SUPPLEMENTAL
FISH AND WILDLIFE COORDINATION ACT REPORT

Neches River and Tributaries
Saltwater Barrier at Beaumont, Texas

To Accompany the
General Reevaluation Report and Environmental Assessment

Prepared by
U. S. Fish and Wildlife Service
Ecological Services

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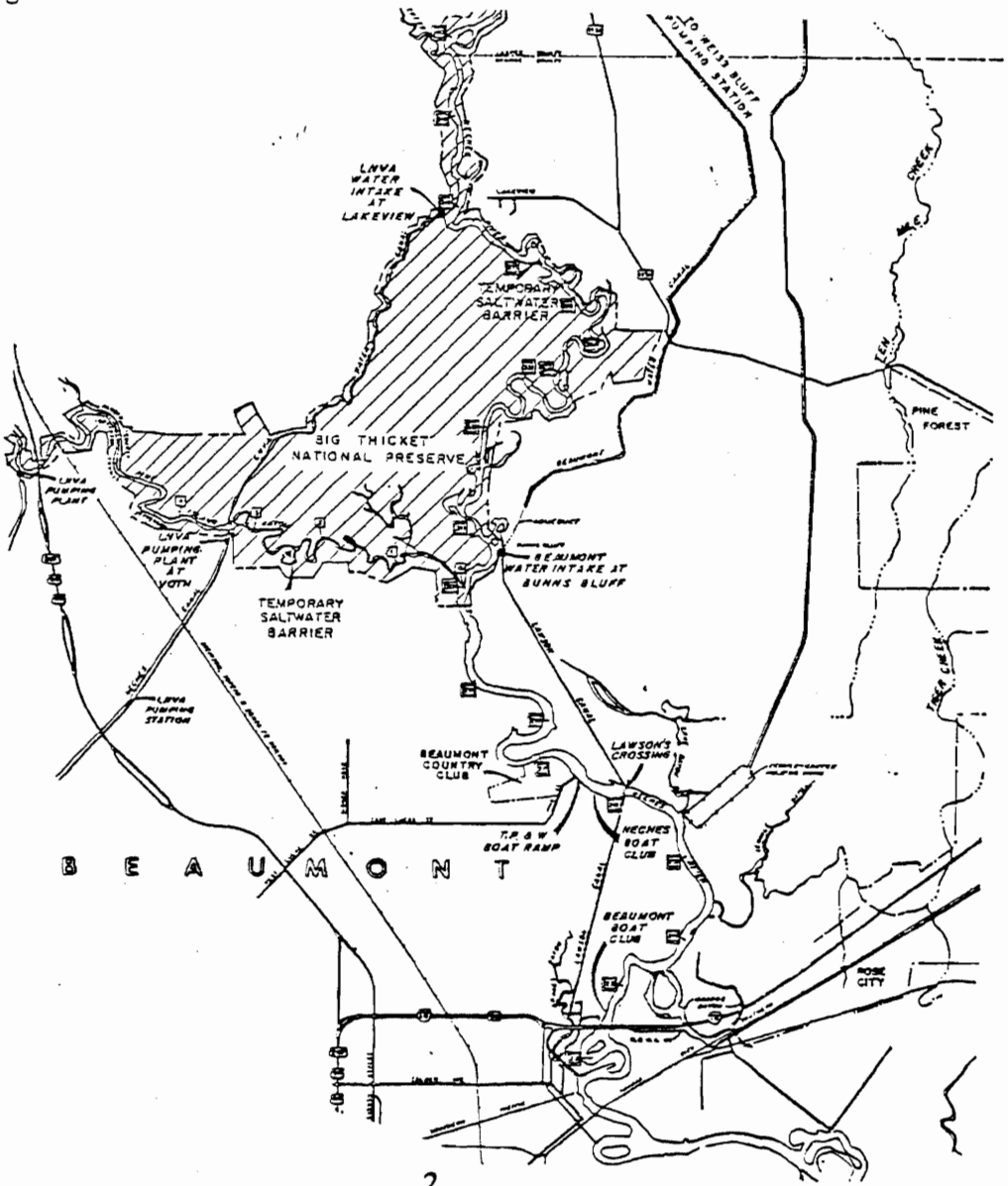
BACKGROUND INFORMATION

