PLAN FOR CONDITIONING, TRANSPORTATION AND MAINTENANCE OF FLORIDA LOGGERHEAD SEA TURTLES, *Caretta caretta*, FOR TED CERTIFICATION TRIALS

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PLAN APPROVAL

Date: _____

Approved: _____
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1. PROPOSED PLAN:

1.1. CONDITIONING: (IN TEXAS PARKS AND WILDLIFE DEPARTMENT SEAWATER PONDS NEAR PALACIOS, TEXAS)

1.1.1 Feeding (Responsibility: NMFS Galveston Laboratory - Ted Williams):

The turtles' diet will be changed from a dry, pelleted, commercially prepared chow to chopped squid 2 weeks prior to transferring turtles to Texas Parks and Wildlife Department (TPWD) seawater ponds at Palacios, Texas. Turtles will be fed a minimum maintenance diet (approximately 1.5% of body weight per day) during the period of time from 2 weeks prior to transfer for conditioning until they are released near Panama City, Florida. The turtles will be fed the squid diet for the remainder of their stay in captivity at the TPWD ponds and in Panama City, Florida. The turtles will not be fed 24 hr prior to handling, transportation or use in TED certification trials.

1.1.2 Transfer to ponds (Responsibility: NMFS Galveston Laboratory - Tim Fontaine):

A total of 136 loggerhead sea turtles will be moved to Palacios and placed in one pond (at least 2 surface acres and at least 5 feet deep) on 20 April 1993. Ponds to be used at the TPWD Palacios Field Station will be filled with seawater about 4 weeks prior to stocking with turtles. Since the TPWD Palacios Field Station is within 300 mi of the NMFS Galveston Laboratory, the turtles will be transported by temperature-controlled surface vehicle (as recommended by the PCMI Mortality Review Panel in 1991). The turtles will be packed in plastic cartons drilled with air holes and transported to the pond site in two temperature-controlled vans. Approximately every hour of transportation time the turtles will be checked as to their condition during the shipment (for the 3 hour trip to Palacios approximately 2 times). A veterinarian (Dr. Joe Flanagan, Houston Zoo, Houston, Texas) will be asked to

accompany the turtles to Palacios and certify that the turtles appear to be in good health when they are stocked into the pond. NMFS staff (Tim Fontaine, Ted Williams and Billy Ray Ross) will accompany the shipment and closely observe the turtles for 48 hr after stocking them in the pond.

1.1.3 Pond stocking protocol (Responsibility: NMFS Galveston Laboratory - Tim Fontaine):

An additional (standby) 2 acre pond will be filled with seawater about 4 weeks prior to stocking the other pond with loggerheads. If the turtles do not adjust to being placed in one pond and they begin to fight to the extent they may harm each other, half will be removed and transferred to the standby pond. The turtles then should not fight. If fighting continues, the turtles will be removed and returned to the Galveston Laboratory's Head Start Facility where they will be examined and treated by a veterinarian (Dr. Richard Henderson, private practice, Galveston, Texas).

1.1.4 Pond and turtle maintenance, observations and security (Responsibility: NMFS Galveston Laboratory - Billy Ray Ross and Texas Parks and Wildlife, Palacios Field Station - Bob Colura):

One employee from the NMFS Galveston Laboratory (Billy Ray Ross) will remain at the TPWD Palacios Field Station to cooperate with TPWD in monitoring the turtles and pond conditions and to care for the turtles. The employee will be at the Field Station 8 hr per day, and will remain in Palacios until relieved. The TPWD Palacios Field Station is enclosed on three land sides by an eight foot high chain link fence and is bounded on the remaining side by Matagorda Bay. One TPWD employee, Mr. Britt Bumguardner and his family, live in TPWD housing at the Field Station. Mr. Bumguardner provides nighttime security for the Station.

