuclear Generating Station Annual Sea Turtle Incidental Take Report - 2011**

	<b>Incidental Take 2011-4</b>	<b>Incidental Take 2011-5</b>	<b>Incidental Take 2011-6</b>
<b>OPERATIONS DEPARTMENT:</b>			
Observer's full name:	Chris McNamer	James Labant	Rich Harshburger
Reporter's full name:	Chris McNamer	Andrew Zuchowski	Steven Johnston
Species Identification (Key attached):	Kemp's Ridley	Kemp's Ridley	Kemp's Ridley
Site of Impingement (CWS or DWS):	CWS	CWS	DWS
Bay Number:	6	1	4
Date animal observed:	22-Aug-11	27-Aug-11	27-Aug-11
Time animal observed:	0:26	0:30	16:10
Date animal collected:	22-Aug-11	27-Aug-11	27-Aug-11
Time animal collected:	0:40	0:30	16:30
<b>CONDITIONS AT COLLECTION:</b>			
Tidal Stage:	Low tide	Ebb Tide	Low Tide
Cloud conditions:	Partly cloudy	Prior to Hurricane Irene, calm	Hurricane Irene
Precipitation:	None	None	Rain
Intake water temperature:	82.6°F / 28.1°C	82.4°F / 28.0°C	78.3°F / 25.7°C
Other conditions	Wind WSW 9 mph	None Recorded	Wind 13 mph
Number of CW pumps running:	4	4	4
Number of DW pumps running:	2	2	2
Reactor power level at observation:	100%	100%	30%
Reactor power previous 48-hours:	100%	approx. 85%	approx. 90%
Date of last screen inspection:	21-Aug-11	27-Aug-11	27-Aug-11
Time of last screen inspection:	20:10	0:00	13:00
Date of last trash raking:	21-Aug-11	27-Aug-11	27-Aug-11
Time of last trash raking:	1:22	0:00	13:00

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	<u>Incidental Take 2011-4</u>	<u>Incidental Take 2011-5</u>	<u>Incidental Take 2011-6</u>
<b>ENVIRONMENTAL DEPARTMENT:</b>			
Date Brigantine MMSC contacted:	22-Aug-11	27-Aug-11	27-Aug-11
Time Brigantine MMSC contacted:	1:30	1:45	17:57
Date Animal picked up by MMSC:	22-Aug-11	27-Aug-11	28-Aug-11
Time Animal picked up by MMSC:	3:44	7:30	12:55
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	Alive

**Attachment 1 to RA-11-097, Oyster Creek Nuclear Generating Station Annual Sea Turtle Incidental Take Report - 2011**

	<b>Incidental Take 2011-4</b>	<b>Incidental Take 2011-5</b>	<b>Incidental Take 2011-6</b>
Final disposition of animal:	Alive and released at north end of Brigantine, NJ	Alive and released at north end of Brigantine, NJ	Alive and released at north end of Brigantine, NJ
Carapace Length - Curved	34.1 cm	33.6 cm	33.3 cm
Carapace Length - Straight	32.7 cm	32.0 cm	32.0 cm
Carapace Width - Curved:	33.5 cm	33.0 cm	34.3 cm
Carapace Width - Straight:	30.1 cm	29.4 cm	30.4 cm
Weight - lbs (kgs)	10 lbs (4.5 kg)	8.8 lbs (4.0 kg)	11.2 lbs (5.1 kg)
Existing Tag Number	None	None	None
Photograph attached	Yes	Yes	Yes
Diagram of wounds, abnormalities, tag locations attached	Yes	Yes	Yes
Description of Animal	Juvenile, Indeterminant sex. Swimming and active when incidentally taken. Turtle was lethargic upon arrival at MMSC. There was bruising and scrapes on plastron. Eating on its own.	Juvenile, Indeterminant sex. Active and alert when taken and upon arrival at MMSC. There were scrapes on plastron. Turtle was eating on its own.	Juvenile, Indeterminant sex. Alert and active upon arrival to MMSC. There were scrapes on the plastron. Old scar on shell. Small section of left rear flipper missing. Turtle eating on its own.
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

