



Crystal River Nuclear Plant  
Docket No. 50-302  
Operating License No. DPR-72

Ref: 50 CFR 402.16

June 27, 2001  
3F0601-05

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555-0001

Subject: Crystal River Unit 3 – Supplement to Biological Assessment of Impact to Endangered Sea Turtles

- References:
1. Letter from FPC to NRC, 3F1098-10, dated October 1, 1998, "Biological Assessment for Crystal River Unit 3" (TAC No. MA1706)
  2. Letter from NRC to FPC, 3N0799-05, dated July 15, 1999, "Crystal River Unit 3 – Section 7 Biological Consultation, Biological Opinion" (TAC No. MA1706)

Dear Sir:

This letter is submitted in accordance with Title 50 of the Code of Federal Regulations Part 402 Section 16 in support of reinitiation of formal consultation among the National Marine Fisheries Service (NMFS), the Nuclear Regulatory Commission (NRC) and Florida Power Corporation (FPC). In support of this effort, FPC submits a supplement to the Biological Assessment described in Reference 1.

In 1998, Crystal River Unit 3 (CR-3) experienced increased incidence of encounters with endangered sea turtles. CR-3 provided a Biological Assessment in Reference 1, which led to the issuance of the Biological Opinion in Reference 2. CR-3 subsequently incorporated portions of the Biological Opinion into Appendix B of the site's operating license.

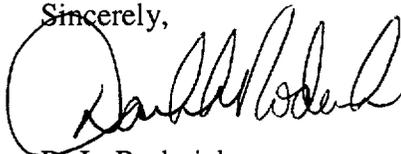
In 2001, CR-3 has experienced an increase in the rate of influx of endangered sea turtles. This increase is believed to be the result of a growing population of sea turtles as described in the attachment to this letter. Therefore, FPC submits the attached supplement to the CR-3 Biological Assessment and requests a revision to the NMFS Biological Opinion. The Biological Assessment concludes that CR-3 continues to provide effective protective measures for endangered sea turtles and supports proposed changes to the Incidental Take Statement.

It is expected that the NRC will forward the attached document for review by the NMFS under the Endangered Species Act (Title 50 Code of Federal Regulations Part 402) consultation process. CR-3 requests that the terms and conditions of the Incidental Take Statement included in the Biological Opinion be modified as described in the attachment to this letter.

No new regulatory commitments are being made at this time.

If you have any questions regarding this submittal, please contact Mr. Sid Powell, Supervisor, Licensing and Regulatory Programs at (352) 563-4883.

Sincerely,

A handwritten signature in black ink, appearing to read "D. L. Roderick". The signature is written in a cursive style with a large initial "D".

D. L. Roderick  
Plant General Manager

DLR/pei

Attachment: Biological Assessment of the Impact to Sea Turtles at Florida Power Corporation's  
Crystal River Energy Complex, Supplement 1

xc: NRR Project Manager  
Regional Administrator, Region II  
Senior Resident Inspector

**FLORIDA POWER CORPORATION  
CRYSTAL RIVER UNIT 3  
DOCKET NO. 50-302/LICENSE NO. DPR-72**

**Attachment**

**Biological Assessment of Impact to Sea Turtles at  
Florida Power Corporation's Crystal River Energy  
Complex**

**SUPPLEMENT 1**

Prepared by  
**Florida Power, a Progress Energy Company**

**June 2001**



## **Introduction**

In July 1999, the National Marine Fisheries Service (NMFS) issued a Biological Opinion (BO) based on their review of the continued use of the cooling water intake system at the Crystal River Energy Complex (CREC). The CREC is located near the Gulf of Mexico in Citrus County, Florida. The BO reviewed the effects of CREC activity on species of sea turtles protected by the Endangered Species Act (ESA).

The BO was based on information provided in the Biological Assessment and three meetings among NMFS, NRC, and CREC personnel held in May 1998, April 1998, and March 1999. The Biological Assessment analyzed the impacts to sea turtles caused by operations at the CREC.

After reviewing the current status of the affected species of sea turtles, the environmental baseline for the action area, and the effects of the action, it was NMFS's BO that the operation of the cooling water intake system of the Crystal River Energy Complex, as outlined in the Nuclear Regulatory Commission's Biological Assessment, is not likely to jeopardize the continued existence of the loggerhead, leatherback, green, hawksbill, or Kemp's ridley sea turtles. There has been no critical habitat designated for these species in the action area, therefore none was affected.