1.1.5 Transfer from ponds to Panama City, Florida (Responsibility: NMFS Galveston Laboratory - Charles Caillouet) and Ted Williams):

The loggerhead turtles will remain in the pond (or ponds) until 25 May at which time they will be removed, packed in plastic boxes and transported by temperature-controlled van to Palacios Municipal Airport where they will be loaded onto a NOAA DeHaviland Twin Otter aircraft for transportation to

Panama City, Florida. One NMFS Galveston Laboratory employee (Ted Williams) will accompany the turtles on board the NOAA aircraft. TPWD will drain the pond(s) and assist in transporting the turtles to the Palacios airport.

1.2. HOLDING FACILITIES AT PANAMA CITY, FLORIDA (These facilities, including plastic tanks and outside holding pens constructed in St. Andrews Bay, must be inspected and certified for use in holding the loggerheads by the Florida Department of Natural Resources)

1.2.1 Holding pens at Panama City (Responsibility: NMFS Pascagoula Laboratory - Wil Seidel):

Holding pens at the NMFS Panama City Laboratory will be assembled by personnel of the NMFS Pascagoula Laboratory during the period 10-14 May 1993. The location of the pens will be at the discretion of the NMFS' Pascagoula and Panama City Laboratories, but each pen must provide at least 36 ft^2 of surface area per turtle (pens must be approximately 60 feet X 40 feet in dimension) and have a minimum seawater depth of 30 in. The pens should be inspected by the Florida Department of Natural Resources (FDNR) sometime during the period 15-16 May, 1993.

1.2.2 Installation of individual tanks (Responsibility: NMFS Galveston Laboratory - Tim Fontaine):

NMFS Galveston Laboratory personnel (Tim Fontaine, Ted Williams and Bob McElyea) will install 136 plastic holding tanks at the NMFS Panama City Laboratory. These plastic tanks are 22 in X 22 in X 12 in deep and will be filled to 10 in depth with seawater from St. Andrews Bay. At this depth, each tank will hold approximately 24 gallons of seawater. These tanks will be assembled in Galveston, in 6-tank portable units, and will be transported to the NMFS Panama City Laboratory by rental truck on 11 May 1993. The location of these tanks at the NMFS Panama City Laboratory will depend upon available space, but they must be located in an area that may be secured, that will provide shelter from the weather, particularly the sun and will be near to available St. Andrews Bay seawater so that the tanks may be easily drained, cleaned and refilled with seawater. The tanks will will be drained and refilled with seawater on a daily basis. Plans are to use either existing buildings or rental tent(s) to provide

protection from the weather. The individual tank system should be inspected by the Florida Department of Natural Resources (FDNR) sometime during the period 15-16 May, 1993.

1.2.3. Holding facilities completion date (Responsibility: NMFS Pascagoula Laboratory - Wil Seidel; NMFS Galveston Laboratory -Tim Fontaine and Ted Williams):

The holding pens and tanks must be installed at the NMFS Panama City Laboratory no later that 15 May.

1.2.4. Security (Responsibility: NMFS Galveston Laboratory - Tim Fontaine or Ted Williams):

At the NMFS Panama City Laboratory, daytime (6:00 a.m. to 6:00 p.m. security will be provided by NMFS Galveston Laboratory personnel, and nighttime (6:00 p.m to 6:00 a.m.) security will be provided by off-duty Panama City Police officers.

1.3. TRANSPORTATION FROM PALACIOS, TEXAS TO PANAMA CITY, FLORIDA

1.3.1. Scheduling of NOAA aircraft and estimated flight time (Responsibility: NMFS Galveston Laboratory - Charles Caillouet):

Transportation of the 136 loggerhead sea turtles from Palacios to Panama City will be via NOAA aircraft (DeHaviland Twin Otter). An attempt will be made to coordinate this transfer during a time-window when the aircraft is in Galveston. The flight will be on 25 May and will take an estimated 5 hours flight time.

1.3.2. Transportation cartons (Responsibility: NMFS Galveston Laboratory - Ted Williams):

The turtles will be transported in plastic cartons (as described above). Each turtle will be sprayed with water before the carton lid is closed.