The project to construct a saltwater barrier across the lower Neches River was authorized by Congress under Section 102 of the Water Resources Development Act of 1976 (WRDA '76). The Fish and Wildlife Service submitted a Fish and Wildlife Coordination Act (FWCA) Report on this project, dated June 8, 1981, which accompanied the Phase I General Design Memorandum for post-authorization approval. The first set of detailed plans was completed in October 1982; however, before the local sponsor, the Lower Neches Valley Authority (LNVA), signed a cooperation agreement, WRDA '86 was passed raising the non-federal funding share from the $2.1 million originally required in the authorizing legislation to 35 percent of project costs or $10.6 million. This was unacceptable to LNVA and nothing more was done to advance the project until September 1994 when the Corps prepared a Preconstruction Engineering and Design Reevaluation report in response to renewed support by the local sponsor. The Service followed with a Supplemental Fish and Wildlife Coordination Act Report in March 1995 to update impacts and recommendations. The scope of re-evaluation at that time was limited by funding to an overall look at project viability and support. A detailed general re-evaluation of alternatives did not actually begin until 1997 when funds were made available by the Energy and Water Resources Appropriations Act of 1997.

The plan authorized in 1976 and, with some redesign, recommended during post-authorization planning called for a saltwater barrier to be built at River Mile 23 on the Neches River just upstream of IH-10 at Beaumont, Texas. Project features included an overflow dam across a bend in the river, a navigation channel, and a set of tainter gates to pass river flow but prevent a salt wedge from moving upstream during low flow and contaminating the fresh water supplies withdrawn by the city of Beaumont (via the Lawson Canal and Beaumont Water Canal to Weiss Bluff) and LNVA (via the Neches Canal and LNVA Canal) as shown in **Figure 1**. Until a permanent saltwater barrier is built, LNVA must rely on temporary barriers placed across the Neches River and Pine Island Bayou above the confluence of these two streams. These barriers must be installed during the 111-day average low flow period in the

summer when river flow is less than the approximately 2,500 cfs of water needed (above the demands of withdrawal) to push the salt wedge below diversion points.

A significant feature of local cooperation for the project required the construction of a diversion pipe by Temple-Inland (formerly Temple-Eastex) to reroute pulp wastes stored in a large holding pond on the east bank. The material is presently discharged into the river at the entrance of Lake Bayou (River Mile 25.4). The discharge point would have to be moved well downstream of IH-10 to reroute the largest organic load discharged into the river and improve water quality above the barrier. This was the principal environmental goal of the project at that time and provided the largest increment of mitigation for habitat losses at the saltwater barrier.



AREA DESCRIPTION

The Neches River flows south to Sabine Lake as the dividing line between Jefferson and Orange Counties, Texas. Pine Island Bayou joins the Neches River at about River Mile 30. The Beaumont Unit of the Big Thicket National Preserve (BTNP) includes holdings on both banks of these two streams. Below Pine Island Bayou, the city limits of Beaumont borders the west bank of the river for 11 miles. On the east bank, access to the river is available from SH 1131 between Lakeview (River Mile 38) and an old ferry crossing opposite the Beaumont Country Club (River Mile 27). The community on the east side of the river includes the town of Lakeview and a chain of scattered camps, trailers, and elevated, recreational cabins along the river bank and along the shores of nearby oxbow lakes.

The Neches River is about 200 feet wide and 20 feet deep below its confluence with Pine Island Bayou. Flow is regulated by upstream impoundments at B. A. Steinhagen and Sam Rayburn Reservoirs. Regulation of flow and construction of the Sabine-Neches Waterway and Neches River Channel to their present dimensions (40-foot projects) has allowed tidal flows to move upstream well above Weiss Bluff during periods of low summer flow. The temporary barriers placed by LNVA divide the river into a clean freshwater stream above the barrier and a low quality tidal stream below the barrier until high flows the following winter or spring wash the barriers out and restore contiguity to the river.

Water quality in the Neches River above IH-10 has improved considerably since Dr. Richard C. Harrel's study in 1967 documented the problem at the temporary barriers (Harrell 1975). This and subsequent studies by Dr. Harrel and his colleagues (Harrel, et al. 1976; Darville and Harrel 1980; Mccauley and Harrel 1981; Harrel and Hall 1991; Harrel 1993) demonstrated the improvement in water quality of the lower river since the early 1970's when state and federal regulatory agencies began

a coordinated program to improve water quality. As a result of these efforts, the BOD waste load in the river was reduced from about 123,000 kg/d to 8,700 kg/d and by 1988 the stream use designation was changed from "non-contact recreation" to "contact recreation".

Improvements in riverine habitat from reductions in the waste load to the river was apparent by 1985 when Harrel and Hall (1991) found that the numbers of macrobenthic taxa in the river, and their densities and population diversities had increased dramatically from previous lows in the early 1970's. The investigators stated that "A total of 50 taxa of macrobenthos were collected in 1971-1972 and 104 taxa were collected in 1984-1985", a two-fold increase. Water quality now meets screening criteria indicative of good water quality (there are still problems with fecal coliform bacteria from inadequate septic systems and the continuing presence of toxic compounds from pulpmill wastes). Bioaccumulation of dioxins and furans in *Rangia* clams (Harrel and McConnell 1995) testifies to the past impact that historical paper mill waste discharges have had on water quality in the river.

