



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

May 27, 1997

LICENSEE: Florida Power and Light Company

FACILITY: St. Lucie, Units 1 and 2

SUBJECT: SUMMARY OF MEETING ON May 7, 1997, REGARDING ASSESSMENT ON IMPACTS  
TO SEA TURTLES AT THE ST. LUCIE SITE (TAC NOS. M92014 AND M92015)

On May 7, 1997, representatives of the Florida Power and Light Company (FPL), licensee for St. Lucie Plant, Units 1 and 2, met with members of the NRC staff and a representative of the Florida Department of Environmental Protection at the St. Lucie site to discuss a study required by a condition of the Incidental Take Statement of a Biological Opinion issued by the National Marine Fisheries Service (NMFS) concerning sea turtle entrapment in the plant's intake canal. Clarifying discussions on other conditions in the opinion were also held. A representative of NMFS was unable to attend the meeting due to an unanticipated schedule conflict. Enclosure 1 is a list of attendees. Enclosure 2 contains copies of the agenda and handouts distributed at the meeting.

The licensee presented an overview of the site cooling water layout and a description of the FPL turtle protection program. The licensee described the actions taken to protect the turtles and the positive results, in terms of increased nesting sites, of the FPL actions. A description, including a video, of the intake velocity cap and underwater environment was provided as an introduction to a discussion of the required study. FPL indicated that the study, item 7 in the Terms and Conditions of the Incidental Take Statement, proposed a video study that was not feasible. A discussion of alternatives to the proposed study was conducted. Additionally, conditions 4, 6 and 10 of the Terms and Conditions of the Incidental Take Statement were identified as needing clarification and/or changes.

The meeting concluded with the licensee assuring the attendees that, with the exception of issues discussed during the meeting, FPL had implemented the provisions of the Incidental Take Statement. A listing of the licensee's actions is included with the handouts. After the concluding remarks, the attendees toured the intake head wall area to observe the various turtle protection mechanisms and activities.

L. A. Wiens, Senior Project Manager  
Project Directorate II-3  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Docket Nos. 50-335 and 50-389

Enclosures: 1. Attendance List  
2. Handouts

cc: See next page

Florida Power and Light Company

ST. LUCIE PLANT

cc:

Senior Resident Inspector  
St. Lucie Plant  
U.S. Nuclear Regulatory Commission  
7585 S. Hwy A1A  
Jensen Beach, Florida 34957

Joe Myers, Director  
Division of Emergency Preparedness  
Department of Community Affairs  
2740 Centerview Drive  
Tallahassee, Florida 32399-2100

M. S. Ross, Attorney  
Florida Power & Light Company  
P.O. Box 14000  
Juno Beach, FL 33408-0420

John T. Butler, Esquire  
Steel, Hector and Davis  
4000 Southeast Financial Center  
Miami, Florida 33131-2398

Mr. Thomas R.L. Kindred  
County Administrator  
St. Lucie County  
2300 Virginia Avenue  
Fort Pierce, Florida 34982

Mr. Bill Passetti  
Office of Radiation Control  
Department of Health and  
Rehabilitative Services  
1317 Winewood Blvd.  
Tallahassee, Florida 32399-0700

Regional Administrator, Region II  
U.S. Nuclear Regulatory Commission  
61 Forsyth Street, SW., Suite 23T85  
Atlanta, GA 30303-3415

H. N. Paduano, Manager  
Licensing & Special Programs  
Florida Power and Light Company  
P.O. Box 14000  
Juno Beach, Florida 33408-0420

J. A. Stall, Site Vice President  
St. Lucie Nuclear Plant  
6351 South Ocean Drive  
Jensen Beach, Florida 34957

J. Scarola  
Plant General Manager  
St. Lucie Nuclear Plant  
6351 South Ocean Drive  
Jensen Beach, Florida 34957

Mr. Kerry Landis  
U.S. Nuclear Regulatory Commission  
61 Forsyth Street, SW., Suite 23T85  
Atlanta, Georgia 30303-3415

Mr. T. F. Plunkett  
President - Nuclear Division  
Florida Power and Light Company  
P.O. Box 14000  
Juno Beach, Florida 33408-0420

E. J. Weinkam  
Licensing Manager  
St. Lucie Nuclear Plant  
6351 South Ocean Drive  
Jensen Beach, Florida 34957

MEETING ATTENDEES

MAY 7, 1997

<u>NAME</u>	<u>ORGANIZATION</u>
Jonathan Gorham	Quantum Resources, Inc.
Dennis Faddan	FPL Services, Manager
Winifred Perkins	FPL Envir. Services
Claudia Craig	NRC/NRR/PGE B
Len Wiens	NRC/NRR/PDII-3
George Madden	FPL Licensing
Mitchell Ross	FPL Law Department
Kim Svaboda	FPL/Corp. Comm.
Mike Masnik	NRC\NRR\PDND
Beth Morford	Fla. Dept. of Environ. Prot.
Nick Whiting	FPL, Plant Services
Gary Bouska	FPL, Land Utilization

ENCLOSURE 1

**NRC-FPL Meeting Regarding Sea Turtle Protection**

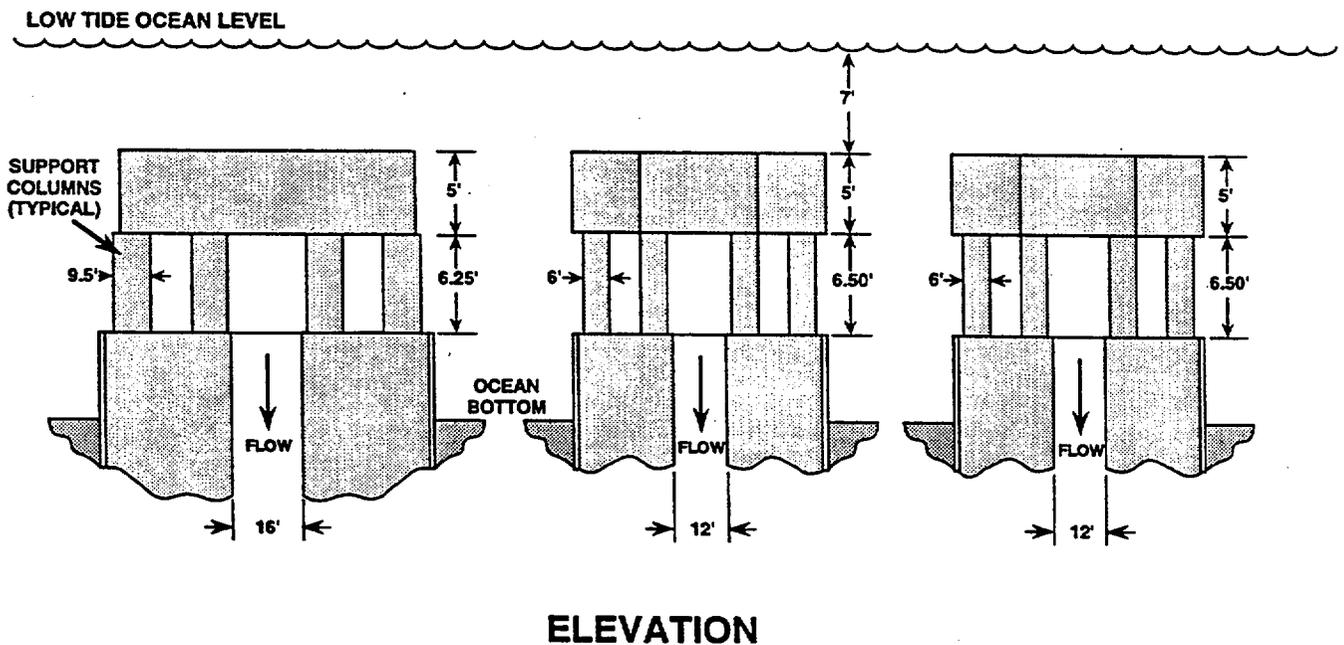
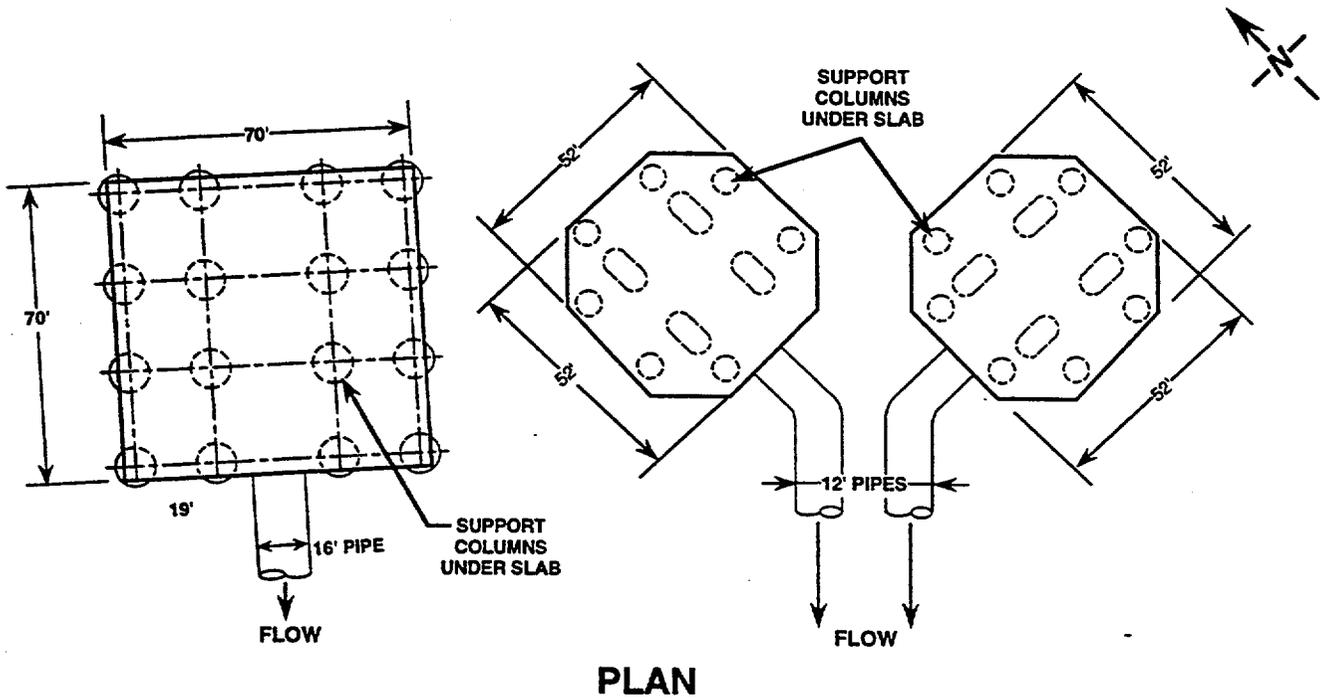
**May 7, 1997**

