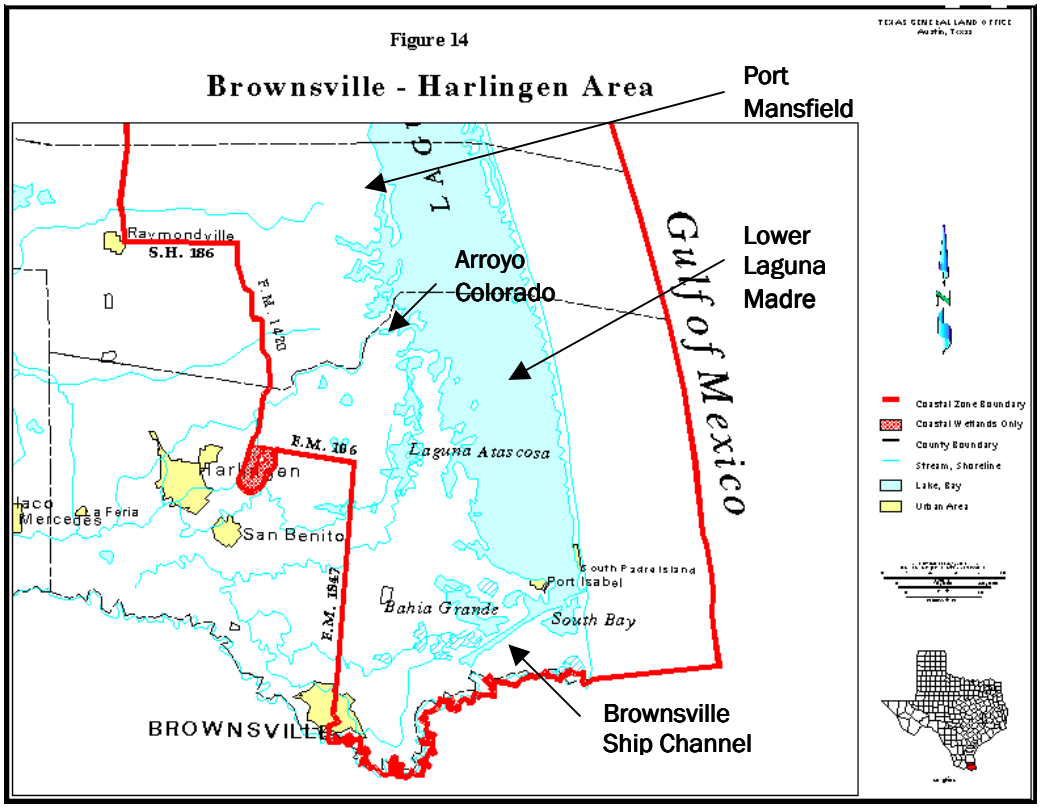
The Gulf Intracoastal Waterway from Corpus Christi to Brownsville
Little Value, Big Cost
An Update to the 1994 Report: *Subsidized Destruction*
Texas Center for Policy Studies
May 11, 2001

This paper is intended to serve as an update and supplement to data presented in the 1994 TCPS report *Subsidized Destruction*, by Antonio Diaz and Mary Kelly. The paper is divided into the following sections:

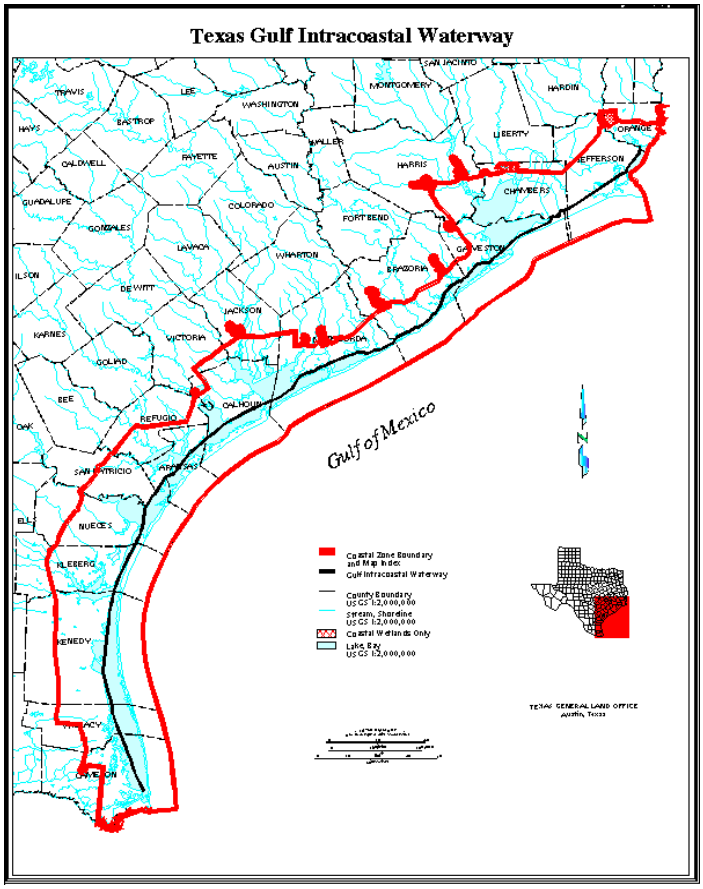
1. ***Overview***
2. ***Costs of maintenance dredging***
3. ***Cargo & tonnage figures***
4. ***Economic impacts analysis***
5. ***Discussion***

Overview

The Laguna Madre of Texas extends along the lower coast of the state, some 130 miles between Corpus Christi and Brownsville, Texas. The Laguna is a shallow, hypersaline (generally measuring over 35 ppt) bay or lagoon – sometimes referred to as a "negative estuary", lying between the mainland and the barrier island of South Padre (see map below). Two jettied passes (Mansfield in Willacy County and Brazos Santiago Pass in Cameron County) connect the Laguna to the Gulf of Mexico – both are located in the southern portion of the Laguna, referred to as the Lower Laguna Madre.



The Gulf Intracoastal Waterway (GIWW – see map below) extends through the Laguna Madre, connecting the ports of Mansfield, Harlingen, Port Isabel and Brownsville with points north. The GIWW is a 12-foot deep, 100-foot wide channel cutting straight through the Laguna. The Army Corps of Engineers (the Corps) constructed and now maintains the channel through periodic (more or less yearly) dredging, disposing of the dredge material –fine, silty particles mixed with mud – by throwing them off to the side within the Laguna itself. The dredged material over the years created spoil islands stretching the length of the canal, but material continued to erode – from the islands and from re-suspended sediment – back into the channel. As a result, the Corps is continually re-dredging the same material over and over again.



The environmental effects of all this dredging were a concern among conservation groups and sport-fish enthusiasts (National Audubon Society, the Lower Laguna Madre Foundation and other public interest groups) in the region. The groups' primary concern was that maintenance dredging in such a shallow lagoon was destroying seagrasses – critically important to the lagoon's productivity – and they filed suit in 1994 against the Corps. The court ordered the Corps to perform an Environmental Impact Statement and stop all maintenance dredging (save for emergency dredging) in the interim. In response, the Corps formed an Interagency Coordinating Team (ICT) to review the effects of dredge disposal on the Laguna Madre and commissioned numerous studies to determine the effects of dredge material on seagrass beds in the Laguna. Some 35 studies have been completed or are in the process of being completed, and the Supplemental EIS is due to be released in the fall of 2001.

Meanwhile, the Corps has indicated, through preliminary release of a 50-year Dredge Disposal Alternatives Study, that the ICT process has come up with little justification for any real alternatives to the current practice of open-bay disposal of dredge material for much of the Lower Laguna Madre. This tentative conclusion has angered many who were hoping for more creative answers through this process.

The Texas Center for Policy Studies has provided research assistance to conservation groups and information about costs associated with the GIWW since the 1994 lawsuit. The following summary includes some of that information and an update of what we know so far about this segment of the GIWW.