The Neches River from IH-10 upstream to Weiss Bluff passes through a broad, flat river valley which is over six miles wide in places. The area consists of large swaths of river swamp alternating with fluvial ridges supporting bottomland hardwoods. The character of the area has changed very little since it was described in the June 8, 1981 FWCA report of the Service. The swamp contains a mix of young to mature, slow growing cypress-water tupelo forest which is semi-permanently flooded and excludes most undergrowth beyond a thick bed of alligatorweed *Alternanthera philoxeroides* and scattered emergents such as swamp lily *Crinum* and arrowhead *Sagittaria*. The ridges are only temporarily flooded and have a more diverse mix of forest canopy dominated by large willow oak *Quercus phellos* rising above a subcanopy of water oak *Quercus nigra*, laurel oak *Quercus laurifolia*, sweetgum *Liquidambar styraciflua,* and multi-stemed red maple *Acer rubrum*. Below the overstory are scattered smaller trees consisting mostly of new reproduction and small shade tolerant trees such as American hornbeam (musclewood or ironwood) *Carpinus carolinianum*. There are few shrubs or vines in the undergrowth and the forest floor is almost barren. These forests no doubt have benefitted from improved water quality in the Neches River which would have permitted better oxygenation of soils and surface water on the forest floor, thereby reducing stress to the forest root system.

The habitat values of these types of forest are well known (Dickson 1978; Fredrickson 1978; and Wharton, Lambou, Newsom, Winger, Gaddy, and Mancke 1981), and fish and wildlife use would be similar to contiguous forest within the Beaumont Unit of BTNP where animal populations were extensively documented in the environmental reports prepared during the mid 70's when the BTNP was established.

PROJECT FEATURES

The project selected for implementation is different from the one chosen during prior post-authorization planning. The saltwater barrier now recommended for construction would be located at the uppermost site alternative (Site 6) at river mile 29.7 just below the confluence of Pine Island Bayou with the Neches River (**Figure 2**). The project lies at the end of an existing access road used to service a chain of commercial sand pits. This site was selected because it has the lowest project first cost, will remove less wetland habitat than the original site, and will not require the routing of the Temple-Inland outfall which would have added considerably to project first cost and habitat lost.

Swamp and bottomland forest on the west bank of the river will be excavated and the material used to build a coffer dam, improve the existing access road and provide fill for site grading of the administration/storage area. A diversion channel will be constructed in the dry within the coffer dam. It will contain two sector gates for navigation with a clear opening of 56 feet and five tainter gates with a top elevation of +4.5 NGVD in the closed position. After the diversion channel is completed, material from the coffer dam and additional stockpiled material will be used to construct an overflow dam in the river with a final height of +4.5 feet NGVD. There will be just under 300,000 cy of material from the project which is unusable (high organic/silt content). This material will be placed in a nearby 7-acre sand pit which would shallow it from a depth of about 30 feet to a depth of 5 feet.

The dam has been designed to divert normal flow through the diversion channel but prevent unusually high tides from passing over the dam. The diversion channel will be open during most of