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	<b>Incidental Take 2011-7</b>	<b>Incidental Take 2011-8</b>
<b>OPERATIONS DEPARTMENT:</b>		
Observer's full name:	Dan Megill	Gary Winkler
Reporter's full name:	Dan Megill	Neal Miller
Species Identification (Key attached):	Loggerhead	Kemp's Ridley
Site of Impingement (CWS or DWS):	CWS	DWS
Bay Number:	5	2
Date animal observed:	30-Aug-11	28-Sep-11
Time animal observed:	9:45	14:29
Date animal collected:	30-Aug-11	28-Sep-11
Time animal collected:	9:45	14:34
<b>CONDITIONS AT COLLECTION:</b>		
Tidal Stage:	Flood tide	Ebb Tide
Cloud conditions:	Clear	Overcast
Precipitation:	None	None
Intake water temperature:	73.0°F / 22.8°C	77.9°F / 25.5°C
Other conditions	Reactor startup in progress	None Reported
Number of CW pumps running:	4	4
Number of DW pumps running:	2	2
Reactor power level at observation:	65%	100%
Reactor power previous 48-hours:	Reactor startup in progress	100%
Date of last screen inspection:	30-Aug-11	28-Sep-11
Time of last screen inspection:	8:01	14:23
Date of last trash raking:	30-Aug-11	28-Sep-11
Time of last trash raking:	8:01	14:23

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	<b>Incidental Take 2011-7</b>	<b>Incidental Take 2011-8</b>
<b>ENVIRONMENTAL DEPARTMENT:</b>		
Date Brigantine MMSC contacted:	30-Aug-11	28-Sep-11
Time Brigantine MMSC contacted:	9:55	14:44
Date Animal picked up by MMSC:	30-Aug-11	28-Sep-11
Time Animal picked up by MMSC:	12:45	16:45
State of animal when first observed:	Alive	Dead
State of animal when collected:	Alive	Dead. Minor scrapes on top and bottom. Per MMSC necropsy, the impingement appears to have been postmortem based on the observed initial level of decomposition.
State of animal when picked up:	Alive	Dead
State of animal arriving at MMSC:	Alive	Dead

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	<u>Incidental Take 2011-7</u>	<u>Incidental Take 2011-8</u>
Final disposition of animal:	Taken to Virginia Marine Science Center for long term rehabilitation.	Buried at Brigantine, NJ.
Carapace Length - Curved	64.7 cm	27.2 cm
Carapace Length - Straight	61.4 cm	25.7 cm
Carapace Width - Curved:	64.0 cm	27.5 cm
Carapace Width - Straight:	54.1 cm	23.3 cm
Weight - lbs (kgs)	81.4 lbs (36.9 kg)	6.2 lbs (2.8 kg)
Existing Tag Number	None	None
Photograph attached	Yes	Yes
Diagram of wounds, abnormalities, tag locations attached	Yes	Yes
Description of Animal	Subadult, Indeterminant sex. Many barnacles on shell, neck and flippers. Right front flipper missing outer half and infected (pre-existing wound). Two severe bites on right front flipper. Tooth rakes from shark.	Juvenile, died prior to incidental take. Some organs not identifiable during necropsy due to decomposition but sex determined to be female. Scrapes on carapace and plastron. Undigested blue crab parts in stomach and GI tract.
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