Costs of Maintenance Dredging

Latest cost estimates for maintenance dredging of the GIWW – comparing the Corpus Christi to Brownsville segment with the rest of GIWW maintenance dredging - are provided in the following table. These figures are based on contracts awarded within the Corps Galveston district for dredging *within the waterway only* – costs of dredging river entrances, port channels and entrances and turning basins that may be connected to the GIWW are **not** included. Some work may not be completed yet on recently awarded contracts.[1]

Year	1994	1995	1996	1997	1998	1999	2000	2001
CC to Brownsville segment dredge contracts awarded (millions)	$3.7	$3.7	0	0	$3.4	$1.5	$3.2	$3.9
GIWW Galveston district other (millions)	$5.6	$6.2	$3.1	$6.4	$6.6	$5.9	$9.6	$2.4
% of Galveston district GIWW dredge contracts awarded	40%	37%	0%	0%	34%	20%	25%	62%

The data include a total of nine dredge events, either completed or awarded, at a total cost of $19.4 million from 1994 to 2001. This period of time – particularly 1996 and 1997 - reflects the effects of the lawsuit and subsequent dredging moratorium. The dredge events for 1994 and 1995 were dredge contracts that had already been awarded and were thus not included in the lawsuit. Dredge events for 1998 on are assumed to be emergency dredge events, corroborated by Corps records.[2] Typically, the segment of the Lower

[1] Navigation Data Center; Dredging Statistics Program, Dredging Contracts Awarded to Date, http://www.wrsc.usace.army.mil/ndc/dredge.htm, downloaded 5/9/01

[2] Joe Hrametz, Corps of Engineers Galveston District, 4/6/01 (409) 766-3973

Laguna Madre (Mud Flats to Port Isabel) would be dredged yearly, at (currently) annual costs of between $1.9 and $2.2 million.

Maintenance dredging is paid for through federal tax dollars. The fuel tax imposed on inland waterway users beginning in 1980 is funneled toward new construction projects and major rehabilitation only through the Inland Waterway Trust Fund. According to the public interest conservation organization, Environmental Defense, taxpayers still assume more than ¾ of these costs as well,[3] so the fuel tax is negligible as a means of alleviating the taxpayer's share of the total costs of the system.

Cargo & Tonnage

Nationwide, Corps watchdogs, consumer groups and conservation organizations have questioned the usefulness of inland waterways to the nation and the cost of operation and maintenance of the waterway to taxpayers, given the small amount of traffic some segments of the waterway system actually handle. The following is excerpted from testimony presented by an Environmental Defense attorney to congress in 1999:

> *…80% of the commerce on the nation's Inland Waterway System moves on the Mississippi, Illinois and Ohio Rivers…Almost the entire remainder of the system connects to the Mississippi River – the system provides practically no commercial traffic benefits to the eastern third and western third of the country - but the majority of these Mississippi River tributaries are commercially unsuccessful. Despite decades of promotion, several segments of the Inland Waterway System have little or no barge traffic. Indeed, 17 of the 29 segments of the taxable Inland Waterway System carry 2.6% of the system's ton-miles. Twelve segments together carry less than 1 percent of the nation's barge traffic…*[4]

The Corpus Christi to Brownsville segment of the GIWW carries on average only 2.5% of all Texas traffic on the Gulf Intracoastal Waterway. This percentage has not changed in the past ten years, showing an overall static level of traffic for this segment of the GIWW. The chart below shows how the Corpus to Brownsville segment of the Waterway compares to the two other major segments in amount of tonnage transported. Figures include both downbound and upbound tonnage.[5]