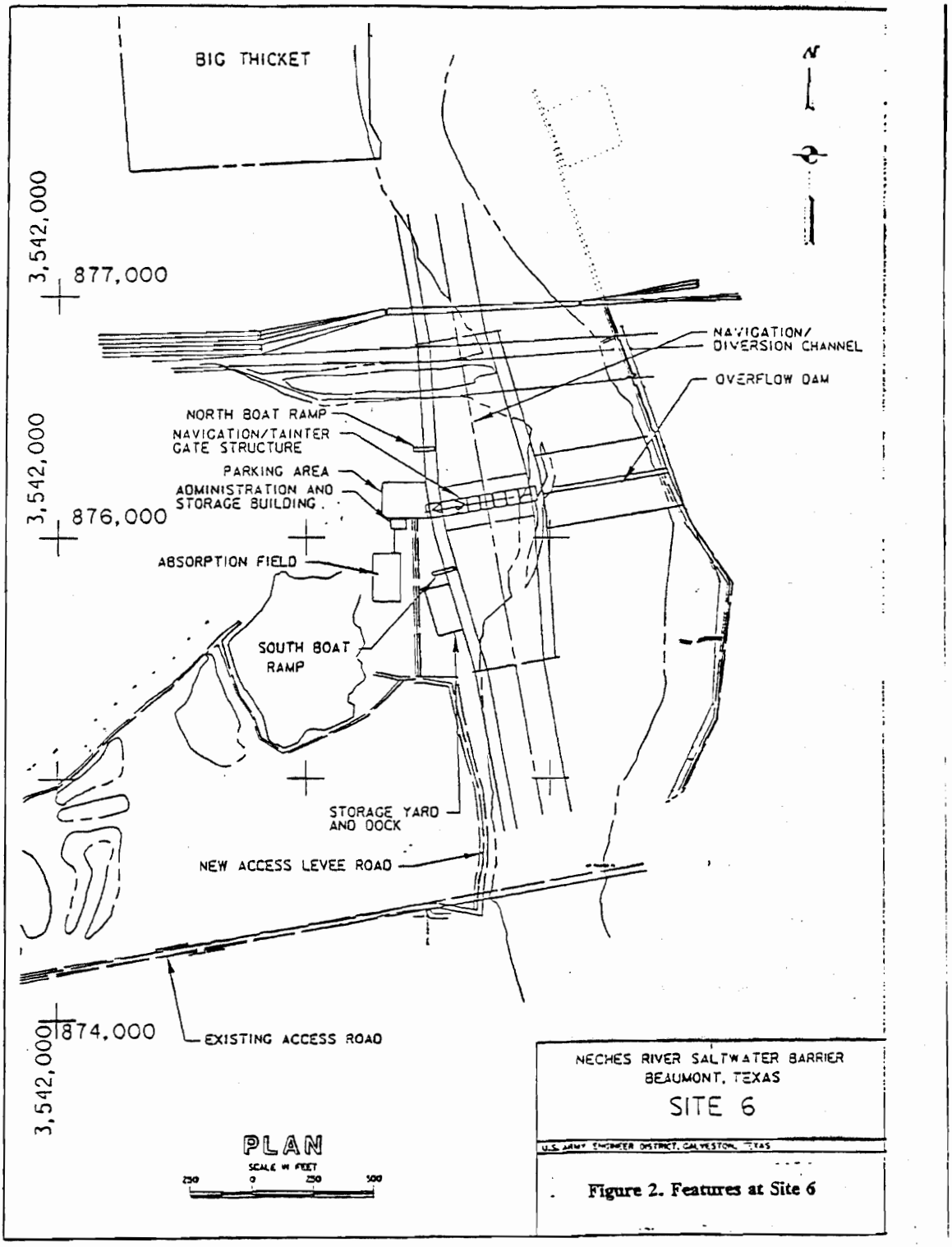


Figure 2. Features at Site 6

the year. It has a sill depth of 20 feet and a cross sectional area approximating the cross section of the Neches River at this location so it will pass flows at historical rates without appreciable upstream effects on water levels. During low summer flows, the saltwater wedge will be kept out by closure of sector and tainter gates to maintain an upstream head. Low flows will pass through the diversion channel when the sector gates are opened for boat traffic. The level of the water above and below the structure will have to be fairly close to allow boats to pass safely through the sector gates when they are opened (approximately 6 inches of differential with a target range of 6-12 inches over a 48-hour period).

The diversion channel, access road, and associated service area are designed so they do not interfere with existing hydrological patterns which presently carry flows out of swamps near the project area to trenches created when power and pipelines were built across the river just north of the project.

IMPACTS OF THE PROJECT

AQUATIC IMPACTS

Fishery habitat in the Neches River and its tributaries has traditionally been used by freshwater species which can adapt to temporary brackish water conditions such as bowfin *Amia Calva*, spotted gar *Lepisosteus oculatus*, freshwater catfish *Ictalurus sp.*, striped mullet *Mugil cephalus*, and shad *Dorosoma sp.* as well as the blue crab *Callinectes sapidus* and small numbers of white shrimp *Callinectes sapidus* which can usually be found in tidal reaches. These fisheries would not be affected by the saltwater barrier which will be operated to approximate fluctuating water levels above and below the barrier so that boats can pass. Continued improvement in water quality in the Neches River will have a much more profound effect on river fisheries than the presence of the barrier.

The paddlefish *Polydon spathula* may be an important exception. This large, edible fish is good table fare but is now protected as endangered by the state of Texas from commercial or recreational take because of its restricted habitat requirements and declining numbers. The paddlefish has been recorded from the Neches River since the turn of the century where it was commonly found in the quiet waters of natural oxbow lakes and flooded ponds of the river floodplain. The fish moves long distances upstream against rising waters to spawn over submerged, clean gravel beds where the larvae begin life. Runs begin early in the year once the water temperature begins to rise into the mid-60's and spring rains bring flows of around 20,000 cfs to adequately cover spawning beds for more than a week.