1.3.3. Transfer from the Panama City Muncicpal Airport to NMFS Panama City Laboratory (Responsibility: NMFS Galveston Laboratory - Tim Fontaine):

On 23 May, three NMFS Galveston Laboratory personnel (Tim Fontaine, Erich Stabenau and Billy Ray Ross), driving a temperature-controlled van, will travel

from Galveston to Panama City, Florida. These employees will spend one day insuring that the holding facilities are prepared properly for the loggerhead turtles and will be on hand upon the arrival of the NOAA aircraft. NMFS Galveston Laboratory personnel will meet the NOAA aircraft at the Panama City Municipal Airport and will load the turtles into the temperature-controlled van. NMFS Galveston Laboratory personnel will then proceed in the van with the turtles to the NMFS Panama City Laboratory where the turtles will be placed in the outside holding pens (68 turtles per pen).

1.4. OBSERVING, MAINTAINING AND USE OF LOGGERHEAD SEA TURTLES IN TED TESTS AT PANAMA CITY, FLORIDA

1.4.1. Acclimation in outside pens (Responsibility: NMFS Galveston Laboratory - Tim Fontaine and Ted Williams):

Upon arrival at the NMFS Panama City Laboratory, the turtles will be placed in the outside pens, 68 turtles into each pen or 1/2 of the total turtles into each pen. As the turtles are unpacked, local veterinarian Dr. Gerry Barr will inspect each turtle before it is placed in the pen and certify every turtle's condition of health. A copy of Dr. Barr's report will be submitted to FDNR.

1.4.2. Procedures in case fighting occurs (Responsibility: NMFS Galveston Laboratory - Tim Fontaine and Ted Williams):

It will be the NMFS Galveston Laboratory personnel's responsibility to observe the turtles in the pens very closely for 24 hours after the turtles are placed in the pens for any evidence of fighting. If, in the NMFS Galveston Laboratory representatives opinion, any fighting among the turtles is approaching the point of harm being inflicted on any turtle, all turtles will be removed from the pens and placed individually into the plastic tanks. If this event should occur, Dr. Barr will be asked to closely inspect every turtle and recommend immediate remedial action. Should such catastrophic aggressive fighting occur, the turtles will remain in the individual tanks until used in the TED certification trials, or taken offshore of Panama City, Florida and released into the Gulf of Mexico, at a site chosen by FDNR. If the loggerhead turtles do not fight and appear to adapt to the pen environment with no apparent problems, then the sequence of events will proceed as

described below.

1.4.3. Grouping turtles for TED testing purposes (Responsibility: NMFS Pascagoula Laboratory - Wil Seidel; NMFS Galveston Laboratory - Ted Williams):

If at all possible, the turtles should be used for TED testing in groups of 34 (1/4 of the turtles).

1.4.4. Sequential cycling of turtles for TED tests (Responsibility: NMFS Galveston Laboratory - Ted Williams):

After 48 hr in the outside pens, the first group of turtles will be ready to be used in TED tests. When the first group of turtles is returned from TED testing offshore, these turtles will be placed individually in holding tanks where they will remain for 48 hours. They must be certified fit to be reused in TED tests by Dr. Barr (in consultation with Erich Stabenau). This cycling of four groups of loggerheads will continue until the TED certification trials are completed. In general, each turtle will spend at least 48 hr in outside acclimation in the pens before being used in a TED test, and then it will be allowed 48 hr of rest and observation in an individual tank before being put back into the outside pens prior to reuse in a TED test or being released into the Gulf of Mexico.

1.4.5. Certification of turtles to be released (Responsibility: NMFS Galveston Laboratory - Ted Williams in consultation with local veterinarian):

The sequential cycling of the loggerhead sea turtles through the TED tests, rest period in individual tanks and outside acclimation in pens will continue until the certification trials are completed. Upon completion, Dr. Barr will examine each turtle and determine and certify whether it is physically fit to be released. Those turtles so certified will be packed in the plastic cartons, loaded on board the contract TED test vessel and taken offshore and released.