NMFS estimated the impact of CREC's operation of its cooling water intake system on listed species of sea turtles. Based on that analysis, NMFS anticipated 50 live takes due to the rescue of sea turtles from the bar racks, five lethal takes (lethal take being turtle mortalities considered causally related to plant operations and verified by the Fish and Wildlife Conservation Commission (FWC)), and eight dead turtles non-causally related to plant operations could be incidentally taken every two years (annual records are from January 1 to December 31 each year).

During the first biennial period of January 1, 1999 to December 31, 2000, live and lethal incidental takes at CREC were well within the anticipated limits. However, from March 8, 2001 through June 22, 2001, a total of 47 live incidental takes, three non-causally related mortalities, and one causally related mortality has been recorded at the CREC. The current reporting period began January 1, 2001 and runs through December 31, 2002.

Data indicates that the Kemp's ridley sea turtle is experiencing a rapid recovery in the Gulf of Mexico. Therefore, population numbers of juvenile and sub-adult Kemp's ridley turtles inhabiting shallow coastal areas is also increasing. Increased numbers of live takes at the CREC is largely a result of these population increases. There have been no changes to plant operations at the CREC that would contribute to the increased number of incidental takes.

Since it is probable that the biennial limit of 50 live incidental takes will be exceeded well before the end of the next biennial period, the NRC reinitiated consultation with NMFS to amend the Incidental Take Statement for the CREC.

## **Historical Perspective**

Five species of marine turtles are known to occur in the Gulf of Mexico. They are the green, hawksbill, Kemp's ridley, leatherback, and loggerhead turtles. Of those species, the Kemp's ridley, green, hawksbill, and loggerhead have occasionally been sighted near the CREC.

Since Units 1, 2, and 3 began commercial operation, marine turtles have been occasional visitors in the intake canal. Records indicate that from 1994 through 1997, eight sea turtles were stranded on the Unit 3 intake bar racks. During these strandings, the Florida Marine Patrol Division of the Department of Environmental Protection was consulted and provided instructions on handling and disposition.

### Year 1998 Occurrences

The number of marine turtle sightings in the intake canal and strandings on the bar racks increased dramatically beginning in late March and early April 1998. The majority of these were Kemp's ridley sea turtles on the Unit 3 bar racks. The sightings and strandings decreased dramatically in May 1998. A total of 40 live strandings, eight non-causally related mortalities, and five causally related mortalities were recorded during 1998. This data formed the basis for the BO issued by NMFS.

### Year 1999 Occurrences

The number of marine turtle sightings in the intake canal and strandings on the bar racks during 1999 was significantly lower than the numbers recorded in 1998. A total of nine live sea turtles were recovered from the bar racks at the CREC, with no causal or non-casually related mortalities being recorded.

During February 1999, one live Kemp's ridley was removed from the Unit 3 bar racks and subsequently released. During March 1999, three live Kemp's ridleys were removed from the intake bar racks. One live Kemp's ridley was recovered from the bar racks at Units 1 and 2. This turtle had evidence of a boat-strike injury and was transferred to the Clearwater Marine Aquarium for rehabilitation. The other two live Kemp's ridleys turtles were recovered from the bar racks at Unit 3. Both had evidence of external skin infections and were transferred to the Clearwater Marine Aquarium for treatment and rehabilitation.

One live Kemp's ridley was recovered and released during April 1999. During June 1999, a loggerhead turtle was recovered, suffering severe trauma from a boat strike. The turtle was transferred to Clearwater Marine Aquarium. During November 1999, a green turtle suffering from a severe fibropapilloma infection was recovered from the Unit 3 bar racks. The turtle was transferred to Clearwater Marine Aquarium for treatment.

Two Kemp's ridleys were recovered during December 1999. One turtle suffered severe trauma from a boat strike, and was transferred to the Clearwater Marine Aquarium for treatment. The other turtle was healthy and was tagged and released.