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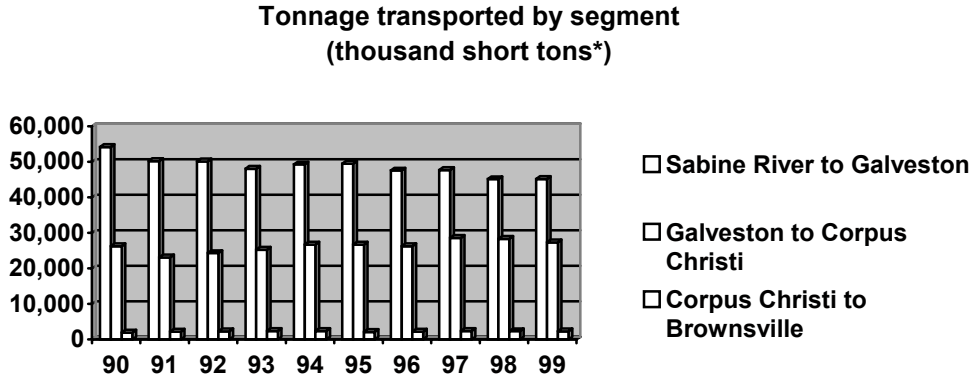
[3] Testimony of Timothy D. Searchinger, Senior attorney, Environmental Defense Fund: "Recommendations Regarding Financing of the Inland Water Navigation System", Before the House of Representatives Committee on Transportation and Infrastructure, November 3, 1999 (available on line at http://www.house.gov/transportation/water/11-03-99/searchinger.html)

[4] Ibid

[5] Navigation Data Center; Waterborne Commerce of the United States, Waterways and Harbors on the Gulf Coast, Mississippi River System and Antilles; http://www.wrsc.usace.army.mil/ndc/wcsc.htm, downloaded 5/8/01



Short tons = 2000 pounds

Total waterborne tonnage (upbound & downbound) for the Corpus to Brownsville segment averaged around 2,264,000 short tons annually for the period 90 to 99. Around 80 to 85% of this traffic is downbound, as opposed to 15 to 20% upbound. This means that a significant number of barges are returning up the waterway carrying no cargo, Brownsville being the end of the line for U.S. traffic.

Individual ports along the Lower Laguna Madre account for a very small percentage of GIWW cargo tonnage relative to other Texas ports. In fact, it appears the port of Corpus Christi is the only port handling a significant amount of overall traffic in this stretch.

Port*	Tonnage (1000 short tons)	% of Total
Sabine-Neches Waterway	114,393	25%
Houston Ship Channel	158,828	34%
Texas City	49,503	10%
Galveston Channel	10,336	2%
Freeport Harbor	28,076	6%
Matagorda Ship Channel	9,078	1%
Corpus Christi Ship Channel	78,146	17%
Arroyo Colorado (Harlingen)	940	0.2%
Brazos Island (Port Isabel/Brownsville)	2,493	0.5%
Brownsville Ship Channel	2,487	0.5%

*Other minor ports (Chocolate Bayou, Dickinson Bayou, etc) also account for a negligible amount of traffic and are not included here. Source: Navigation Data Center homepage. See footnote 5.

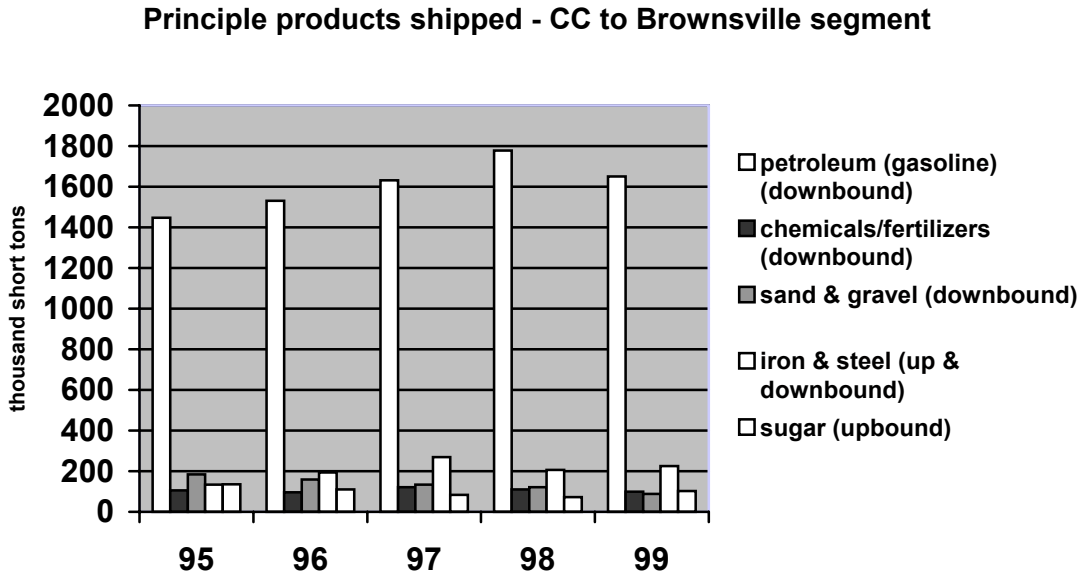
In the Lower Laguna Madre, only the Port of Harlingen is completely dependent upon the GIWW for any shipments – Port Isabel and the Port of Brownsville also send and receive shipments via the Gulf of Mexico through Brazos-Santiago Pass and the Brownsville Ship Channel. Port Mansfield handles very little traffic – only 1000 tons in 1999. Port Mansfield also has a channel to the Gulf that is primarily used for sport fishing and oil service industry boats.[6]