**Copy of Overheads Presented by Gary Bouska on**

**Site Overview**

**History of the Biological Opinion**

# ST. LUCIE PLANT INTAKE VELOCITY CAPS



DRAWING NOT TO SCALE

(D/LU/950425-F3-R0)

Figure 3. Diagram of the intake structures located 1200 feet (365 m) offshore of the shoreline at the St. Lucie Plant.

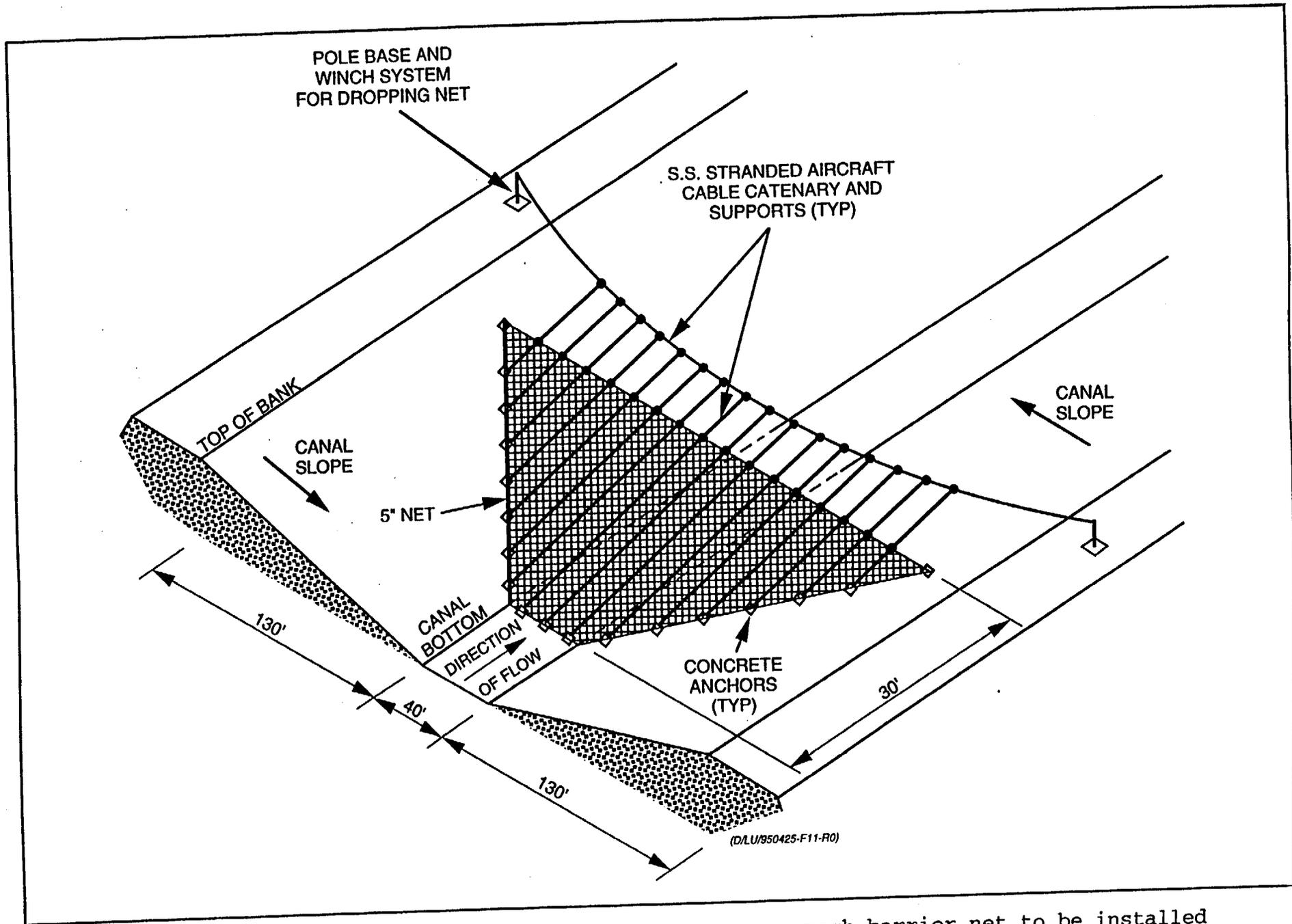


Figure 11. Conceptual design for a 5 inch (12.7 cm) square mesh barrier net to be installed in the intake canal of the St. Lucie Plant.