A 10-year recovery stocking plan for the paddlefish by TPWD began in the Neches River in 1989. Young fish stocked in, or above, B.A. Steinhagen Reservoir and in the Sabine River have been found in the lower Neches River indicating movement below the reservoir spillway as well as across the Sabine Lake estuary during freshets. Spawners aggregate at the spillway discharge channel of Town Bluff Dam on B.A. Steinhagen where substrate appears suitable for egg-laying. It is not known for certain if successful spawning occurs here. Recent studies of the paddlefish in the lower Neches River (Texas Tech, unpublished) may be able to better answer this question when information becomes available in mid-1998. Flows adequate to facilitate spawning in the river below the dam also exceed the flows needed to keep the salt wedge below the proposed saltwater barrier; therefore, the barrier would be open and any spawning runs would not be impeded by the barrier. Later in the year, when the barrier is closed to preclude the salt wedge from moving upstream, there may be stress placed upon large paddlefish in the lower river which cannot deal very effectively with the salt levels found in tidal waters of the lower river below the proposed barrier. The impact of this is difficult to predict, particularly since the period of closure has such a wide range (from 5 to 255 days), and it is not known if paddlefish can negotiate the navigation channel when it is opened to pass boat traffic.

A more serious impact to the paddlefish could occur if management of water in the Neches River is re-programmed as part of an interbasin transfer so that flood or reservoir storage is routed to Houston in an aqueduct from B.A. Steinhagen Reservoir rather than discharged down the river to pick-up points near the proposed saltwater barrier. Under these conditions, flood flows would likely no longer be adequate to support any spawning in the lower river. Reduction of flow in this manner would not be

possible without the saltwater barrier which is capable of stopping saltwater intrusion using only enough flow in the river to keep a 6-inch head upstream.

TERRESTRIAL IMPACTS

Construction of the saltwater barrier will require the acquisition of 53.9 acres of land for project construction (51.9 acres on the west bank and 2 acres on the east bank of the river) and another 8.5 acres at the northwest corner of the project which must be purchased as an uneconomic remnant. Excavation and fill for construction of the diversion channel and associated service area will remove 44.1 acres of cypress-tupelo swamp and 4.0 acres of bottomland hardwood forest. Another 0.3 acre of bottomland forest would also be taken where the overflow dam ties into the east bank of the river.

An additional 6.5 acres of land along the west bank at the southern end of the project will be needed under a 5-year easement to store equipment and stockpile material. This area was severely modified by the landowner for operation of 16 commercial sand pits along the access road and has little wildlife value.

The cypress swamp contains a few scattered large cypress trees with prominent pneumatophores above a thin stand of 30-foot water tupelo scattered irregularly throughout the swamp. There are individual large tupelo remaining but almost no young cypress. Although drainage for flood waters is excellent, the swamp seldom drys out as evidenced by the lack of germination and a swamp floor that is highly organic and almost devoid of shrubs and herbs. Immediately west of the swamp is the first and largest of the chain of active sand pits which follow high ground along a ridge west of the project site (**Figure 2**).

Bottomland hardwood forest is found on a wide, low ridge running through the swamp and separating it into two parts which rejoin at the north end of the project where the swamp flows out into several east-west pipeline trenches crossing the river. Although the forest is relatively mature, it is not in very good shape. The older trees are showing various stages of rot and are being overtaken by large woody vines. There is little evidence of reliable mast production even though the oaks are all mature. Most

mast may have been removed by fall floods but remnants of acorns should still be present in the forest litter. The sweetgums have all been girdled, most likely by nutria, and will not persist for very much longer. Understory coverage is low and there is little browse or concealment for wildlife.

The Service evaluated the forest in the project area using habitat assessment models derived from models developed for our Habitat Evaluation Procedures. These habitat assessment models evaluated forest attributes such as stand maturity, variety of composition, adequacy of site hydrology, and relationship of the site to adjacent habitats, disturbances, etc. without relating them directly to the habitat requirements of any one representative species. In this way, the unique individual requirements of a single species were replaced with the more general requirements for the wildlife population as a whole. A similar approach, the Wetland Value Assessment Methodology, is used in Louisiana to evaluate habitat constructed pursuant to the Coastal Wetlands Planning, Protection, and Restoration Act.

The forest areas to be removed by the project still rate high despite problems with habitat quality owing to the close relationship between forest and river hydrology and the location of the project within a large, unbroken area of swamp mixed with bottomland hardwood ridges. We calculated a habitat suitability index of 0.63 for the cypress-tupelo forest and 0.91 for the bottomland hardwood forest ridge. The swamp rated lower because it had so few mature trees, virtually no woody understory, and was, in part, closest to the sand mining operation. These values, when multiplied by the amount of habitat taken by the project, yield an annual habitat loss of 27.8 habitat units of swamp and 3.64 habitat units of bottomland hardwood forest (a total of 31.44 average annual habitat units). Over a 50-year period of analysis this adds up to 1,572 habitat units which would require compensation as part of the project cost.