[6] Walt Kittelberger, pers communication, 5/15/01

The number of trips made by barges in and out of individual ports is also revealing. In 1999, the port of Corpus Christi averaged 91 barge trips per day, where the Arroyo Colorado (Harlingen) port averaged 2.5 trips per day, Brazos Island and Brownsville Ship Channel both averaged 6 per day (these would also include barge traffic originating from the Gulf of Mexico since Brownsville is primarily a deep water port), Port Isabel saw about one barge a week, and Port Mansfield only eight barges during the entire year.[7]

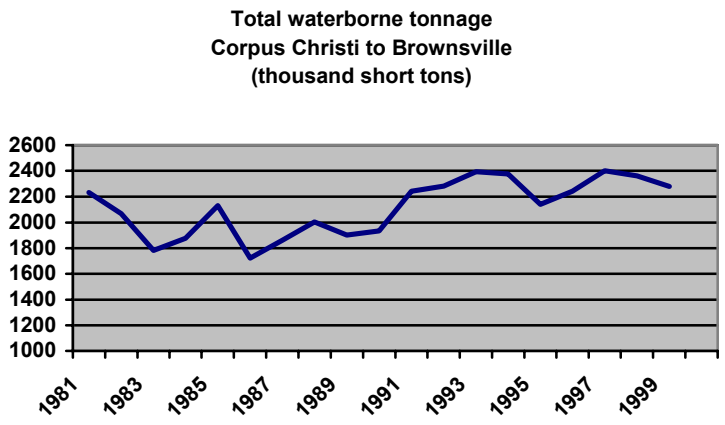
Despite the relatively low cargo volumes in this segment of the GIWW as compared with other segments, the port directors of Port Harlingen, Port Isabel and Port Mansfield have traditionally spoken in support of the Waterway and have consistently claimed its economic importance to the region. In light of the evidence that there is little use of the ports by barge traffic, this unwavering support seems questionable. We will explore the possible reasons for this position in the Discussion section.

The graph below shows the primary products (by bulk tonnage) shipped up and down the Corpus to Brownsville segment of the Waterway. Petroleum – principally, gasoline – makes up the highest amount of tonnage coming down from Corpus Christi to Lower Laguna Madre communities. Few products are shipped up from the Lower Laguna Madre to points north. In fact, sugar cane alone comprises from 80% to 90% of annual upbound shipments. There are clearly static or falling trends in the amount of many of the products being shipped, though Waterway supporters claim figures are up recently.



[7] Ibid

Total waterborne tonnage for this stretch is shown in the graph below. While it does appear that from 1990 on there is a slowly rising trend (primarily due to rising petroleum shipments as shown in the previous chart), the overall waterborne tonnage on this stretch of the Waterway through the years has been relatively static.[8]



Economic Impacts

A June1998 Texas A&M University study, funded by the Corps of Engineers for the Interagency Coordinating Team, concluded that the Gulf Intracoastal Waterway was responsible for direct economic output of $2.9 billion dollars in the Lower Laguna Madre region, and $5.1 billion in the "total" Laguna Madre (including Nueces County/Corpus Christi).[9] The Corps and ICT have been using this study as the cornerstone of their argument that the GIWW provides significant economic benefit to the region. However, there are numerous and quite substantial flaws in the study. We point these out to show that the claimed benefits of dredging the Laguna Madre may be inadequate when measured against the economic benefits provided by an ecologically healthy bay.