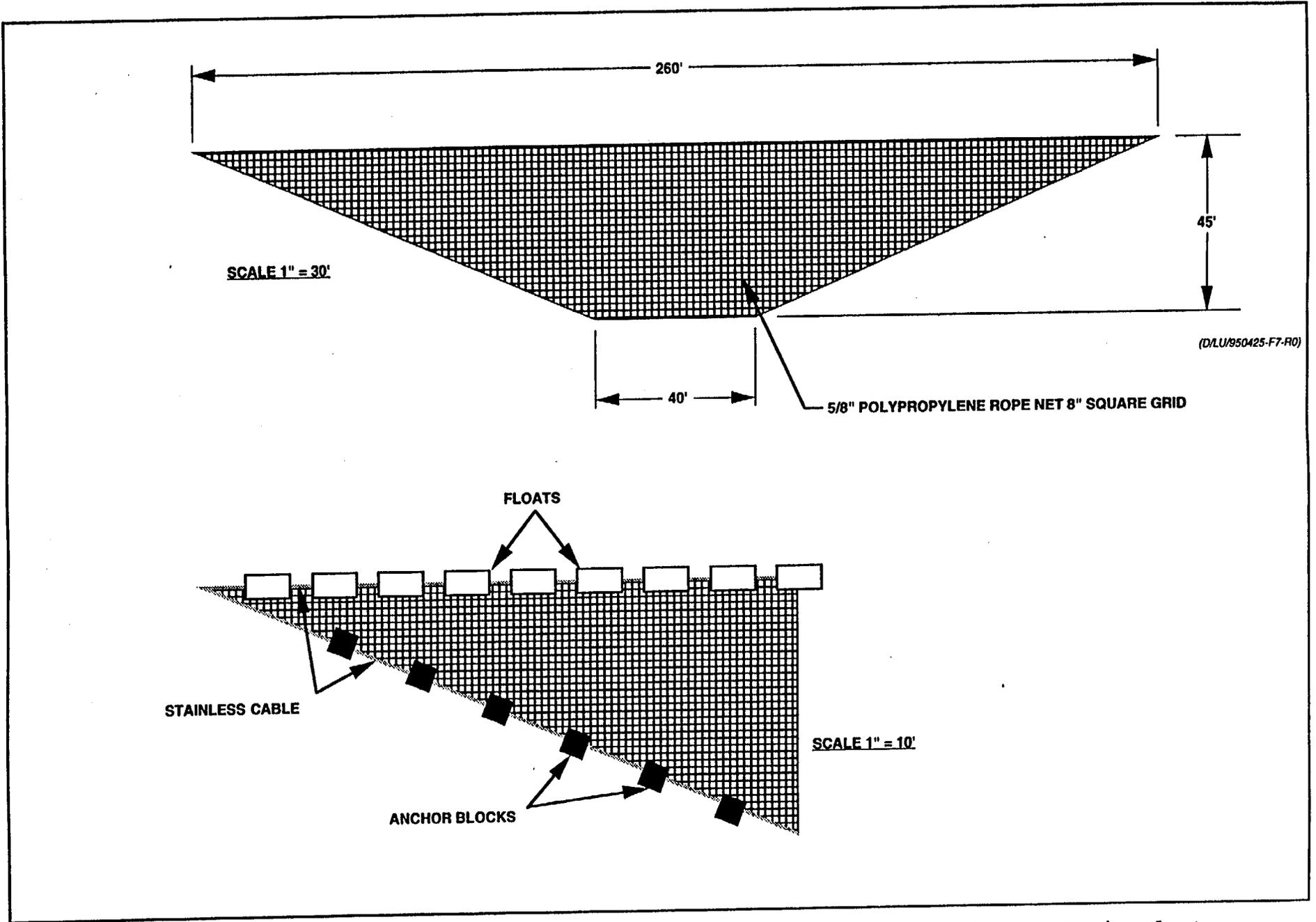


Figure 7. Diagram of the turtle barrier net used in the intake canal of the St. Lucie Plant. This net is located at the A1A bridge (see Figure 2)

**ST. LUCIE PLANT  
UNDERWATER INTRUSION  
DETECTION SYSTEM (TYPICAL SECTION)**

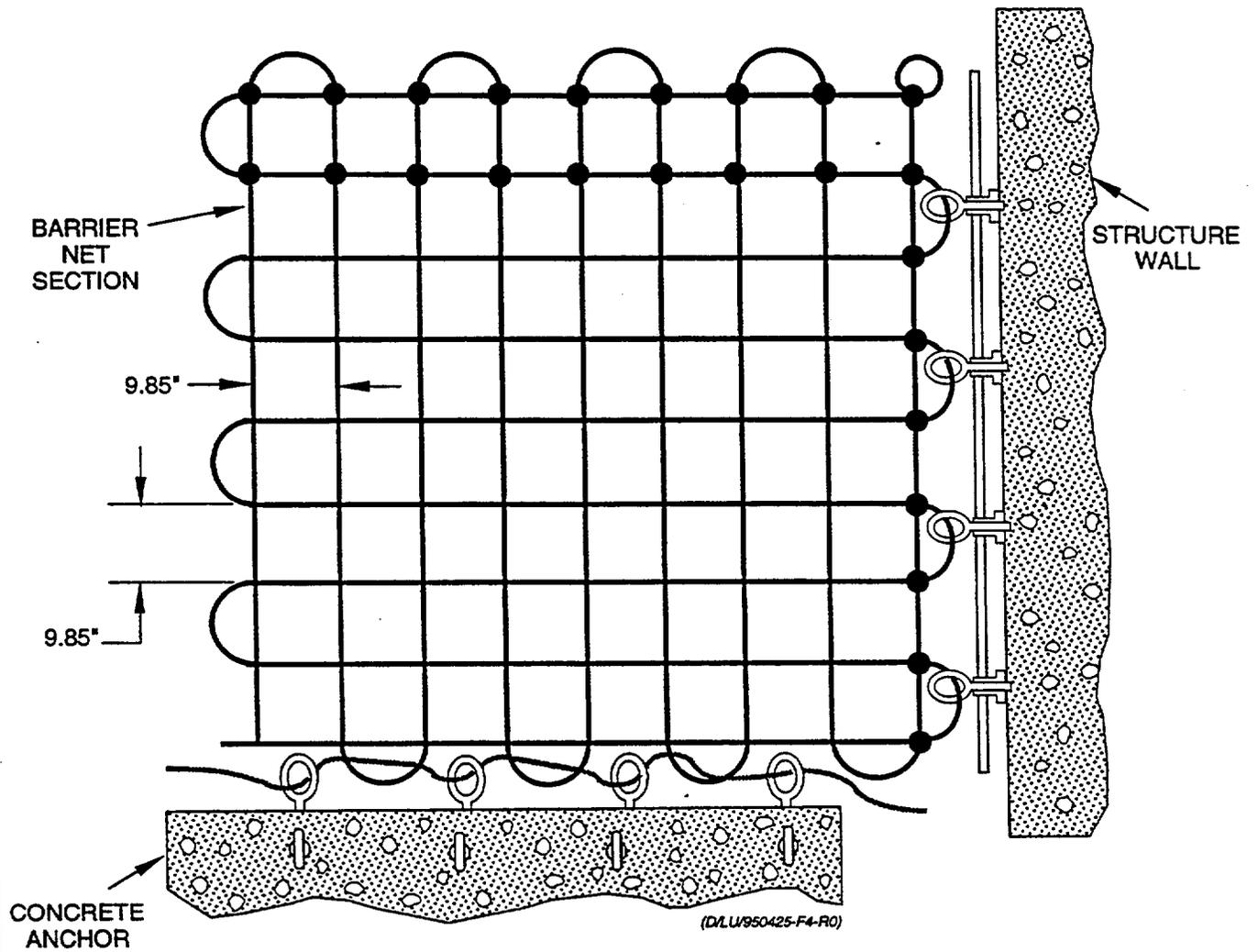
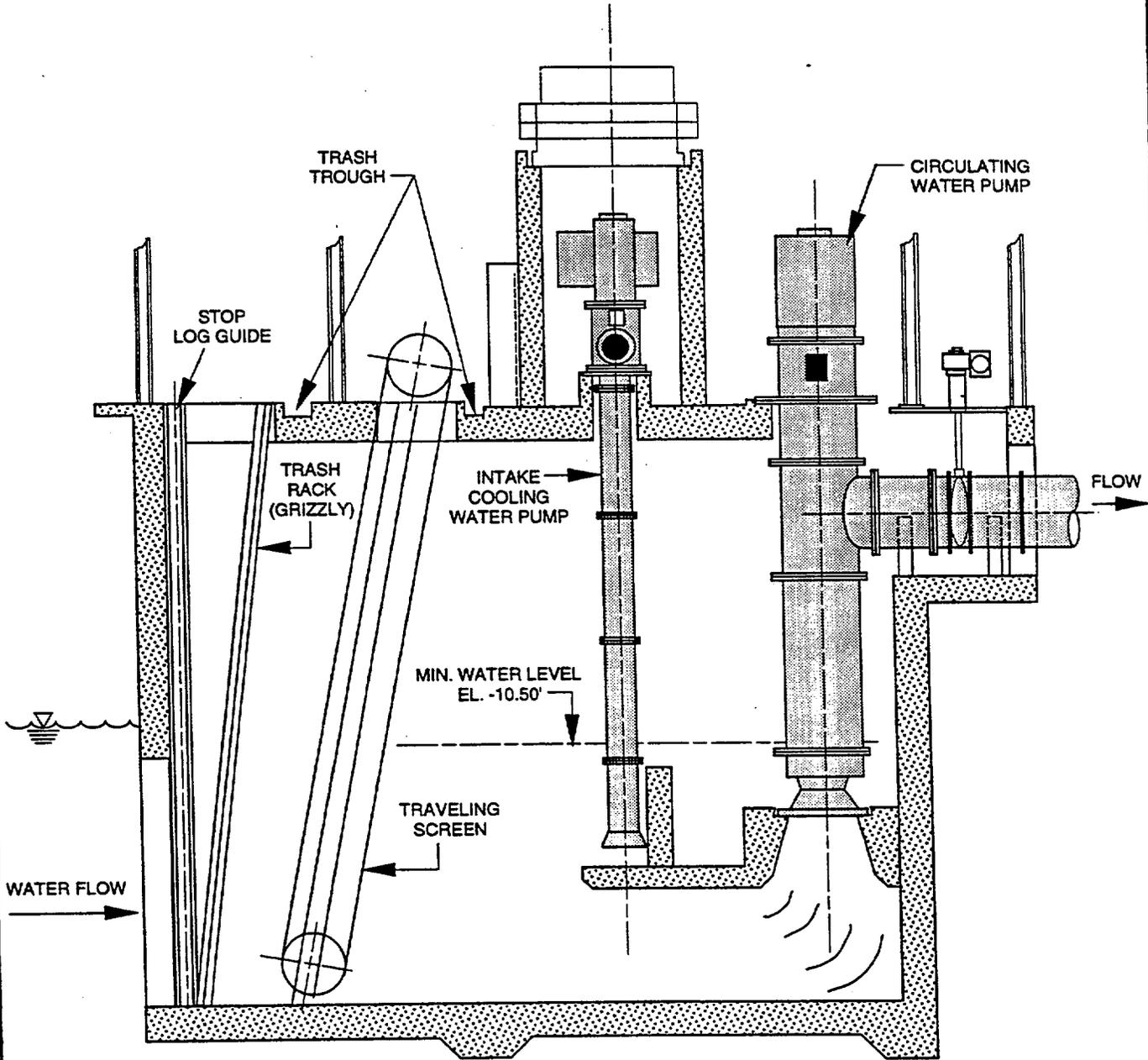


