

Other Beneficiaries of Inland Navigation Projects



**A presentation to the Inland Waterway Users Board
December 15, 2009
New Orleans, Louisiana**



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Infrastructure and funding

- Number of facilities
- Where does the money go

Count of Fuel Tax Waterways Projects By Type--2008

Project Types	Number
Business Support	18
Floats Boats	299
Physical Support	72
Total: Fuel Tax Waterway	389

Examples of Projects

- Floats Boats (O&M, MR&T)-Locks Channel Improvement, Dredging
- Physical support
 - Red River Emergency Bank Protection
 - Removal of sunken vessels
 - Reservoirs auth for navigation storage
- Business support
 - Mississippi River Mainstem Model Development
 - Missouri River Master Manual Update

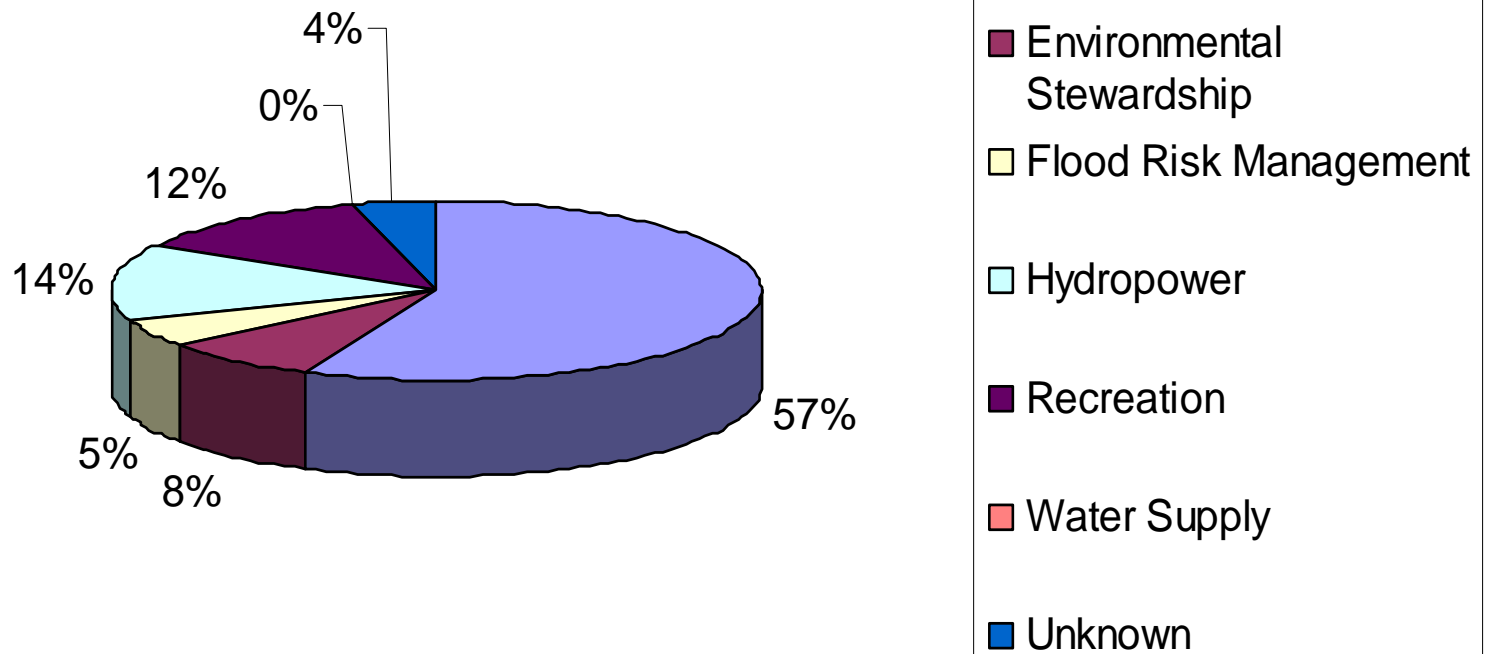
Navigation Expenditures (\$ billions 1999-2009)

	All Types
All Projects	\$ 13.572
Deep Draft Harbors & Channels	6.454
Shallow Draft Harbors & Channels	1.192
Fuel Taxed Waterways	5.449
Not Selected Subtype	0.477

Navigation Expenditures-Fuel Tax Waterways (1999-2009, \$ thousands)

	All Types
All Navigation Projects	\$ 5,448,639
Floats Boats	5,353,313
Business Support	174
Physical Support	95,151

Fuel Tax Waterway Expenditures by Business Line (\$1999-\$2009)