The study separated the Lower Laguna Madre (LLM) region from Nueces County in calculating economic benefits and provided separate tallies – one for the LLM and the other for the total LM including Nueces County. Corpus Christi dwarfs the LLM in terms of dependence upon the GIWW for transport of goods and for economic impacts related to the petrochemical industry. The study also correctly points out the importance of the GIWW to, primarily, petroleum shipments to the Lower Rio Grande Valley as evidenced by this statement: "*... 80% of the gasoline demand for the southern section of the region is supplied by ocean barge shipments using the GIWW*." The use of the term "ocean barges" makes it unclear whether the barges are actually using the GIWW proper or simply using channels from the bay to the ocean maintained as part of the GIWW. If the latter is true, the question arises as to why the GIWW itself is so important to petroleum transport or whether sustaining the bulk of these shipments simply requires maintaining channels to the Gulf of Mexico.

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[8] We also note that petroleum shipments for the segment dropped in 1999, the first decline since 1995.

[9] *The Estimation of the Economic Impacts of Industry, Services, Recreational Activities, Commercial Fishing, and Tourism Associated With the Portion of the Gulf Intracoastal Waterway from Corpus Christi to Brownsville:* Prepared for the Interagency Coordinating Team, Tanyeri-Abur, Jones and Jiang, Texas A&M University, June 1998.

At any rate, as shown in the previous section, petroleum and petroleum by-products (primarily gasoline) do comprise the majority of shipments down the GIWW to the LLM. This appears to be the primary justification for keeping the Waterway open. If, however, alternative means of supplying gas to the region (such as pipelines) were to be built, the remaining economic justifications for maintaining the Waterway are weak, despite the studies' claims. In fact, though it is not known how much gasoline comes down to the region via pipeline at the present time, there are some indications that pipelines could adequately fulfill the regional demand for gasoline. According to printed material from the Texas Waterway Operators Association, one barge carries 420,000 gallons of gasoline.[10] El Paso Field Services operates an 8" pipeline that runs from Corpus Christi to Edinburg. It is not known how much gasoline this pipeline carries on an average daily basis, but research shows that an 8" pipeline operating at full capacity may carry up to 2.5 million gallons per day, almost equal to the amount carried by six barges.[11]

First of all, many of the industry categories study authors claim are dependent on the GIWW are not, either directly or indirectly. For example, the study includes Heavy Construction as a GIWW-related industry as it relates to construction of oil drilling platforms for off shore oil and gas extraction. It is an enormous - and we believe erroneous - stretch to relate *all* heavy construction in the five-county area to off shore oil platforms. It is even more ludicrous to relate all petroleum-related traffic on the GIWW to Heavy Construction, unless construction materials were being shipped down the Waterway, which they are not.

Similarly, commercial fishing is claimed to be a GIWW-related activity, and the economic income from *all* commercial landings data in the region is included in GIWW-related economic output figures in the study. Fish and shellfish products are not shipped out of the region via the Waterway. The principal fisheries product in the region is gulf shrimp – which is off-loaded at the ports, primarily Port Isabel – but gulf shrimp trawlers have no need to use the GIWW for access, as they utilize port channels. The only commercial fishing occurring in the Waterway itself is bait fishing, a relatively minor part of the local fisheries economy (14% of statewide ex-vessel values in 1997).[12] Conversely, the Laguna Madre bay supports an important Black drum commercial fishery, which could also be detrimentally affected by dredging of the GIWW. Therefore, almost no commercial fishing in the region actually depends upon the GIWW, for fishing areas, access to fishing areas, or shipping of products, and some commercial fishing may actually be negatively affected by the presence of the GIWW.

Perhaps the most outrageous leap made by the study is to include the total value of all agricultural production in the region as a GIWW-related economic sector. The study takes a three-year average of direct sales of agricultural products in Laguna Madre counties and includes these in the summary of economic benefits provided by the GIWW, but provides no explanation of *how* agricultural activity is dependent upon the GIWW.

