# Inland Waterways – Neg Supplement

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# Waterways - Politics links

## Plan would cost Obama political capital – it’s a flip flop from his previous position to have the barge industry fund their own development.

Pacific Northwest Waterways Association, 2011"PNWA Supports a National Dialogue to Address the Inland Waterways Trust Fund." PNWA Supports a National Dialogue to Address the Inland Waterways Trust Fund.. Web. 25 June 2012. <http://www.pnwa.net/new/Articles/IWTF.pdf>.

In recent years, the Bush and Obama Administrations have both proposed phasing out the diesel tax and imposing a new lockage fee for commercial barges using locks operated by the Corps. PNWA, other river system organizations, and Congress have steadfastly opposed a shift to lockage fees, which would inordinately hurt the Columbia Snake River System. In September 2011, the Obama Administration released another proposal to raise more revenue for the IWTF. The proposal would keep the existing diesel tax of 20 cents/gallon, and phase in an additional fee on vessels moving commercial cargo. The additional fee would have two tiers, with the higher tier levied on vessels that use locks. PNWA does not support this proposal. The PNWA membership supports a national dialogue to determine equitable stakeholder funding levels to maintain the viability of the Fund. Our members look forward to working with the Administration, Congress and industry to identify reasonable and appropriate funding sources to rebuild the Fund.

# Barge industry should pay

Plan is corporate welfare for the commercial barge industry and should be rejected-taxpayers dollars should not be used for barge industry profit.

Izaak Walton League of America, Apr.-May 2010"Another Corporate Bailout: Inland Waterways Trust Fund." *Inland Waterways Trust Fund: Another Corporate Bailout*.. Web. Accessed 25 June 2012. <http://iwla.org/index.php?ht=d/sp/i/5034/pid/5034>.

The inland waterways navigation system – the locks and dams constructed on several of the country’s major rivers – is the most publically subsidized commercial transportation system in the United States, receiving about 90 percent of its funding from taxpayers. Despite this immense level of corporate welfare, the barge industry, through the Inland Waterways User’s Board, has proposed an increase in the public’s contribution, which would likely raise the subsidy to near 95 percent.

On April 13, 2010, the *Inland Marine Transportation Systems (IMTS) Capital Projects Business Model, Final Report—Final Recommendations* was released. We estimate the IMTS recommendations will further increase the public subsidy for inland waterway construction and rehabilitation by about $200 million annually.

The barge industry contributes about $80 million per year into the Inland Waterways Trust Fund (IWTF) through a $0.20 per gallon fuel tax that has not been increased since 1995. The IWTF currently pays the costs for half of all new and rehabilitation construction on the inland waterways system. The taxpayers fund the remaining half of construction projects as well as the cost of all of the system’s operation, maintenance, and environmental restoration – a total cost approaching $800 million per year. The proposed changes would eliminate all industry funding for costs related to dams on the system and also require the industry to fund only lock rehabilitation projects that cost more than $100 million. The taxpayers will pay the full cost of all lock rehabilitations that cost less than $100 million. The locks cannot function without the dams, so eliminating the barge industry’s responsibility for their rehabilitation is illogical and unreasonable. We strongly urge that the IMTS report recommendations for increasing the public’s cost-share obligations on the inland waterways system be rejected.

## Barge industry is experiencing booming profits and growth – should not provide them corporate subsidy

"Professional Mariner, Journal of the Maritime Industry, Maritime Industry News." Professional Mariner, Journal of the Maritime Industry, Maritime Industry News. Professional Mariner, 2006. Web. 25 June 2012. <http://professionalmariner.com/ME2/dirmod.asp?sid=420C4D38DC9C4E3A903315CDDC65AD72>.