There is an important secondary impact from constructing the saltwater barrier. The new barrier will allow management of river basin water not possible before. This could take the form of increased storage of water in upstream reservoirs, or interbasin transfer of water from the system rather than passing it down to the lower river. The result of this will be a stabilization in flows and less inundation of the forested wetlands below B.A. Steinhagen Reservoir. The National Park Service, in a letter of comment dated April 15, 1998 on our draft report, pointed out that existing dams on the Neches River

have already reduced peak flows and increased median daily flows. This has resulted in increased survivorship of less flood-tolerant species, and may be contributing to the long-term shift in species composition and the distribution of floodplain forest communities along the river. This trend will intensify with the saltwater barrier in operation because the barrier will allow management strategies which do not require keeping water in the river. This impact could be even more serious if system management of water as part of an interbasin transfer strategy reduces flood flows down the river which maintain the river floodplain forests.

MEASURES TO REDUCE IMPACTS

There are no design or operational features for this project which can be recommended to further improve water quality or facilitate the migration of paddlefish and still achieve the goal of preventing saltwater intrusion above the barrier. We do not believe these impacts are significant enough to warrant a consideration of another alternative such as moving water pick-up points well upstream of saltwater intrusion. A more serious impact may be the relationship between the saltwater barrier and possible future interbasin transfers to Houston since the structure precludes the need to discharge water below Town Bluff dam to keep the saltwater wedge away from pick-up points. The Service would not support any operational changes to the barrier to facilitate such transfers until it can be demonstrated that there are no significant aquatic or terrestrial impacts.

The project has been designed to reduce wildlife habitat losses at the project site as much as possible by combining navigation and water control features into the diversion channel and avoiding habitat within the Big Thicket National Preserve. Compensation is still needed for the habitat losses determined above. The target for compensation is normally replacement of habitat values so that there is no net loss with the project. This is the Service's planning goal for habitats like swamp and bottomland hardwood forest which are known to have high wildlife habitat values but are vulnerable to a variety of economic uses.

One way to compensate for losses to forest habitat is to change the landscape to create new forest (i.e., excavating a site to increase hydroperiod and resurfacing with topsoil before planting of trees); this is usually far too expensive and risky to be a practical approach. A better way is to restore a tract of low-lying land which was once wetland forest by reestablishing hydrology and replanting with hardwoods. Opportunities to create or reestablish low-lying forest in the Neches River valley below Town Bluff Dam are scarce and, where land has been cleared or drained, it is occupied by houses, small businesses, or improved pasturage and is not easily restorable.

The surest way to compensate for losses is to establish a conservation program for a forested tract to prevent clearly-defined threats from deforestation or disturbance. Bottomlands are often the target for such things as lumbering, clearing for improved pasture or mining, and development. A shift to public or conservation ownership would protect a tract of land from these threats. The Service believes this approach is a prudent course of action and has identified a tract of land south of Lakeview between SH 1131 and the Neches River **(Figure 3)** as a high priority acquisition site because it is under threat, now for sale by the owner, and lies immediately adjacent to the Big Thicket National Preserve which is recommending to the Secretary of the Interior that the tract should be included in the Beaumont Unit (see attached letter).

The tract contains just over 380 acres of mostly bottomland hardwood forest with some swamp surrounding oxbow lakes within the area. This land has been appraised by a representative of the owner at an average price of $525 per acre which is consistent with the selling price for other undeveloped property in the area. It is serviced by two asphalt roads off of SH 1131--Connolly Road at Lakeview on the north side and Hunter Road on the south side--which provide entry onto the property to camps, trailers, and elevated cabins found there. There are also several cleared trails off these roads which allow access to the remainder of the property by four-wheel drive vehicles.

It is unlikely that the property will be improved with any type of extensive infrastructure and then subdivided into a high density community because of its remoteness from stores and other service facilities and position in the river floodplain which would require considerable elevation of the property. Nevertheless, the area is ideally suited to the type of development now ongoing along Connolly and Hunter Roads; i.e, low density housing which is either inexpensive or mobile, or

elevated above the flood plain. The area could be readily served by telephone and electricity, but homeowners would have to provide their own septic system and water well.



Figure 3. Potential compensation site for project losses.

The timber value of this tract is quite variable; there are a number of rather large pines and hardwoods but they would be difficult to obtain because of the difficulty in getting heavy equipment over the soft ground during all but very dry periods.