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[10] Walt Kittelberger, pers communication, 5/15/01

[11] Ibid

[12] Our Common Future, the Binational Laguna Madre Region, Texas Center for Policy Studies and Pronatura Noreste, Karen Chapman, February 2001, p. 10

The only agricultural product shipped from the region via the Waterway is sugar cane. There is virtually no other agricultural activity in the region that is even indirectly dependent upon the GIWW, with the possible exception of some fuel used by farm equipment that is shipped on the Waterway.

Ironically, the water-related tourism sector, arguably the sector most dependent upon a healthy Laguna Madre bay system for recreational fishing and tourism-related pursuits on South Padre Island, is also included as a GIWW-related sector. In fact, continued open-bay disposal of dredged material from the GIWW could harm the recreational and commercial fishing industries in the region. It has already been blamed for a 40% loss in seagrass beds in the Laguna Madre, and further degradation of seagrass beds could affect juvenile species of shrimp, red drum, and spotted seatrout, not to mention thousands of migratory shorebirds, ducks and other wintering waterfowl that birdwatchers and nature enthusiasts come to the region to enjoy. A separate Texas A&M study by these same authors estimated that the regional economic impacts of Laguna Madre estuary-related recreational activities were around $388 million and supported some 8,938 jobs.[13]

In summary, this study provides very little guidance as to the real economic benefits derived from the GIWW. On the other hand, continued dredging of the Waterway could damage a $388 million dollar industry, as well as further damage an ecosystem that sustains juvenile shrimp and a gulf-shrimp fleet that brings in around $57 million worth of shrimp each year in Cameron County alone.[14]

Discussion

Given the limited economic activity that really centers around the GIWW in relation to other ports and cities in Texas, and the lack of evidence to support continued dredging of a waterway that serves little purpose, it is curious why port directors and elected officials (primarily county commissioners) appear to be so in support of keeping it open (see attached Valley Morning Star article Another View – "Same song, new verse on Laguna").

The ports themselves employ few people. Based on the limited amount of traffic in and out of the channels, there is not much shipment of goods taking place other then gasoline. The port of Harlingen does appear to handle GIWW-related shipments of petroleum, sand and cement in and sugar cane out, but these are still relatively small shipments. The port only generated half a million in annual revenue last year according to the latest financial reports posted on its website.[15] As Brownsville is primarily a deep-water port, and Port Isabel shares the deep-water channel with Brownsville and is the primary port for gulf shrimp trawlers, there does not appear to be heavy reliance on the GIWW by these ports either.

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[13] *Impacts of Recreational and Commercial Fishing and Coastal Resource Based Tourism on Regional and State Economies*, Jones and Tanyeri-Abur, Department of Agricultural Economics, March 1998

[14] National Marine Fisheries Service data for off-shore landings 1990-97.

[15] Portofharlingen/facilities.com

The most likely explanation for this unwavering support for the GIWW may be that, as in the rest of the region, infrastructure and economic development has often been based upon the promise of economic prosperity, rather than the realization of it. For local communities, the GIWW is a visible, public works project that must be maintained because it provides the means by which ports might expand, new industries might be attracted to the region, and additional economic activity might be realized. In a region of high unemployment, entrenched poverty and low expectations, communities may not want to do away with anything that shows even outward signs of economic development. Communities throughout the Lower Rio Grande Valley have traditionally relied upon manufacturing and industry for providing the bulk of their jobs. This situation is changing, but ports and the GIWW appear to be strongholds in terms of their grip on the public imagination. The Port of Brownsville, for example, has had a checkered financial history, sometimes bringing in as much revenue from the taxes it levies on citizens as it brings in from vessel profits.[16] Despite this fact, the port still has plans for expanding into new industries, apparently with the full support (or at least the inattention) of the public.

Where the GIWW is concerned, inexpensive gasoline that is shipped by barge appears to be the primary motivation behind local elected officials' support. Since currently about 20% of the region's gasoline is piped, or trucked or tanked in via ocean-going vessels, barges will probably remain the primary supplier of gasoline to the region for some time. This does not dismiss the fact that there is little else to support keeping the GIWW in operation in the Corpus Christi to Brownsville stretch.

[16] Diaz and Kelly, at p. 36