Figure 4. Diagram of the Underwater Intrusion Detection System at the St. Lucie Plant.

# ST. LUCIE PLANT INTAKE WELL STRUCTURE (SIDE VIEW)



(D/LU/950425-F5-R0)

Figure 5. Diagram of an intake well at the St. Lucie Plant.

Sea Turtle Consultation  
Kemps ridley, Loggerhead, Atlantic Green, and Leatherback Sea Turtles  
Endangered Species Act (ESA) Section 7

Activities Leading to the Section 7 Consultation

- 12/20/94 to 12/25/94      The Plant experienced four small green sea turtle mortalities in the intake structures within a few days increasing the concern of the Florida Department of Environmental Protection's (FDEP) Tequesta Office that additional protective measures needed to be instituted as soon as possible.
- 12/29/94      After a site visit by local FDEP personnel, a letter was issued to Dr. Jonathan Gorham, FPL's turtle capture permit holder, listing several short term corrective actions that were instituted immediately.
- 1/95      Additional meetings and phone calls held between FPL, NMFS, and FDEP continuing to discuss solutions and alternatives to the number of smaller green turtles getting through the existing 8-inch mesh barrier net. The possibility of replacing the net with one with a 4-inch mesh size is discussed and becomes the key to solving the problem.
- 2/8/95      Meeting held at St. Lucie Plant between FPL personnel involved in sea turtle and environmental issues. Ross Wilcox of the FPL Environmental Affairs Department states that NMFS feels the small mesh net is necessary for FPL to avoid other regulatory actions in regard to the mortalities and that the desired completion date is December 1, 1995. Preliminary plans are made regarding milestones and funding in order to support that schedule.
- 2/10/95      In a phone conversation with NMFS St. Petersburg office, Ross Wilcox committed to the installation of the new small mesh net by December 1, 1995. The need for a fatal take allowance was also discussed, and the possibility of a Section 7 Consultation with the NRC is discussed as the desired means of accomplishing that allowance.

**Sea Turtle Consultation**  
**Kemps ridley, Loggerhead, Atlantic Green, and Leatherback Sea Turtles**  
**Endangered Species Act (ESA) Section 7**

- 4/23/95 NRC Project Manager notified FPL that NRC would like to discuss preparations and plans for a meeting at FPL St. Lucie Site for an ESA Section 7 consultation for Sea Turtles.
- 5/10/95 NRC issued letter to FPL requesting a formal ESA Section 7 consultation regarding sea turtles at St. Lucie Units 1 and 2 with the National Marine Fisheries Service(NMFS), NRC, Florida Department of Environmental Protection(FDEP) and FPL . The request was based on the increasing number of sea turtles being removed from the St. Lucie intake canal as reported in the 1994 Annual Environmental Operating Report Volume 1, conversations with FPL Environmental Department ( Dr. Ross Wilcox) and NRC (Dr. Michael Masnik), and the April 23, 1995 conference call.
- 5/11/95 NRC issued letter to NMFS SE Regional Office requesting a formal ESA Section 7 consultation based on the same information discussed in the letter to FPL. Requested meeting on 5/23/95 at St. Lucie.
- 5/23/95 Initial meeting with NRC, NMFS, FDEP, and FPL to determine the scope and schedule for the consultation. Included a plant tour of the affected areas including the intake wells and intake canal nets. FPL proposed the smaller 4x4 inch net to be placed before the 8x8 inch net too keep all turtles east of the A1A bridge excluding them from the intake wells where most of the mortalities occur.
- 8/1/95 FPL provided draft copy of the Biological Assessment to NRC, FDEP, and NMFS for comment.
- 10/19/95 Meeting in St. Petersburg FL at SE Regional Office of NMFS. NMFS provided comments on the Draft Biological Assessment. FPL committed to update the information in the Biological Assessment based on comments from NRC, FDEP, and NMFS.
- 11/20/95 FPL submitted the Biological Assessment to the NRC for review.
- 2/7/96 NRC transmits the Biological Assessment to the SE Regional Director of NMFS. NRC agrees with the actions by FPL and the determinations of the Biological Assessment. NRC anticipates NMFS will render its Biological Opinion within the next several months.

- JULY96 NMFS issues draft Biological Opinion for comment to FPL. Item 3 of the conservation recommendations was that FPL should reexamine engineering solutions to prevent or reduce entrainment at the ocean intake structures. Possibilities may include redesigning the intake structures or examining the potential role of the cooling water discharge in attracting turtles to the site. No requirement for the study in the draft incidental take permit requirements.
- 8/13/96 FPL (Gary Bouska) provided FPL comments on the draft Biological Opinion and incidental take permit. FPL recommended deletion of recommendation 3 because the recommendation is subject to broad range of interpretation and is extremely open ended. In addition, FPL examined engineering solutions during the 1991 refurbishment of the ocean intake velocity caps.
- 8/16/96 SE Region NMFS letter to FPL (Gary Bouska) response to FPL comments on Draft Biological Opinion. Intent of conservation recommendation is to enhance the required conservation measures with measures that allow latitude in their implementation. Although they acknowledge the positive actions by FPL, further investigation may be beneficial. Recommendation will be rewritten to clearly express wide latitude in actual implementation. NMFS cannot agree to remove conservation recommendation #3.
- 2/7/97 NMFS issued Biological Opinion to NRC. The opinion is based on best available information and concludes that continued operation of Plant may adversely affect, but is not likely to jeopardize, the continued existence of listed species. Conservation recommendation #3 changed to Incidental Take Statement requirement #7. Specifically FPL to design and implement a study to collect information on the behavior of turtles at the intake structures by remote videography or similarly designed methodology that will not interfere with turtle behavior. FPL submit plan by 6/30/97 and once approved complete study and submit final report by 12/31/98.