### Year 2000 Occurrences

The number of marine turtle sightings in the intake canal and strandings on the bar racks increased during 2000 when compared to 1999, though numbers were still significantly below those recorded in 1998. A total of 19 sea turtles were encountered, of which 13 were live incidental takes, five non-causally related mortalities, and one causally related mortality.

During January 2000, one live green turtle was recovered from the Unit 3 bar racks and released. During February, one live Kemp's ridley was recovered from the Unit 3 bar racks and released. In March, a live loggerhead turtle suffering severe trauma from a boat strike was rescued from the Unit 3 intake bar racks.

In June 2000, a dead green turtle carcass was recovered from the intake canal. Wounds indicated the turtle died from a boat strike. In July, a live green turtle was captured. The turtle had fibropapillomas, a cracked carapace, and was entangled in monofilament fishing line. It was transferred to Clearwater Marine Aquarium for treatment. In September, a live Kemp's ridley with old injuries from an apparent boat strike was rescued and transferred to Clearwater Marine Aquarium for treatment.

During October, a total of seven sea turtles were encountered at the CREC. One green turtle carcass was recovered floating in the intake canal. Three Kemp's ridley carcasses were recovered floating in the intake canal, apparent victims of boat strikes. One Kemp's ridley was recovered live and released. One Kemp's ridley and one green turtle were recovered live but were suffering from boat strike injuries and were transferred to Clearwater Marine Aquarium for treatment.

In November 2000, the unidentified skeletal remains of a sea turtle were recovered from the bar racks during maintenance procedures. The cause of death could not be determined, but with no evidence to the contrary, it was classified as potentially causally related due to plant operations. Two live green turtles suffering from fibropapillomas were recovered and transferred to Clearwater Marine Aquarium for treatment. A live hawksbill turtle was recovered and released.

During December 2000, two live Kemp's ridleys were recovered from the Unit 3 bar racks and were released.

### Year 2001 Occurrences

The number live incidental takes of marine turtles at CREC increased significantly during 2001 when compared to 1999 and 2000. From January to May 2001, a total of 51 sea turtles have been encountered at the CREC. Of these, 47 live sea turtles were recovered, along with three non-causally and one causally related mortality.

During March, 35 incidental takes were recorded. Of these, 31 were live Kemp's ridleys. Three were suffering from non-causally related wounds or disease and were transferred to Clearwater Marine Aquarium for treatment. The remaining 28 turtles were tagged and released. One small Kemp's ridley carcass was recovered from the rotating screen wash basket of Units 1 and 2. Without external evidence to the contrary, the mortality was classified as causally-related to

plant operations. Two live green turtles were recovered, tagged and released. One green turtle carcass was recovered floating in the intake canal with severe trauma, indicating a boat strike.

During April, eight live Kemp's ridley turtles were rescued. One juvenile loggerhead suffering from disease was recovered and transferred to Clearwater Marine Aquarium for treatment. Two non-causally related Kemp's ridley mortalities were recovered, one at the Unit 3 bar racks and the other at the Unit 1 and 2 intake screen floating trash boom.

During May, three live Kemp's ridley turtles were rescued. Two of the turtles were recovered healthy and were tagged and released. One Kemp's ridley was recovered with part of the right front flipper missing. This turtle was transferred to the Clearwater Marine Aquarium for treatment and rehabilitation.

During June, two live Kemp's ridley turtles were rescued. One turtle was severely emaciated and lethargic. It was transferred to the Clearwater Marine Aquarium for treatment and rehabilitation. The other Kemp's ridley turtle was healthy and was tagged and released.

#### **Assessment of Present Sea Turtle Activity at the Crystal River Energy Complex**

Kemp's ridley turtles are largely confined to the Gulf of Mexico, with a few occurring along the United States eastern seaboard as far north as Long Island Sound. Immature Kemp's ridleys range widely throughout the Gulf of Mexico and in the North Atlantic from Florida northward to Nova Scotia and eastward to Bermuda, the Azores, and Europe. Within the Gulf of Mexico, juveniles are more common in the northern Gulf, particularly in the coastal waters from Texas to Florida.

Kemp's ridleys are associated with a wide range of coastal benthic habitats, usually sand or mud bottoms that support an abundance of crustaceans and other invertebrates. Their primary prey consists of portunid crabs, especially the genus *Callinectes*. However, other crab species are consumed, along with mollusks and other benthic species. This knowledge of food items at various life stages provides valuable insight into the foraging habitats, activities, and movement of Kemp's ridleys.