1.4.6. Release of turtles after TED testing is completed (Responsibility: NMFS Pascagoula Laboratory - Wil Seidel; NMFS Galveston Laboratory - Ted Williams; FDNR - Alan Huff):

The exact location and distance from shore for the release will be that recommended by FDNR.

1.4.7. Disposition of turtles unfit for release offshore (Responsibility: FDNR - Alan Huff; NMFS Galveston Laboratory - Ted Williams):

Any turtle deemed unfit for release by the veterinarian will be held at the NMFS Panama City Laboratory in the plastic holding tanks. NMFS Galveston Laboratory personnel will contact FDNR for guidance in placing these turtles in an appropriate and FDNR-permitted holding facility within the State of Florida. When an FDNR-approved and permitted facility is located that may take the turtles, NMFS Galveston Laboratory personnel will transport the turtles there by temperature-controlled van where they will be transferred to the custody of that facility. The final disposition of these turtles will be determined by FDNR.

1.4.8. Protocol for examination of turtles that may die during the TED certification trials of 1993 (Responsibility: NMFS Galveston Laboratory - Ted Williams in consultation with local veterinarian):

In the event that a loggerhead sea turtle dies during the TED certification trials, the carcass of the turtle must be placed in ice **immediately**. The container holding the sea turtle carcass and crushed ice must be fitted with a bottom drain so that the carcass **will not stand in water**. The local veterinarian, Dr. Gerry Barr, should perform a complete examination and necropsy of the sea turtle carcass as quickly as possible, making sure to perform gross observations and take tissue samples necessary to make histopathological and bacteriological examinations. Routinely, tissue samples of the heart, lungs, liver and kidney should be taken and fixed in cold 10% neutral buffered formalin. If the carcass cannot be immediately examined, it may be held in refrigeration (0-2°C) for no longer than 24 hr, at which time it must be examined and necropsied. After the necropsy examination is completed, the remains of the carcass should be labeled and placed in frozen storage for later disposition by NMFS Galveston Laboratory. Complete examination and necropsy reports, related information and data, must be submitted to the NMFS Galveston Laboratory representative (Ted Williams) by Dr. Gerry Barr.

1.4.9. Storage of holding tanks and related equipment and material (Responsibility: NMFS Galveston Laboratory - Tim Fontaine or Ted Williams):

All plastic tanks and equipment used in holding the loggerhead sea turtles for TED testing at the NMFS Panama City Laboratory will be transported by rental truck back to the NMFS Galveston Laboratory where they will be stored for use in future TED certification trials.

1.4.10. Removal of outside pens and storage of material (Responsibility: NMFS Pascagoula Laboratory - Wil Seidel):

The outside pens will be removed by NMFS Pascagoula Laboratory personnel and the material stored for future use.

1.5. PHYSIOLOGICAL MONITORING

1.5.1. Blood collection for baseline values (Responsibility: NMFS Galveston Laboratory - Erich Stabenau):

At the NMFS Galveston Laboratory, blood samples will be collected and analyzed from a small group of turtles (n=5) for baseline parameters, such as blood [lactate], [glucose], pH, Pco_2, Po_2, and various plasma ion concentrations (e.g., Na^+, K^+, Cl^-), approximately 2-3 weeks prior to transporting the turtles to the TPWD ponds. Peter Lutz and colleagues have demonstrated that there is some seasonal change in the blood chemistry of loggerhead turtles. Collection of blood from "pre-conditioned" turtles will identify this possible source of variability in the blood chemistry prior to conditioning the turtles in TPWD ponds. Subsequent blood samples will not be collected from these turtles prior to release.

1.5.2. Blood collection related to TED tests (Responsibility: NMFS Galveston Laboratory - Erich Stabenau):

Blood will be sampled from a minimum of five turtles immediately before and after TED test use and immediately before final release offshore. A minimal amount of blood will be sampled to eliminate any possible physiological effects of a decrement in blood volume prior to release in the wild.