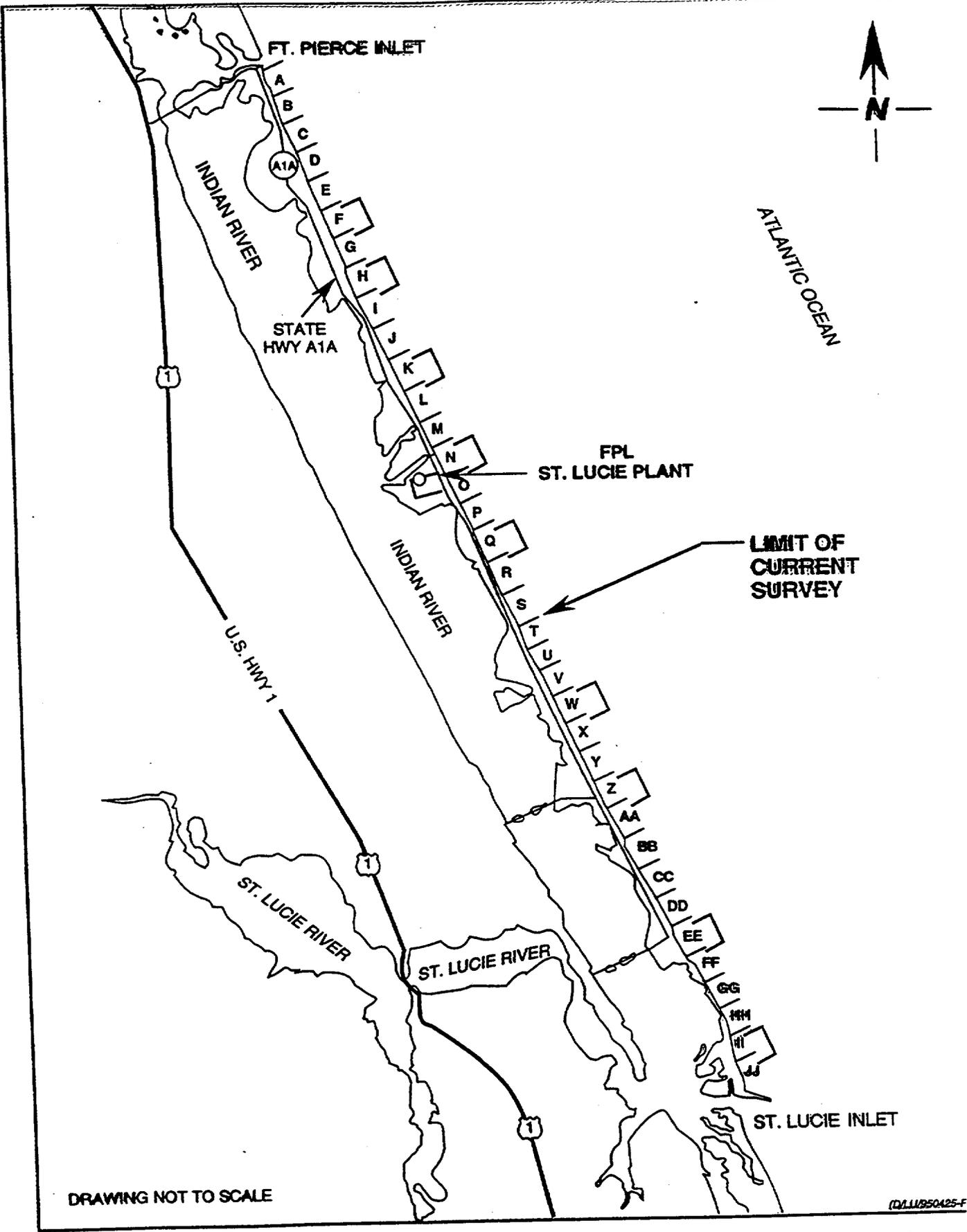
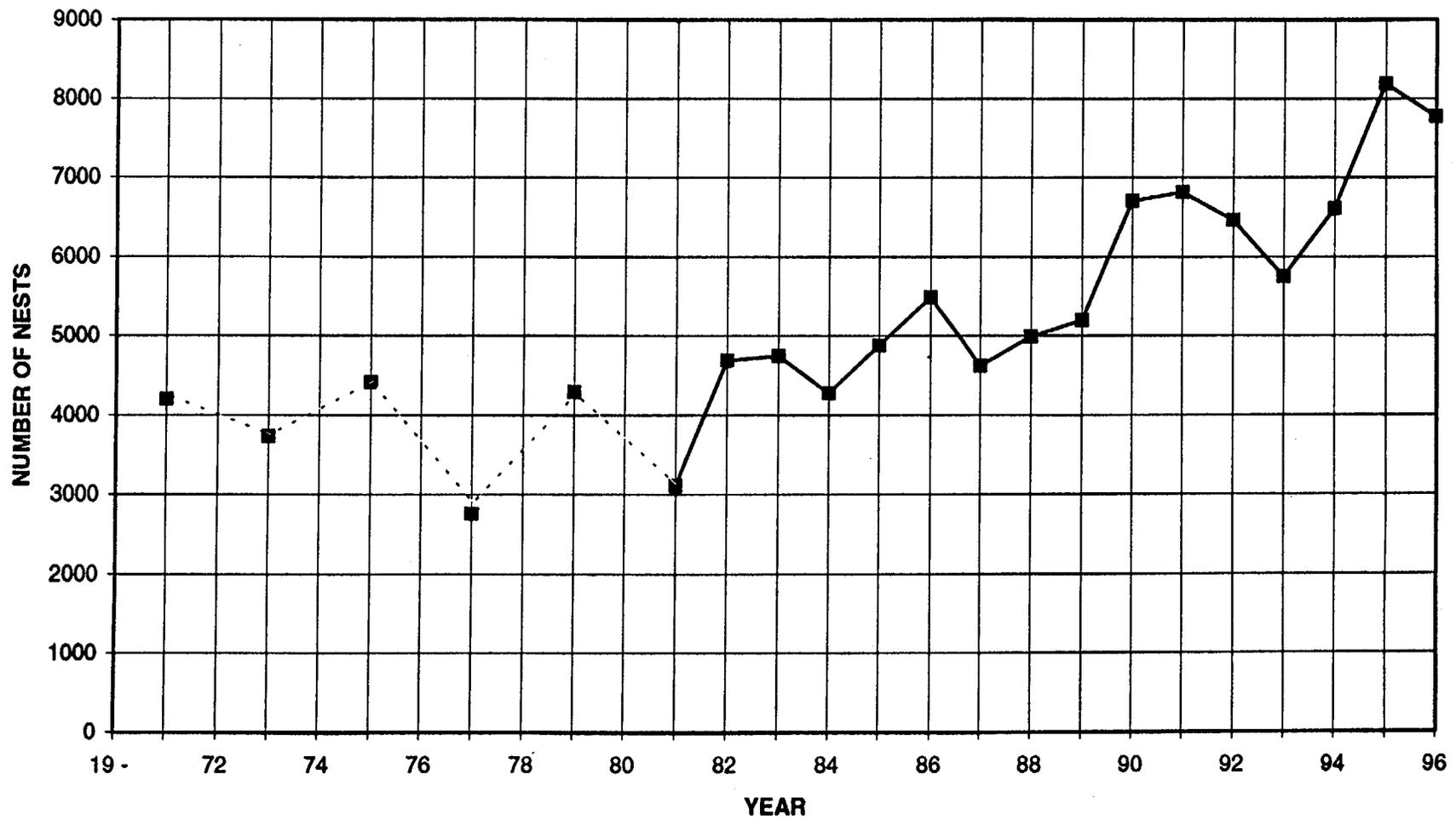
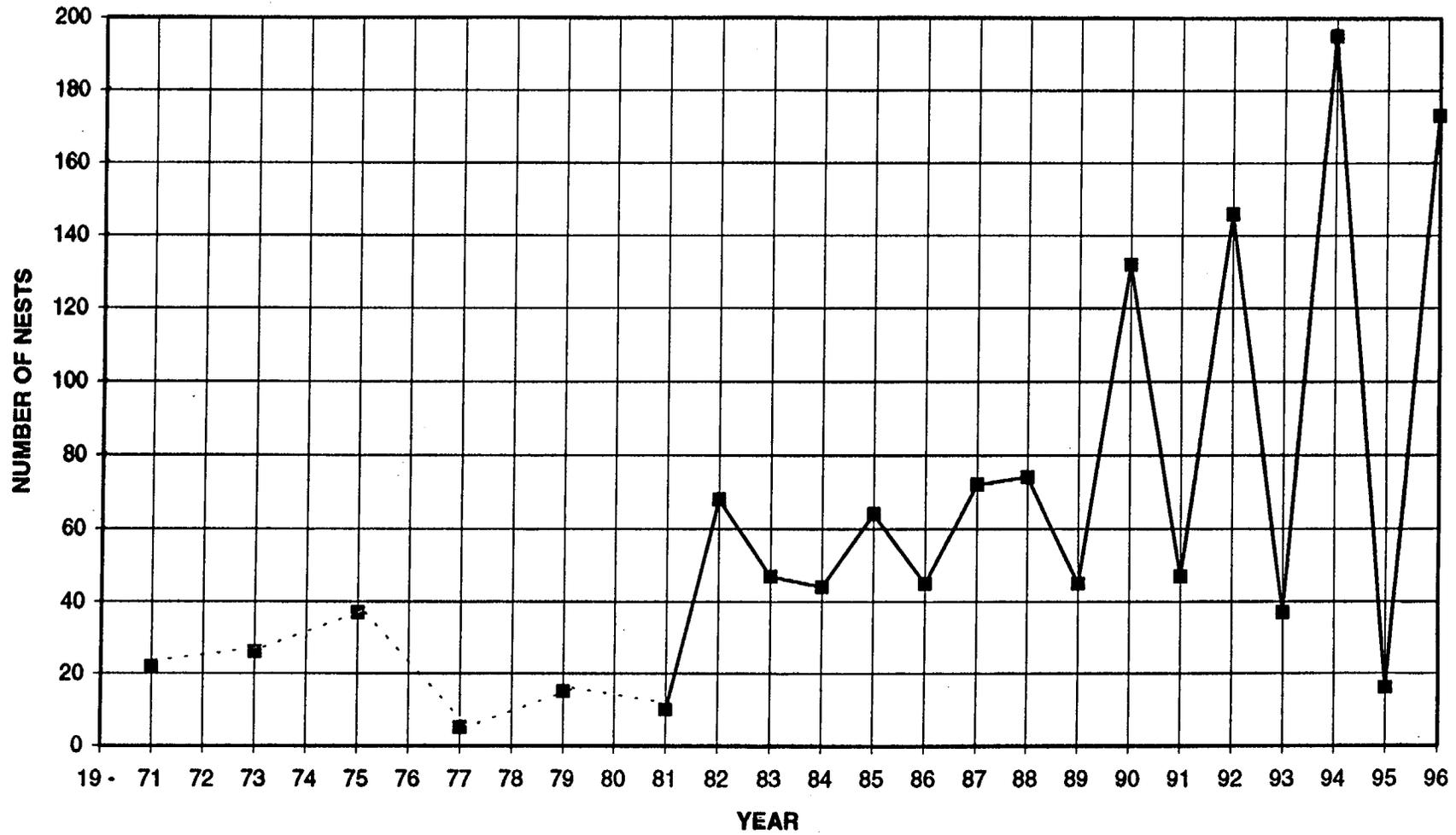