Little is known about the distribution or occurrence of Kemp's ridley hatchlings (less than 20 centimeters in length) in the pelagic stage in the Gulf of Mexico. Young pelagic sea turtles usually enter sargassum drift lines, convergences, eddies, and rings where they feed at the surface of the water on floating organisms, further offshore.

Kemp's ridleys apparently become benthic carnivores once they enter shallow coastal areas. The smallest post-pelagic individuals recorded are about 20 centimeters in carapace length and are usually found in the shallow coastal waters, bays, and sounds in waters less than two meters deep. Kemp's ridley distribution along the coastal United States is frequently correlated with areas abundant in portunid crabs. It appears that Kemp's ridley sub-adults (20 to 60 centimeters in length) may be feeding opportunistically rather than selecting for a particular crab species, and their distribution may be more closely related to the distribution of all of the major crab species consumed rather than that of portunids. The major species of crabs occurring in the Kemp's diet

are found primarily in shallow waters from shore to 50 meters depth, however, movement to deeper, warmer water in the winter months has also been reported. Adults and older sub-adults are found in deeper water than juveniles but appear to be restricted to the inshore zone or banks further offshore. Seasonal and reproductive migrations also appear to be restricted to coastal rather than pelagic routes.

The coastal benthic zone of the northern Gulf of Mexico is an important developmental habitat for young Kemp's ridleys after leaving the pelagic environment. Older sub-adults have historically been found in the eastern Gulf from Homosassa to Cedar Key, Florida. In the Atlantic, sub-adult Kemp's ridleys appear to be highly migratory, foraging as far north as Chesapeake Bay in the spring, summer, and fall, then migrating south in winter to Cape Canaveral, Florida. In New England, small Kemp's ridleys are frequently found cold-stunned in winter in Long Island Sound and Cape Cod Bay.

Five decades ago, Kemp's ridleys were very abundant in the Gulf of Mexico. There was a dramatic decline of the nesting assemblages from an estimated 40,000 females in 1947 to approximately 600 females in the late 1980's. Since that time, the number of recorded nests has increased, and it appears that the Kemp's ridley population is in the early stages of exponential expansion.

It is likely that the increases in Kemp's ridley population numbers in the Gulf of Mexico, coupled with the presence of suitable foraging habitat for sub-adults in coastal west-central Florida is the reason for the periodic increases in sea turtle activity in the CREC intake canal. Opportunistic feeding by Kemp's ridleys along the coast of west-central Florida will result in the appearance of sea turtles in the intake canal. Flows within the intake canal will occasionally result in strandings on the intake bar racks.

## **Analysis and Conclusions**

Florida Power implemented long-term protective measures at the CREC, ensuring early detection and protection of sea turtles in the intake canal. The Florida Power protective measures for monitoring, rescue and resuscitation, and tagging and release activities in coordination with the FWC are effective in protecting sea turtles and minimizing the likelihood of power plant causally related mortalities. With these measures in place, and following the terms and conditions of the Incidental Take Statement, there will be no jeopardy to any sea turtle species with the continued use of the cooling water intake system at the CREC. While the total number of live incidental takes has increased, in light of the rapid recovery of the Kemp's ridley turtle, the increase in the rate of live takes in proportion to the size of the population is negligible.

The original incidental take statement with a biennial limit of 50 live incidental takes was based on historical data of sea turtle occurrences at the CREC from 1994 through 1998. Additional data collected during 2001 indicates that the number of live incidental takes will likely exceed the present biennial incidental live take limit. Since there have been no changes in operation or activities at the CREC, it is likely the increase in sea turtle occurrences observed at the site is related to the increase in Kemp's ridley population numbers in the Gulf of Mexico. With increases in population numbers, there will be the likelihood of larger aggregations of sub-adults

opportunistically feeding along the gulf coast of Florida. The sudden increase in sea turtle activity observed in the intake canal, with an equally rapid decrease in activity, is indicative of active, mobile feeding aggregations moving through the area.