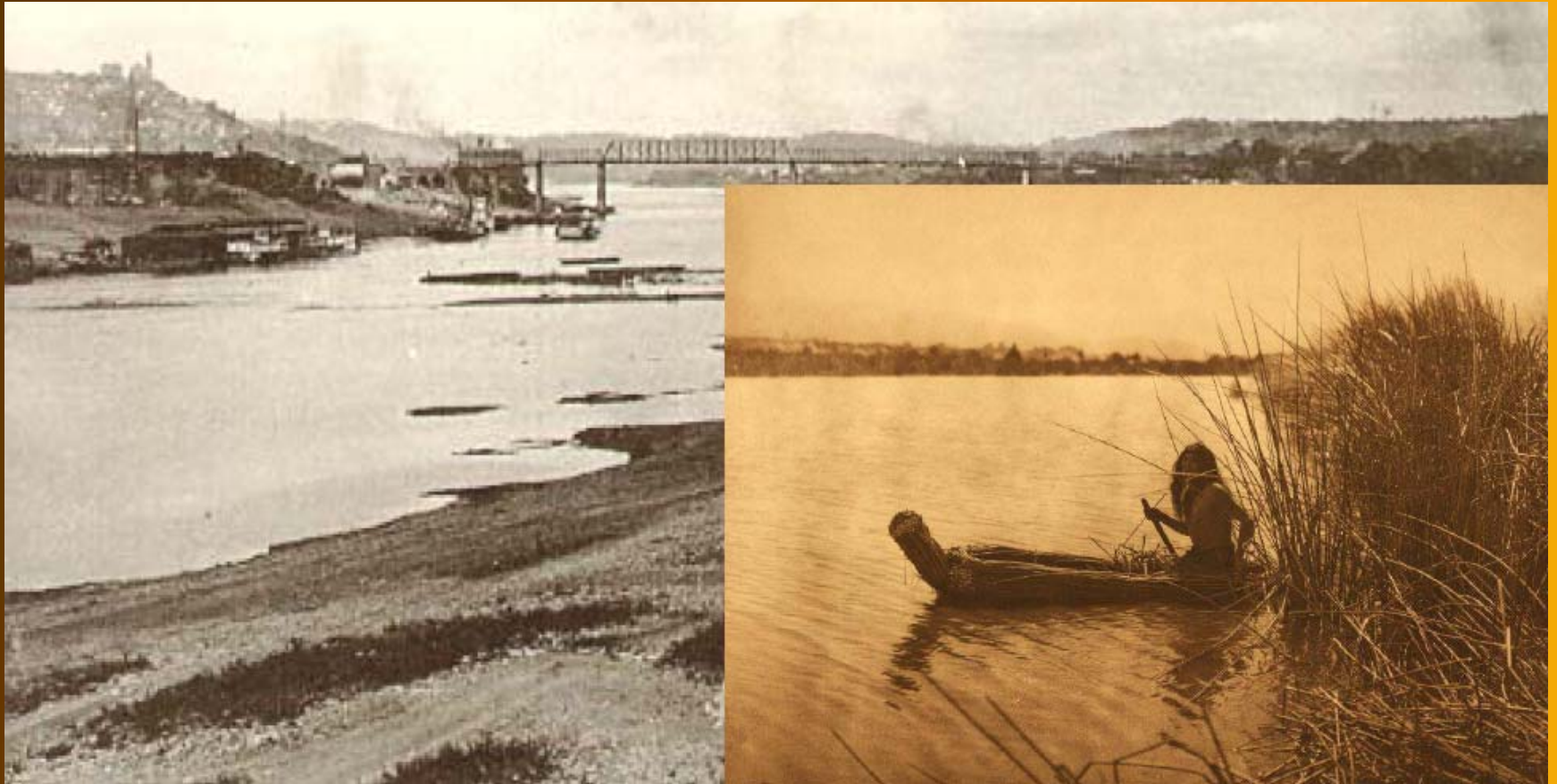
Benefits Categories

- Shippers through transportation savings
- Economic development
- Flood control
- Hydropower generation
- Water supply
- Coal steam plants
 - Heat assimilation
- Sewerage assimilation
- NASA
- Military
- Recreation
- Vector control
- Irrigation-farmers
- Property values
- Inter-basin transfer legal implications

Pre-Dam Ohio River at Cincinnati

Depth = 1 foot and eleven inches

Chris Lorentz, Ph.D., Thomas Moore College



Industry Gains

- Transportation savings in the Ohio River System
 - TVA study showed \$3.1 billion savings in 2006
 - Possibly undercounted by 20%—some high value small tonnage movements were not in the sample
- Coal Steam Plants
 - 16.6% less expensive to operate on a navigable stream (TVA study)
 - Transportation savings
 - Water compelled rates
 - Water supply/ temperature control
 - Maintenance on the water sides of the plants