The benefits of purchasing this tract and moving it into public ownership as conservation against habitat deterioration were arrayed for different levels of impact. The worst case would occur if the property is sold rather quickly and all sawlogs (trees with a dbh greater than 11 inches) were harvested before the property is sold or leased as lots for development. Based on the ridge-swale contours on the property and the location of existing trails, it is likely that development would occur over about 40 percent of the property through the middle of the tract. Less impact would occur if timbering is limited to a select cut of only the largest trees before lots are sold. Even less impact would occur if lots are sold without timber removal. The least impact would occur if the property is leased for hunting without any other economic use or is held for its future property value.

A change of ownership would prevent development impacts and yield compensation ranging from 84.06 average annual habitat units with the worst case for timber cutting and development to no compensation value at all if the land is only leased for hunting or held for the future. Assuming that there would be extensive timbering followed by development, compensation for all project losses could be accomplished by acquisition of about 40 percent of the property, or 152 acres, if taken in the middle of the property. More land would be required, however, if the impact involves only a select cut of the largest timber or if development occurs without timber removal.

Given the uncertainties of the outlook for this tract of land (or other similar tracts in the river bottom adjacent to the Big Thicket National Preserve) it would be reasonable to expect the entire 380 acres of land to be acquired as compensation for project losses. This may be necessary in any case if the landowner is unwilling to sell only 40 percent of the property, especially if land must be taken from the middle of the tract, which would severely reduce the value of the remaining 228 acres as potential residential property.

Impacts from the saltwater barrier have been determined based upon historical hydrology; however, this hydrology can change radically once the barrier is in place. The relationship between the new

saltwater barrier and water management strategies in the basin which would impact the floodplain forest along the lower river has not been explored for this project. Things to consider include:

- A review of water appropriation in the basin and the extent to which this water is now being withdrawn as a gauge for future impacts when maximum appropriations are being taken;

- any agreements in place, or needed, to provide water to the lower river as a feature of the project; and

- commitments needed to insure that storm flows reach the lower river at historical rates with the barrier in place.

RECOMMENDATIONS

The Service believes that Site 6, the alternative selected by the Corps of Engineers, would benefit aquatic resources better than temporary saltwater barriers on the Neches River and Pine Island Bayou . On the other hand, the installation of the saltwater barrier would permit water management which could have a serious impacts on basin hydrology and the conservation of floodplain forests in the lower river.

No net loss of wildlife habitat values should be the compensation goal for this project. This could best be accomplished by protecting a tract of high quality bottomland forest and/or swamp in the vicinity of the project which will likely be impacted in the near future. The compensation area should be protected through a conservation easement held by a public resource agency or by transfer of ownership to the Big Thicket National Preserve. Habitat evaluation to meet this goal has identified at least one tract of land, a 380-acre site on the east bank of the river opposite the Beaumont Unit, as a high priority acquisition site which would fully compensate for losses.

The impact of the saltwater barrier on basin hydrology should be evaluated in detail and mitigation commitments included in the project to prevent unacceptable impacts to the floodplain.

The Service would appreciate the opportunity to review any changes to project plans which may affect the recommendations in this report. We and the National Park Service will be happy to meet with the Corps to discuss basin hydrology impacts and follow up the recommendations in this report.

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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
9721 Executive Center Drive N.
St. Petersburg, Florida 33702

March 17, 1998

Mr. Carlos Mendoza
Project Leader
U.S. Fish and Wildlife Service
17629 El Camino Real, Suite 211
Houston, Texas 77058

Dear Mr. Mendoza:

The National Marine Fisheries Service has reviewed the Draft Supplemental Fish and Wildlife Coordination Act Report for the Neches River and Tributaries, Saltwater Barrier at Beaumont, Texas transmitted to us via your letter of March 2, 1998. We believe that the report adequately describes potential project impacts and mitigation alternatives and concur with the report's recommendations. Therefore, we have no additional comments to provide.

If we may be of further assistance, please contact Mr. Rusty Swafford of our Galveston Facility at (409) 766-3699.

Sincerely,

Andreas Mager, Jr.
Assistant Regional Administrator
Habitat Conservation Division

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(b) state agency, and/or (c) private person, organization, or public or private corporation. Regarding your request of the National Park Service's willingness to accept a donation of those lands which adjoin the Beaumont Unit of the Big Thicket National Preserve, let me offer you the following information:

The National Park Service will recommend to the Secretary that acceptance of the proposed donation to the Big Thicket National Preserve of the approximately 380-acre parcel is justifiable based upon the following:

1. It provides significant wetlands, biological resources and wildlife habitat. (Pines, cypress and tupelo swamp)

2. It provides opportunities for research activities within the preserve.

3. It provides a greater protection zone in this area for the floodplain vegetation associated with the Neches River.

4. The proposed addition parcel is bounded on three sides by the preserve, which will provide a more uniform and manageable boundary in that area.