Data indicates that the Kemp's ridley population is experiencing a rapid recovery in the Gulf of Mexico. As a result, the number of takes at the CREC intake bar racks is increasing. However, the sea turtle protective measures in place at the CREC have been effective in minimizing the number of lethal takes associated with plant operations. Live turtles are quickly and carefully removed from the bar racks and transported to a suitable holding tank for evaluation. Healthy turtles are weighed and measured, tagged and released. Sick or injured turtles are transported to a rehabilitation facility for treatment and eventual release. Therefore, Florida Power requests that the Incidental Take Statement be amended to account for the increase in sea turtle activity in the CREC intake canal since it is associated with an increased sea turtle population.

Due to the variable distribution of opportunistic feeding aggregations of sea turtles, it is impossible to predict with any certainty the number of sea turtles expected in the intake canal. With 47 live takes recorded to date for 2001, it is possible that through the summer and fall peak incidence periods, the number of live incidental takes could exceed the present biennial limit this year. Therefore, it is recommended that an unlimited live take limit be established for the CREC.

Though sea turtle mortalities have been minimized, Florida Power expects that lethal takes will occur from both power plant causally related and non-causally related factors. These can occur despite the best reasonable and prudent protective measures. The only causally related mortality recorded during 2001 was a juvenile of a size class usually associated with a pelagic distribution. These smaller juveniles are generally found feeding within floating drift lines of vegetation, further offshore. The occurrence of this size turtle in the shallow coastal benthic habitat surrounding the intake canal area is quite rare, and turtles of this size would not be routinely expected in the intake canal.

Sea turtle protection measures at CREC have been effective in limiting the number of plant related effects. It is recommended that the limit of causally related lethal takes should be amended to an annual limit of three total for all endangered sea turtle species. In spite of increasing population numbers and increases in non-causally related mortalities, the causally related take limit will remain essentially the same, except for the change from a biennial to an annual limit.

Causally related mortalities from power plant operations have been minimized with the implementation of the sea turtle protection program. However, the CREC operations do not influence the occurrence of non-plant related mortalities. These mortalities are functions of the level of sea turtle activity along the coast and other factors external to Florida Power and its operations. Florida Power's experience with non-plant related mortalities and the FWC Sea Turtle Stranding and Salvage Network information indicates that mortalities from non-plant related causes are variable and increasing.

The most prevalent causes of these mortalities include incidental take by commercial fishery operations and boat strikes from recreational watercraft, as well as disease or other health factors.

April 2001 has had the highest number of sea turtle strandings in Florida since data has been collected (strandings do not include live takes at CREC). The FWC has received reports on 575 strandings through April (though all data has not been compiled yet). This number is almost double the previous ten-year average, and it is the highest total ever for a period January through April by more than 100 strandings. The FWC documented elevated stranding numbers of Kemp's ridleys during February and March 2001 along the west coast of Florida (two times greater than normal).

The stranding numbers are greatly elevated for all species along the west coast of Florida. This also coincides with the greatest shrimping efforts in these areas. And though it has been reported that compliance with the Turtle Excluder Device (TED) requirements is quite high, there is still speculation that fishery operations are correlated with sea turtle strandings. Additionally, the number of recreational watercraft registered in Florida and visiting Florida continues to increase. With increased recreational boating activities and the popularity of personal watercraft, the likelihood of recreational watercraft collisions with sea turtles increases.

During 1998, eight non-causally related mortalities were recorded, with none occurring in 1999, five in 2000, and three to date during 2001. Evaluations by Florida Power and FWC biologists indicate that recreational watercraft interaction or disease have been the likely cause for a majority of these mortalities.

For this reason, Florida Power proposes that the Incidental Take Statement be amended to have no specific numeric limit for non-causally related mortality. As part of the sea turtle protection measures, Florida Power will continue to investigate and document the circumstances surrounding any sea turtle mortalities observed at the Crystal River Energy Complex. All sea turtle mortalities will be documented through FWC stranding reports.

### **Summary**

Florida Power requests that the Incidental Take Statement for the CREC be amended to include:

1. No numeric limit on live takes of endangered sea turtles,
2. No numeric limit on non-causally related fatal takes of endangered sea turtles, and
3. An annual limit of three causally-related fatal takes for endangered sea turtles.

Except for the requested changes to the Incidental Take Statement, the other terms and conditions of the Biological Opinion shall remain in place.