1.6. CRITERIA FOR REUSING TURTLES IN TED CERTIFICATION TRIALS

1.6.1. Protocol for examination (Responsibility: NMFS Galveston Laboratory - Erich Stabenau in consultation with local veterinarian):

When a loggerhead sea turtle is used in a TED test, it will be recaptured by the divers on-site and returned to the NMFS Panama City Laboratory. At the Laboratory, it will be placed in an individual tank and be allowed to rest for 48 hours during which time it will be observed closely for any abnormal behavior. Before a turtle is placed in the outside pens, a blood sample will be drawn and analyzed for pH, Pco_2, and Po_2. The turtle will then be placed in the pen. If for some reason the blood sample identifies a potential problem, the turtle will be returned to its individual tank. If not, the turtle will be observed closely in the outside pen to see if there is any abnormal behavior or other observable problem. Dr. Barr will make all decisions, in consultation with Erich Stabenau, concerning health and physical fitness of a turtle in regard to its being reused in TED test.

1.6.2. Veterinary inspection of handling and husbandry procedures (Responsibility: NMFS Galveston Laboratory - Ted Williams):

Dr. Barr, the consulting veterinarian during the TED certification trials, will be asked to make at least one trip onboard the contract vessel during the TED certification trials to insure that proper procedures are being used in handling the loggerhead sea turtles at sea. As the TED certification trials progress, Dr. Barr will be asked to recommend corrective measures for any procedure of handling or husbandry of the loggerhead sea turtles that, in his professional opinion, needs remedial action. Further, Dr. Barr will be asked to make a comprehensive written report on the veterinary aspects of the TED certification trials. Copies of his report will be distributed to all agencies and individuals participating in the TED certification trials.

1.7. PERMITS AND AUTHORIZATIONS NEEDED FOR TED TESTS IN PANAMA CITY, FLORIDA IN 1993

1.7.1. FDNR Facilities Permit for NMFS Panama City Laboratory (Responsibility: FDNR - Alan Huff; NMFS Galveston Laboratory - Tim Fontaine; NMFS Panama City Laboratory - Herb Kumpf):

The NMFS Panama City Laboratory must have a Florida Department of Natural Resources sea turtle holding facility permit. (See attachment for further FDNR permit information). FDNR must inspect the facilities to determine adequacy of holding pens or tanks, key personnel, etc. before issuing a permit. Dr. Gerry Barr is recommended by the NMFS Galveston Laboratory as a qualified veterinarian. He is skilled in working with sea turtles. Dr. Barr must be designated and permitted by FDNR to examine the turtles on arrival, provide a written report on their condition and determine whether or not they are suitable for TED certification trials as part of FDNR's permit requirements.

1.7.2. Permits for all NMFS Galveston Laboratory personnel (Responsibility: NMFS Galveston Laboratory - Charles Caillouet):

All NMFS Galveston Laboratory personnel in whose custody the turtles will remain during all phases of transfer, holding and TED tests must have a NMFS permit (No. 585), a U.S. FWS (No. 676379) and all applicable FDNR endangered and threatened species permits.

1.7.3. Permits for all NMFS Pascagoula Laboratory personnel (Responsibility: NMFS Pascagoula Laboratory - Wil Seidel):

All NMFS Pascagoula Laboratory personnel (divers and boat crew personnel) who will be involved in handling the loggerhead turtles during the transport to the TED test site and during the actual TED tests must have a NMFS permit (No. 585), a U.S. FWS permit (No. 676379) and all applicable FDNR endangered and threatened species permits.

1.7.4. FDNR Letter of Authorization (Responsibility: NMFS Galveston Laboratory - Charles Caillouet):

Prior to shipping turtles to Florida for TED tests and release, a letter of authorization must be issued

by FDNR and received by the NMFS Galveston Laboratory Director. This letter and qualified and properly permitted NMFS personnel, with proper permits, should accompany all shipments of turtles.