**Enclosure to RA-11-097**

**ATTACHMENT 2**

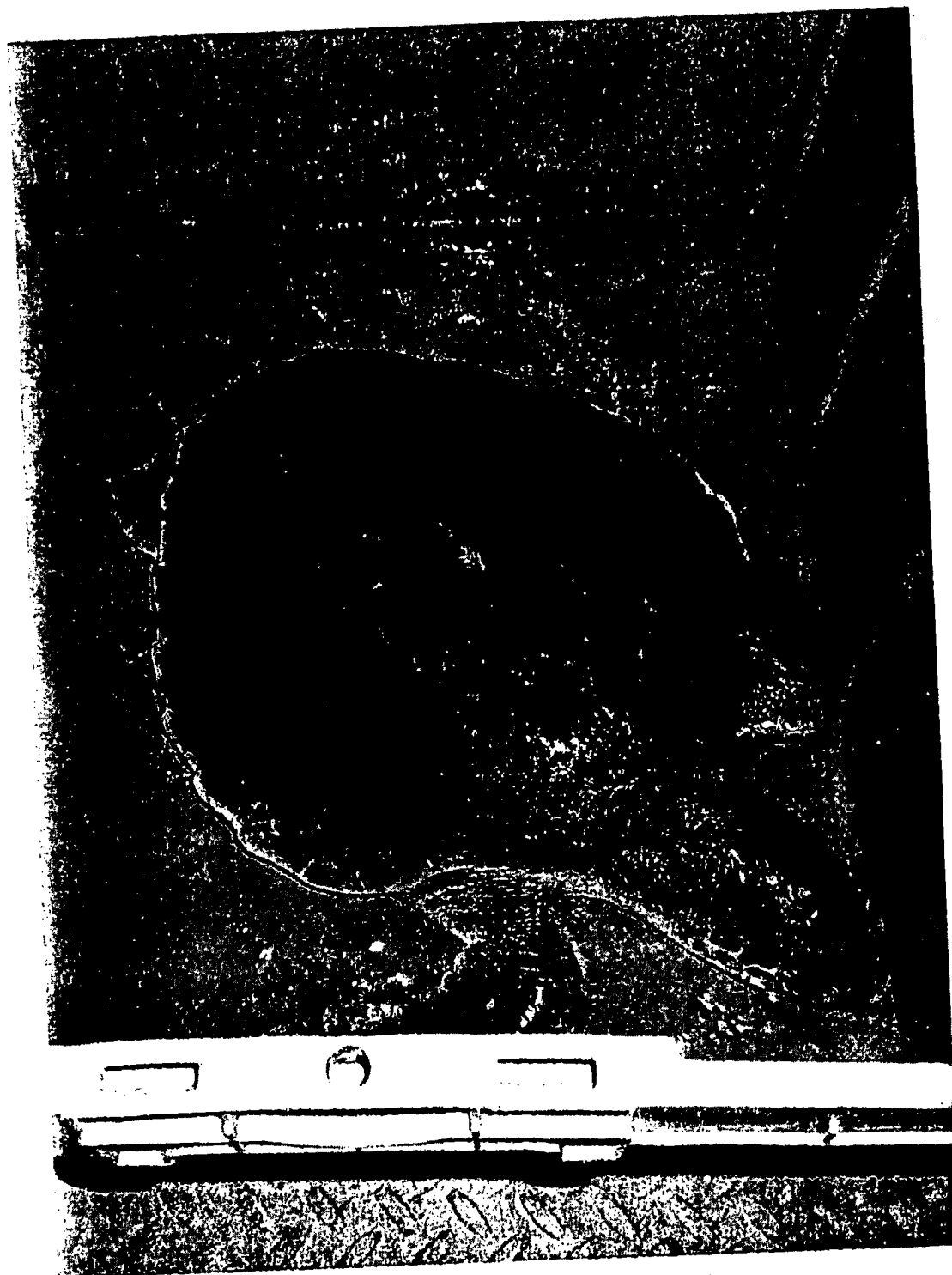
**Turtle Photos from Incidental Takes 2011-3,4,5,6,7**



**Incidental Take 2011-3**



**Incidental Take 2011-4**



**Incidental Take 2011-5**



**Incidental Take 2011-6**



**Incidental Take 2011-7**