October 2005

Watts Bar Nuclear Plant Steam Generators



*USACE
Crane and Equipment Barge*



*Widows Creek
Scrubber Component Installation*



Economic Development Benefits due to ORS Navigation

- Gains due to the presence of a navigable Ohio River system (Source: Preliminary results from a University of Tennessee, Center for Transportation Research paper, *Economic Evaluation of A Commercially Navigable Ohio River Waterway System*
 - \$497 billion in sales (discounted over 50 years)
 - 80,000 in annual employment



COTTONPORT

The town of Cottonport flourished in the early years of Limestone County. It was settled in 1818 and chartered in 1824. It was located approx. 1-1/2 miles S.E., near the point where Limestone Creek flowed into the Tennessee River and was a prime boat landing. Steamboats from E. Tenn. brought much needed goods to this area. During high water, flatboats loaded with bales of cotton departing Cottonport, could cross the river's rocky shoals and float to New Orleans.

Cottonport, once boasting a town square, handsome houses, brick stores, warehouses and a racetrack, gradually ceased to exist.

Residents left, fleeing Malaria epidemics common to the location. By the 1850's no trace of it remained. The long forgotten town cemetery was unearthed by construction of I-65.

ERECTED BY LIMESTONE COUNTY HISTORICAL SOCIETY AND ATHENS/LIMESTONE TOURISM COUNCIL 2003

These slides go in notebooks

Hydropower Capability Overview

- 75 power plants with 350 generating units
- 21,000 MW of capacity, largest in US
 - Represents 24% of total US hydro capability
- Generates approximately 70 billion KWh of energy annually, enough energy to electrify 30 cities the sized of Seattle, WA
 - Generates over \$4 billion in gross annual revenue; Total capital investment ~\$20 billion
 - Over 90 FERC licensed power plants at Corps dam with 2,300 MW capacity



Flood Damage Avoidance

- Flood damages prevented by Corps controlled reservoir projects-\$10 billion in 2008
- TVA prevents about \$230 million annually in the Tennessee Valley and along the Ohio and Mississippi Rivers.

Ohio River System as Water Supply

- 72 federal locks and dams with 63 having pools with active water intakes
- In 2008, 388 active intakes withdrew 23.3 billion gallons of water daily valued at \$953.5 million per year.
- Municipal users accounted for 9.7% and industrial users for 90.7%
- Electric power plants accounted for 95% of industrial withdrawals

Once Through Cooling (OTC) Systems

- Almost all older power plants on navigable streams use OTC cooling systems. Water is taken from the river, passed through the plant's cooling system, and returned to the river at a higher temperature.
- Permits regulate water temperature in the river.
- A significant reduction water depth would require construction of water towers (at considerable expense) or acceptance of outages during low water periods.
- Newer plants have closed-cycle cooling systems.

Military and NASA

- Movement of troops and equipment
- Rocket boosters
 - Common booster cores (CBC) for the Delta II, Delta IV, and Atlas V are manufactured on the navigable channel in Decatur, Alabama and shipped to launch sites by the Delta Mariner. Boeing and Lockheed Martin merged to form the United Launch Alliance which manufactures the CBCs.

Decatur, Alabama
Mallard-Fox Creek



Stennis Space Center, Mississippi
Delta Mariner



May 2005

Tennessee National Guard 196th



Loading at Raccoon Mountain

Sewerage Treatment and Drinking Water

- Loss of the navigation channel would probably mean that plants would have to be re-permitted in response to reduced assimilative capacity
- At the Kuwahee Plant in Knoxville, Tennessee, ammonia, nitrogen, and phosphorus would have to be removed from the discharges
 - Could cost “tens of millions of dollars”
- For drinking water there could a significant increase in treatment costs due to increased turbidity which could affect taste and odor
- A new channel could be required from the main river to the water intakes

Corps of Engineers Recreation Impacts

- In 2006, CE lakes served more than 372 million person-trips across the nation.
- Visitors to these lakes spend \$18 billion on trip expenses and durable goods annually.
- With the multiplier effect, visitor spending supported 250,000 jobs and \$16 billion in value added (wages and benefits, profits, rents, and indirect business taxes)

TVA Mosquito Control Program

- Eliminates the nuisance problem of excessive mosquitoes
- Holds down taxes. Without natural control mechanisms, would probably require the doubling of current state control programs resulting in an additional cost to the taxpayers of about \$25 million per year in the Tennessee River Valley (American Mosquito Control Association)
- Reduces the likelihood of certain mosquito-borne diseases such as West Nile Fever and Encephalitis

Irrigation

- USACE does not normally collect irrigation data or value of associated crop production.
- The proposed John Day reservoir drawdown on the Columbia River is a reduction of 5 feet to the minimum operating pool
 - Some navigation possible
 - 182,000 acres eventually abandoned
 - Farmers lose sales of \$428 million/year (\$2008)
 - Loss to irrigators--\$1.7 billion (\$2008)-lost value to farms + soil stabilization measures (assumed agricultural restart in 30 years after a canal is constructed)