1.7.5. TPWD notification (Responsibility: NMFS Galveston Laboratory - Charles Caillouet):

The TPWD, Endangered and Threatened Species Office, Austin, Texas will be notified by the NMFS Galveston Laboratory of plans to export the loggerhead sea turtles from Texas to Florida.

1.7.6. Proof of permits (Responsibility: NMFS Galveston Laboratory - Roger Zimmerman):

The NMFS Galveston Laboratory will not ship the loggerhead sea turtles from its facilities until official copies of **all** required permits have been received by the NMFS Galveston Laboratory Director from **all involved individuals, institutions and parties**. Presently, this includes Dr. Gerry Barr, Veterinarian of Panama City, Florida; NMFS Panama City Laboratory; and NMFS Pascagoula Laboratory. Permits will include those applicable to facilities and personnel; U.S. Fish and Wildlife Service, Threatened and Endangered Species permits; National Marine Fisheries Service, Endangered and Threatened Species permits; and FDNR permits.

1.8. TENATIVE SCHEDULE

1.8.1. Conditioning:

April 20 to May 25

1.8.2. Constructing Holding Facilities at Panama City:

May 10 - 15

1.8.3. Transportation from Palacios, Texas to Panama City, Florida:

May 25

1.8.4. Maintaining loggerheads at the NMFS Panama City Laboratory:

May 25 - June 8

1.8.5. Physiological Monitoring:

March 25 - June 9

1.8.6. Release of loggerheads following TED tests:

June 9

2. PROPOSED BUDGET:

2.1. BASED ON PLAN AS PROPOSED:

Turtles conditioned in TPWD ponds at Palacios, Texas and transported by NOAA aircraft from Palacios, Texas to Panama City, Florida (flight originates at Tampa, Florida). (If transport of the turtles to Panama City, FL occurs during a time period when the NOAA aircraft is operating in the Galveston area, then the total estimated cost will be reduced by $3.0K)

2.2. CONDITIONING AT PALACIOS, TEXAS:

	$K
Travel/Per Diem	2.6
Turtle food (squid)	1.7
Rental truck	0.3
Miscellaneous	0.5
Total	**$5.1K**

2.3. HOLDING FACILITIES AT PANAMA CITY, FLORIDA:

	$K
Travel/Per Diem	3.8
Plastic tanks (136 @ 14.24)	2.0
Fittings, pipe and valves	0.9
Sump pumps (3 @ $250.00)	0.8
Miscellaneous fittings and equipment	0.5

Truck rental (for hauling equipment)	0.7
Total	**$8.7K**

2.4. TRANSPORTATION FROM PALACIOS, TEXAS TO PANAMA CITY, FLORIDA:

	$K
NOAA aircraft from Scholes Field, Galveston to Palacios, Texas thence to Panama City, Florida and return (cost estimated by Capt. Mike White, NOAA pilot, and includes daily plane charge, fuel, crew per diem and related expenses	
Total	**$8.0K**

2.5. OBSERVING, MAINTAINING AND USE OF LOGGERHEAD SEA TURTLES AT PANAMA CITY, FLORIDA:

	$K
Personnel costs: (does not include NMFS salaries)	
NMFS:	
Per Diem	0.9
Overtime	0.5
Travel	0.7
Non-NMFS:	
Night time security - 6:00 p.m until 6:00 a.m. each night that turtles are maintained at Panama City, Florida. Off duty Panama City Police Department officers will be used as security. (12 hrs/day @ $20.00/hr X 10 days)	2.4
Turtle food (squid)	1.9
Veterinarian fees	0.7

Miscellaneous expenses (antibiotics, tagging equipment, etc.)	0.5
Total	**$8.6**

2.6. PHYSIOLOGICAL MONITORING:

	$K
Includes all drugs, chemicals, lab fees and equipment	
Total	**$3.6**

2.7. TOTAL ESTIMATED COST:

Grand Total = $34.0K