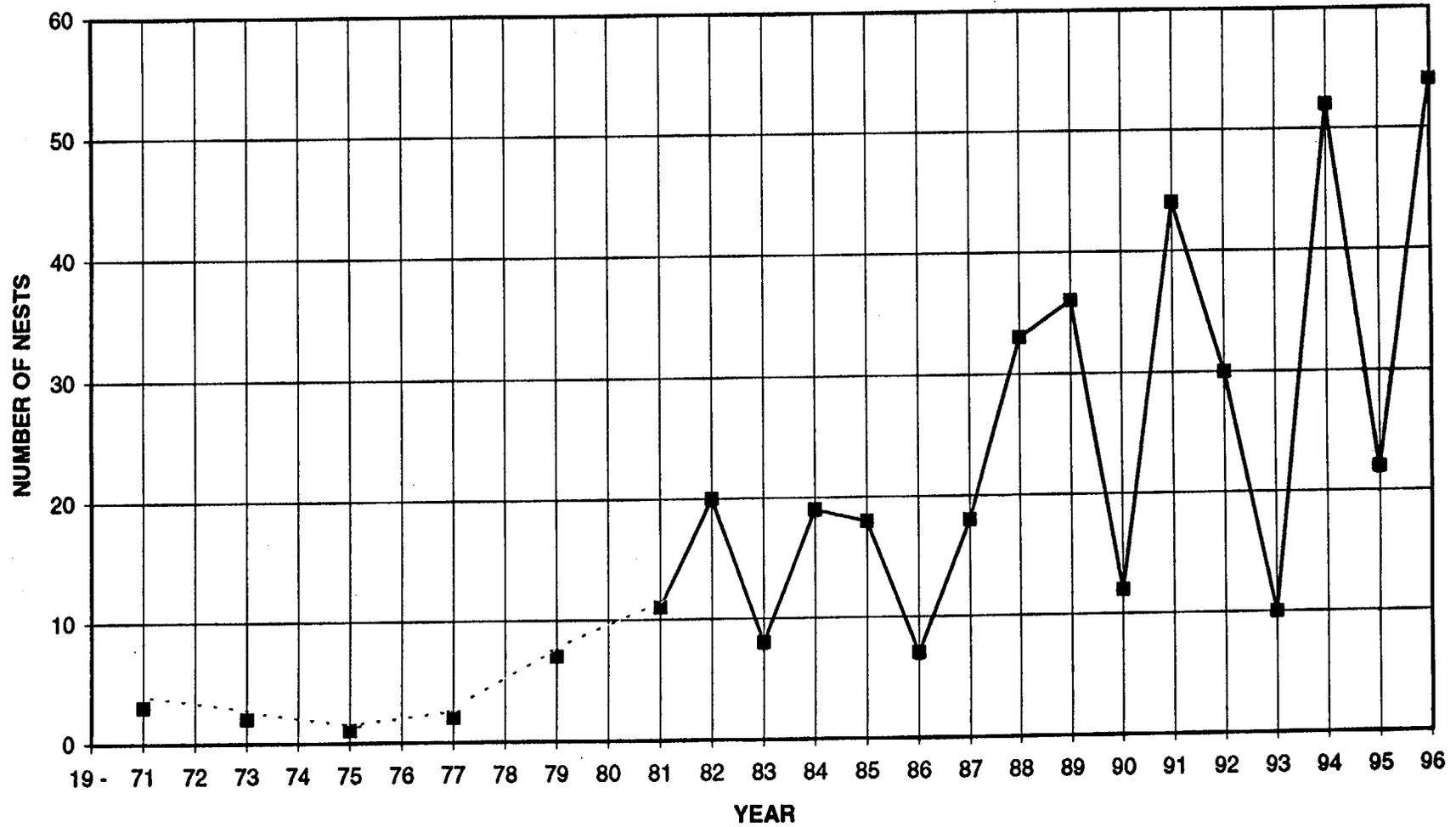
Figure 14. Designation and location of nine 1.25-km segments and 36 1-km segments surveyed for sea turtle nesting, south Hutchinson Island 1971 - 1994.



**Figure 6.** Number of loggerhead turtle nests, Hutchinson Island 1971 through 1996. Values for 1971 through 1979 are estimates (see text), values for 1981 through 1996 are from whole island surveys.



**Figure 8.** Number of green turtle nests, Hutchison Island, 1971 through 1996. Values for 1971 through 1979 are estimates (see text). Values for 1981 through 1996 are from whole island surveys.



**Figure 9.** Number of leatherback turtle nests, Hutchinson Island, 1971 through 1996. Values for 1971 through 1979 are estimates (see text). Values for 1981 through 1996 are from whole island surveys.