Property Values

- TVA estimated the impact on property values in a 2003 study (part of the ROS)
- Scenarios included delayed summer drawdowns and others
 - Fort Loudoun (Knoxville)-a permanent elevation increase of 0.62 feet yields a 2.3% increase in property values
 - Sample property value is \$547,334

Environmental Advantage of Barge Transportation (Waterway Council)

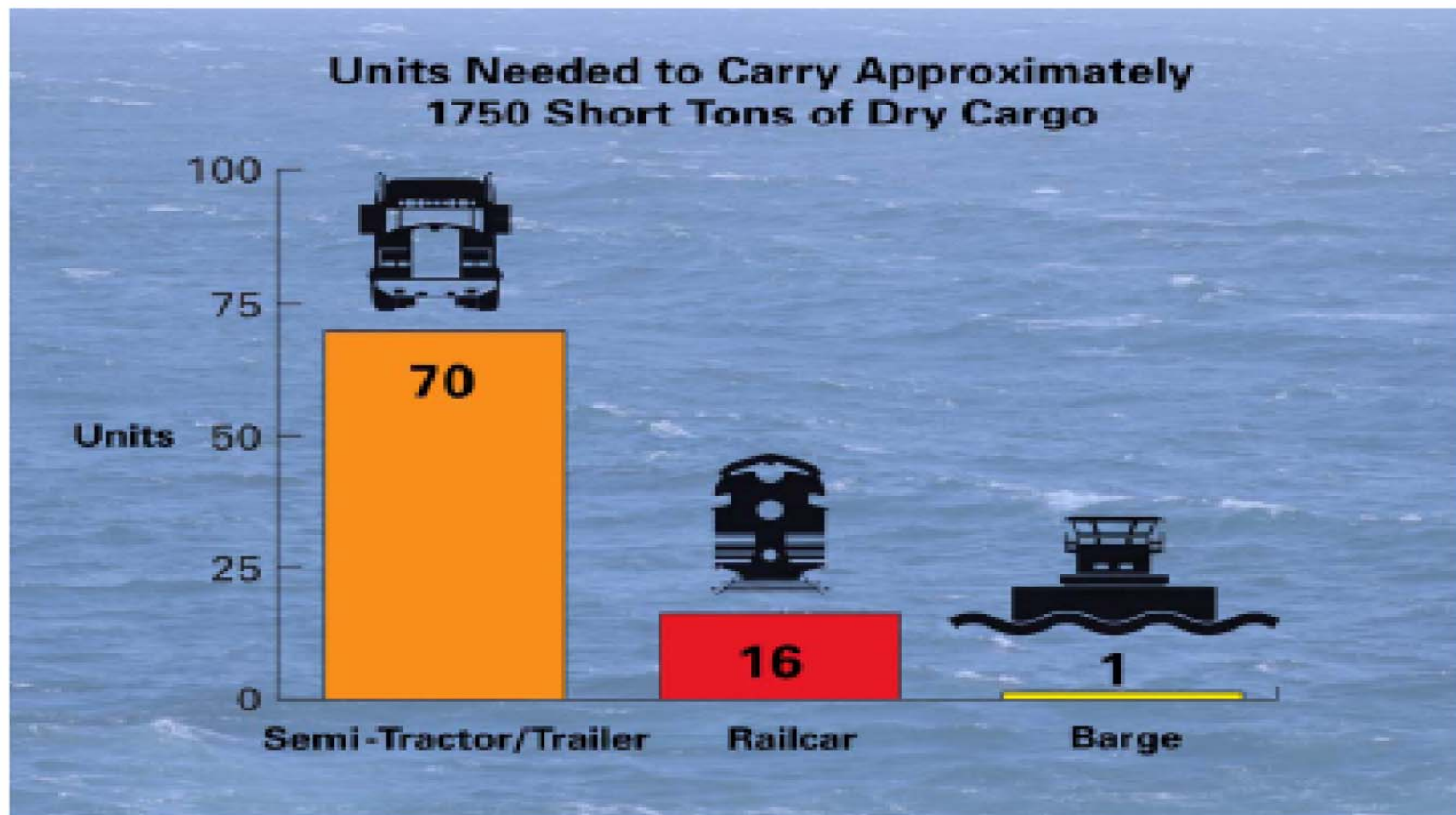


Figure 4. Dry Cargo Capacity Comparison.

Center for Transportation Research

EDM Traffic Diversion Study

Scenarios for Pittsburgh	Cost per Ton to the Environment in 51 st year of outage
Low traffic growth	\$4.30
Medium traffic growth	\$10.92
High traffic growth	\$38.47

Inter-basin Water Transfers

- Protection of navigation is a state and federal power.
- “It is clear that a diversion that interferes with navigation is not permitted.”