Once you have had this land surveyed and have acquired title, please furnish copies of the survey and recorded deed, and direct all future correspondence to National Park Service, Intermountain Land Resources Program Center, Attention: Julian R. Trujillo, Acting Realty Officer, P.O. Box 728, Santa Fe, New Mexico, 87504. That office will be preparing all the draft documents required for the notification of the congressional committees, approval and acceptance by the Secretary, and the final documents necessary for the acquisition of the donation. If you have any "process-related" questions or concerns regarding this matter, please contact either Julian Trujillo or Glenna Vigil of the Intermountain Land Resources Program Center in Santa Fe at (505) 988-6810.

As you have requested our review of the subject report, I would now like to offer several additional comments as follows:

Overall the report does a good job of describing the environmental impacts of the proposed salt water barrier. One issue that may warrant further discussion is hydrologic impact of the barrier. The report mentions that hydrology of the upstream swamps may be affected, but there is no discussion as to the severity or extent of the effects. Excessive pooling of water above the structure could potentially impact the forest vegetation of the preserve by increasing the length of seasonal inundation and possibly preventing the occasional drying out of the swamp floor which allows germination of cypress and tupelo seeds.

Another hydrologic effect of the project that may warrant further discussion is the potential for the Army Corps of Engineers to reduce flows from Sam Rayburn reservoir during the summer to enhance recreation in the reservoir. The hydrology of the Neches river has already been significantly altered by dams on both Sam Rayburn Reservoir and B. A. Steinhagen Reservoir: annual peak flows on the Neches river have been significantly reduced and median daily flow has significantly increased. This has resulted in increased survivorship of less flood-tolerant species, and may be contributing to the long-term shift in species composition and the distribution of floodplain forest communities along the river (Gooch, 1996; Hall, 1994). The extent to which further reduced flows during the summer could impact the integrity of floodplain forests will depend on the timing of drawdowns and flushing from the dams. Nonetheless, further disruption of the hydrology of the river could cause impacts to both terrestrial and aquatic habitats.

In light of some concerns which I have that have yet to be adequately addressed, I would suggest that a meeting be arranged in the near future among all of the interested parties wherein we could address some specific aspects of the potential operations of the saltwater barrier, as well as Rayburn and Steinhagen Reservoirs.

Finally, regarding an issue about which I have commented previously to other entities, I am somewhat uneasy about the contents of Figure 2, *Features at Site 6*, which continues to indicate, through a graphic representation, that at least some portion of the saltwater barrier and/or its appurtenant works are located within the boundary of the preserve. I would like to again go on record stating that it is my understanding that the construction of a permanent saltwater barrier shall be located downstream of the preserve, completely outside the boundary of the preserve. I would request that prior to this report being finalized that a new Figure 2 be inserted which corrects that misrepresentation.

Thank you for allowing me an opportunity to comment on the report. If you desire any further information regarding these comments, feel free to call either me or Rick Strahan at (409)839-2690, Exts. 222 and 224, respectively.

Sincerely,

Richard R. Peterson
Superintendent

cc: Regional Director, Intermountain Region

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United States Department of the Interior

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April 15, 1998

Mr. Carlos II. Mendoza
Project Leader
Clear Lake Ecological Services Division
U.S. Fish and Wildlife Service
17629 El Camino Real, Suite 211
Houston, TX 77058

Subject: *Draft Supplemental Fish and Wildlife Coordination Act Report for the Neches River and Tributaries Saltwater Barrier at Beaumont, Texas;* Your Letter Dated March 2, 1998

Dear Mr. Mendoza:

This is in response to your March 2, 1998, request for our review and comment on the subject report.

I would first like to respond to the section entitled *Measures to Reduce Impacts,* specifically the portion which addresses the possible purchase and donation to the National Park Service, Big Thicket National Preserve, of the approximately 380-acre site located south of Lakeview between SH 1131 and the Neches River.

The Big Thicket National Preserve was established by the Act of October 11, 1974, (P.L. 93-439, 88 Stat. 1254) to assure the preservation, conservation and protection of the natural, scenic, and recreational resources of the Big Thicket area of southeast Texas, also known as the "biological crossroads of North America". The Beaumont Unit of the preserve was established to protect and preserve bald cypress and tupelo swamp lands.

The Act of October 11, 1974, authorized the Secretary, Department of the Interior, after the notification of the appropriate committees in the House of Representatives and the Senate, to accept title to lands or interests in lands located outside the boundary of the preserve, that he determines will make a significant contribution to the purposes for which the preserve was established, by donation from any: (a) federal agency,