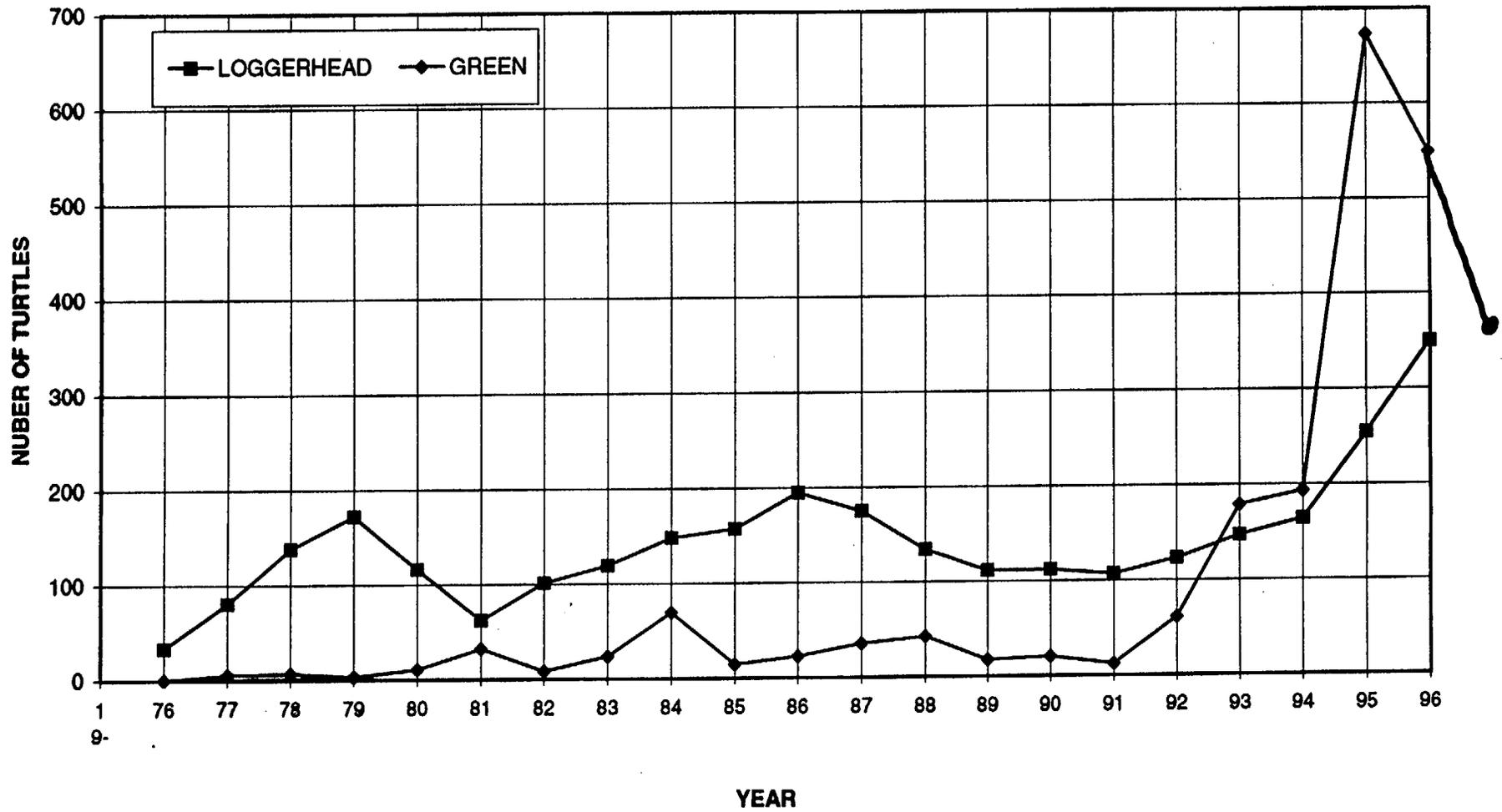
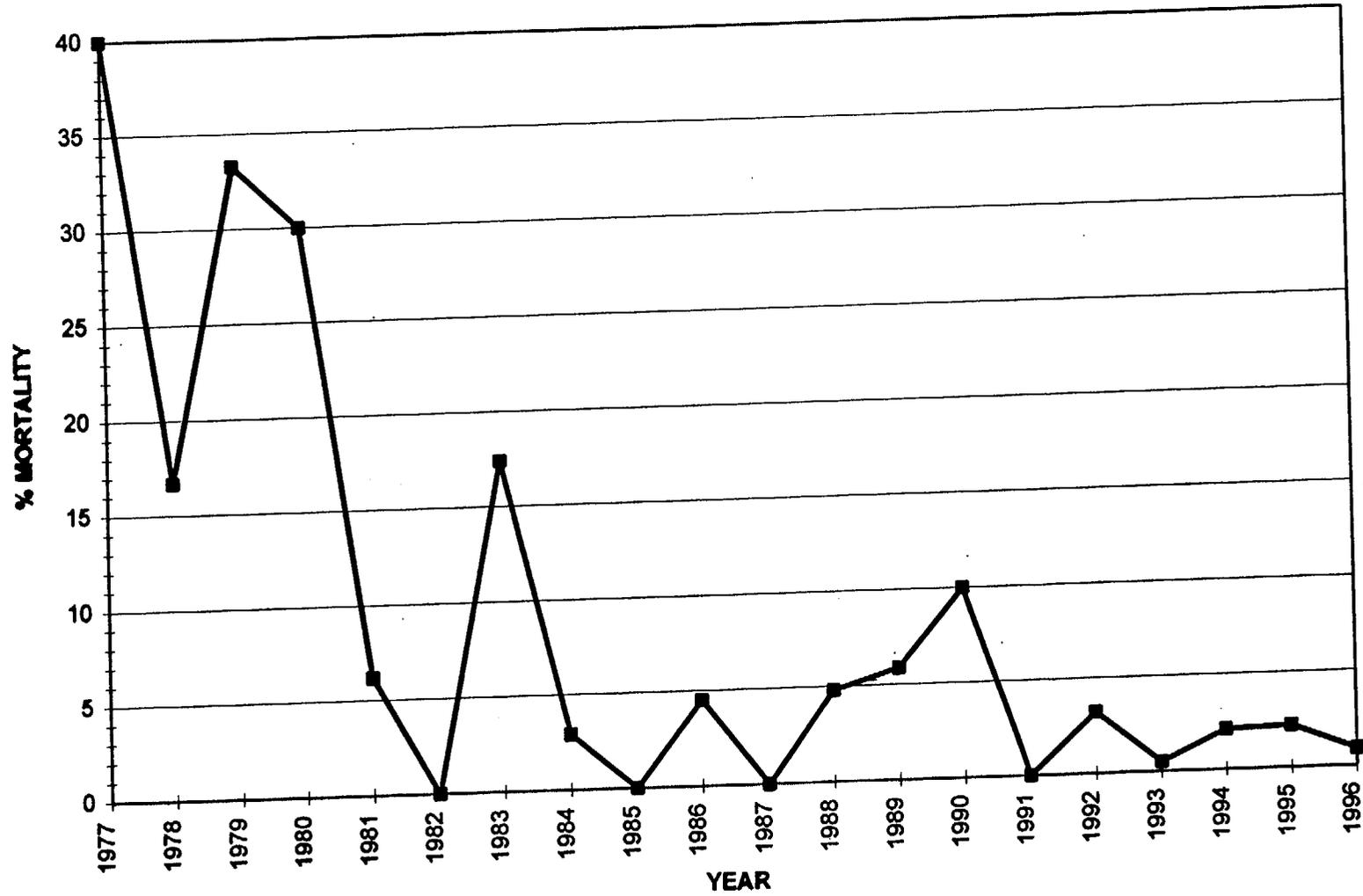
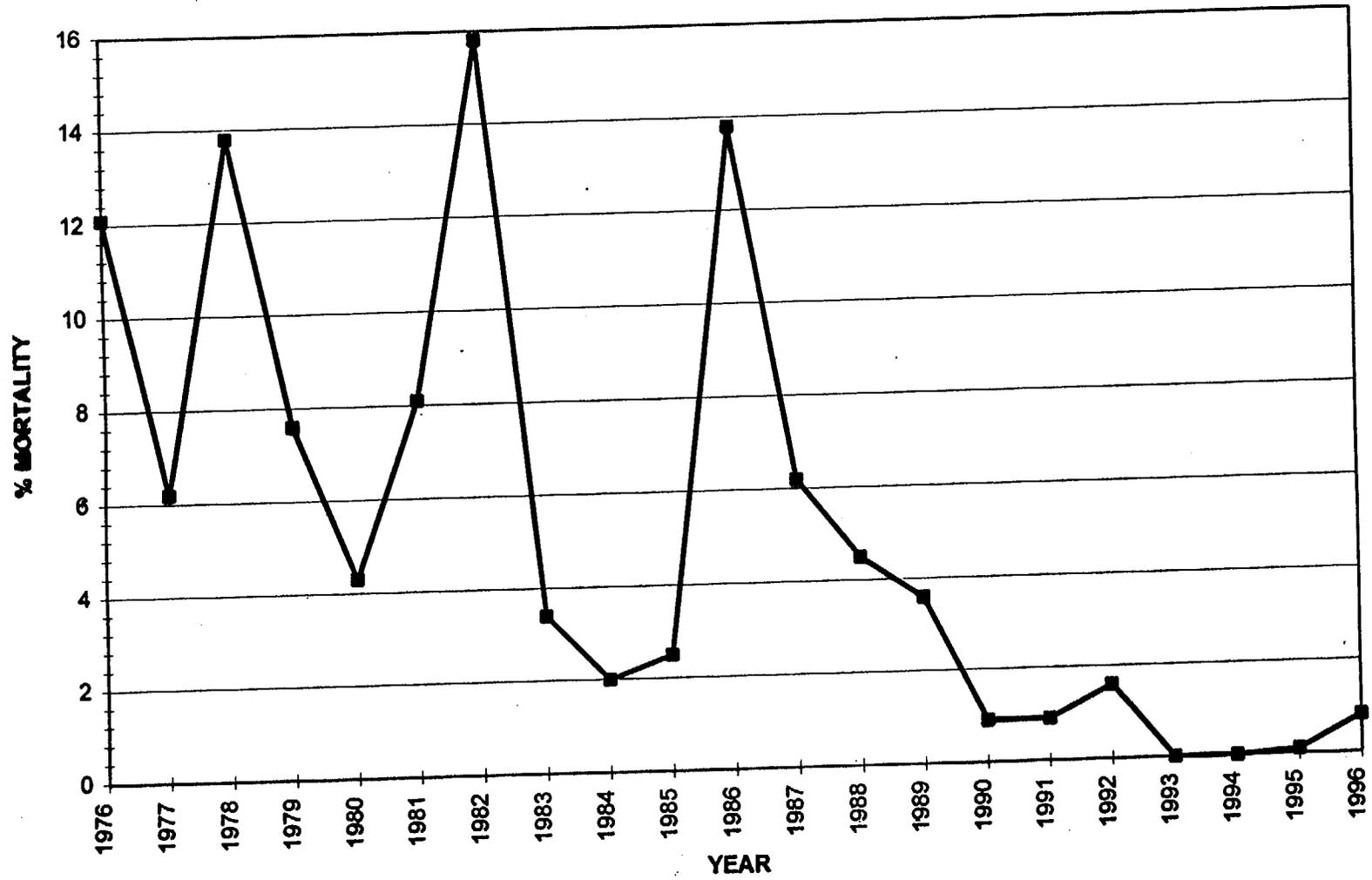


Figure 10. Number of loggerhead and green turtles removed each year from the intake canal, St. Lucie Plant, 1976 through 1996.

**GREEN TURTLE MORTALITIES EXPRESSED AS A  
PERCENTAGE OF TOTAL CAPTURES 1977 - 1996**



# LOGGERHEAD MORTALITIES EXPRESSED AS A PERCENTAGE OF TOTAL CAPTURES 1976 - 1996



**Table 5. Turtle walks conducted by FPL during the time period 1982 -1995**

<b>Year</b>	<b>Number of Walks</b>	<b>People Attending</b>
<b>1982</b>	<b>6</b>	<b>245</b>
<b>1983</b>	<b>5</b>	<b>225</b>
<b>1984</b>	<b>8</b>	<b>346</b>
<b>1985</b>	<b>14</b>	<b>684</b>
<b>1986</b>	<b>15</b>	<b>702</b>
<b>1987</b>	<b>13</b>	<b>824</b>
<b>1988</b>	<b>14</b>	<b>801</b>
<b>1989</b>	<b>12</b>	<b>600</b>
<b>1990</b>	<b>14</b>	<b>780</b>
<b>1991</b>	<b>15</b>	<b>789</b>
<b>1992</b>	<b>20</b>	<b>883</b>
<b>1993</b>	<b>21</b>	<b>975</b>
<b>1994</b>	<b>27</b>	<b>1184</b>
<b>1995</b>	<b>27</b>	<b>1030</b>
<b>Total</b>	<b>211</b>	<b>10,068</b>

1996

27

1287

## **Actions FPL Has Taken to Date in Response to the Biological Opinion**

### **Conservation Recommendations:**

1. FPL should continue to carry out or assist in research to determine the subsequent dispersal of captured and released turtles through its tagging program and through cooperation with properly permitted scientists.

**Dr. Gorham and other personnel working in the capture program have presented poster displays on population dynamics and tag retention at the last two annual sea turtle symposiums.**

- B. Several additional topics for potential future research papers are being developed.**
  - C. Dr. Gorham has made presentations at local colleges and universities offering our turtle capture data to students or advanced degree candidates that would like to use it for thesis material.**
  - D. FPL continues to provide all tagging and stranding data to the state for use in their data bases.**
2. FPL should continue efforts to improve residence time estimates. These efforts may include directed studies of residence time, so long as research permits are obtained from the proper authority.
  - A. With the position of the new 5-inch mesh barrier net several hundred feet east of the old net's location, the area that turtles can occupy has been cut roughly in half allowing more accurate residence time estimates since it is easier to visually locate the turtles.**
  - B. No directed residence time studies have been undertaken. The only logical methodology that has been thought of to date would be to recapture a tagged turtle that is released back into the canal. FPL feels this would only increase stress to the turtle, and with the smaller area they can occupy, it is also felt that residence times are no longer a problem.**

### **Incidental Take Statement Requirements:**

1. Install and maintain a 5-inch mesh barrier net. The new net must receive regular inspection, maintenance, and repairs on at least a quarterly basis. Any holes promptly repaired.

**New net placed in service on January 16, 1996. Inspections have been averaging either monthly or more often. Any holes are repaired immediately.**

2. Retain the existing 8-inch mesh barrier net as a back up in case the 5-inch net is lowered due to actual or potential fouling. Inspect and maintain the existing net at least quarterly. Any holes repaired promptly.

**The existing 8-inch mesh net is in place and is being inspected and maintained quarterly. The new net has not been lowered since it was placed in service due to fouling.**

3. FPL must continue its current program to capture and release turtles from the intake canals through permits issued by FDEP.

**The turtle capture program continues to operate as before under FDEP permits that are renewed annually.**

4. Capture netting shall be conducted with surface floating tangle nets with unweighted lead line. The nets must be inspected hourly from a boat. Netting to be conducted 8 hours a day, 5 days a week except during other specified times when it is done daylight to dark or 12 hours per day, 7 days a week.

**Netting continues to be conducted in the prescribed manner and for 12 hours a day, 7 days a week except during inclement weather.**

5. If a turtle is seen west of the 8-inch barrier net directed efforts shall be undertaken to capture the turtle before it enters the plant intakes.

**Since the installation of the new barrier net, we have had very few turtles west of the 8-inch net. None of these were seen west of the net and their presence was not apparent until they were seen in the intake wells.**

6. The gratings at each of the intake wells shall be visually checked for turtles at least 8 times each 24 hour period. If a turtle is sighted in the well, dip nets or other non-injurious methods should be used to remove turtles.
  - A. **Both Operations and Security personnel have standing procedures to inspect the wells during their normal shift rounds which would be every 2 to 3 hours. FPL turtle capture personnel also inspect the wells as time permits.**
  - B. **Dip nets and specially padded holding boxes are positioned at each intake structure with instructional signs mounted on the boxes to help people properly handle the turtles until capture personnel can come and pick them up.**

7. Since the increasing numbers of turtles entering the intake canal could become financially

burdensome to FPL and little is known about the factors causing the turtles to be attracted to our intake structures, FPL must design and implement a study to collect information on the behavior of turtles at the velocity caps. The recommended method is remote videography. Submittal of a plan required by 6/30/97. Once initiated, quarterly progress reports are required with a final report by 12/31/98.

**To date some preliminary planning has been accomplished. The purpose of this meeting is to present that preliminary plan for concurrence and to provide further direction and guidance.**

8. FPL must continue to participate in the STSSN under proper permits and authority in order to assess any possible delayed lethal impacts of capture as well as to provide background data on the mortality sources and health of local sea turtles.

**FPL continues to be a part of the stranding and salvage network as required.**

9. FPL should continue to conduct beach nesting surveys and public service turtle walks.

**FPL continues to conduct these programs as before. Nesting surveys commenced on April 15 and reservations are currently being taken for this year's turtle walks.**

10. Monthly reports covering sea turtle entrapment, capture efforts, turtle mortalities, available information on barrier net inspections and maintenance, and the Taprogge cleaning system operation and any sponge ball loss at St. Lucie Plant shall be furnished to NMFS. An annual report discussing these topics will be furnished to NMFS. A meeting between FPL, the NRC, and NMFS to discuss endangered and threatened species will be held approximately every two years beginning January 1998.
  - A. **Monthly reports covering turtle activities and net maintenance will be provided pending transmittal of the Biological Opinion to the site by the NRC.**
  - B. **Monthly reports on the Taprogge system and sponge ball loss have been provided to NMFS starting with the April, 1997 report.**
  - C. **NMFS will receive a copy of the annual report for 1996 covering these topics, with the exception of net maintenance. Net maintenance will be added to next year's and subsequent reports.**
  - D. **The first meeting will be scheduled as required.**