These are great years to be in the barge building industry, although it's anyone's guess what will happen after the OPA 90 deadline year of 2015. For now, most of the major shipyards building coastwise and inland barges have comfortable backlogs with the promise of plenty more work in the next few years. There are still nine years remaining until the final deadline imposed by the Oil Pollution Act of 1990 (OPA 90), which requires that only double-hulled vessels be allowed to carry petroleum products in domestic waters. Between half and 75 percent of the U.S.-flag ocean tank barge fleet is currently double-hulled, depending on the company, according to industry reports. Although some companies might want to go right to the 2015 deadline with their single-hull barges, market demand for double-hull tonnage and the simultaneous market prejudice against single-hull tonnage dictate that most barge operators are now working hard to get their fleets into 100 percent compliance as soon as possible. Name a tug and barge company and you'll find new barges in the works. Surveys of U.S. shipyards show barges — mostly double-hull tank barges — to be the second largest category of new-builds under construction. That is second only to the building of small patrol boats, typically inspired by funding from the Department of Homeland Security.

# Barge industry should pay

## Plan is nothing but a corporate bailout of the barge industry

Risher, Wayne. Business Reporter for the Commercial Appeal. "Proposal Would Fund Dam, Lock Repairs; Would Affect Memphis." *Memphis Commercial Appeal*. The Commercial Appeal, 24 June 2012. Web. 25 June 2012. <http://www.commercialappeal.com/news/2012/jun/24/proposal-would-fund-dam-lock-repairs/>.

Creaky locks and crumbling dams, more than a day's journey away by slow-moving barge, wouldn't seem to matter much in Memphis, where the mighty Mississippi runs wide and deep. But most of those barges laden with coal, oil, scrap iron, corn, soybeans or limestone have to pass through locks and dams as they travel hundreds of miles from producer to market. Without the Olmsted, Ill., lock and dam, on the Ohio River about 240 miles upstream, coal supplies could be disrupted for TVA's Allen Fossil Plant that generates much of Memphis' electricity. Cargill Inc.'s corn mill on Presidents Island and its 400 jobs are partially dependent on barges carrying corn from the Grain Belt south through a series of locks and dams. So boosters of the nation's inland waterway system believe Memphis and Tennessee would do well to embrace their legislative agenda that's pending in Congress. They visited the Bluff City last week to promote that agenda, which calls for more money for upgrades of locks and dams, higher tax on the industry's fuel and reforms in project planning and construction. Changes would include changing a funding formula for dam projects, based on the fact that recreation, hydroelectric power and other uses reap a large share of benefits from inland waterway spending. The bill has drawn a broadside from Taxpayers for Common Sense, a budget watchdog group that labeled it a "riverboat ripoff" and characterized waterways operators as trying to shirk responsibility. The taxpayer group, which bill proponents called "extremist," noted that taxpayers already pay the U.S. Army Corps of Engineers $600 million a year to operate and maintain locks and dams. "Commercial barge operators are trolling for a bailout," the group said. The bill's supporters, including the Washington-based Waterways Council Inc., say it's critical for reasons of economic competitiveness, energy efficiency and protecting the environment. As transporters of important "building block materials" of the economy, barges are the most efficient mode, and not by a small margin. One barge tow of 15 barges carries the equivalent of 216 rail cars or 1,050 large semi tractor trailers. A gallon of fuel transports a ton of freight 616 miles by water, 478 miles by train and 150 miles by truck, the council says. House sponsors of the WAVE4 bill (Waterways are Vital for the Economy, Energy, Efficiency and Environment Act of 2012) include Rep. Steve Cohen, D-Memphis, a member of the House Transportation Committee, and Rep. John Duncan, R-Tenn. Cargill, Bunge North America, Valero Energy and Vulcan Materials are among companies with Memphis ties supporting the bill. Currently, barge companies pay a tax of 20 cents a gallon into the Inland Waterways Trust Fund, which provides a dollar-for-dollar match for general tax revenues spent on lock and dam projects. The bill would necessitate an increase of 6 to 9 cents in the tax, require general tax revenues to fund 100 percent of dam projects and continue the 50-50 split between general revenues and trust fund on lock projects. Daniel P. Mecklenborg, senior vice president and chief legal officer of Nashville-based Ingram Barge Co. and council board member, said his company supports WAVE4, even though it would mean a substantial increase in its diesel fuel taxes. "My company burns about 100 million gallons of fuel a year. That's a lot of diesel." "The name of the game in barge traffic is keeping things moving," Mecklenborg said. When barges stack up at poorly functioning locks or barge tows (groups of barges) must be divided to pass through older locks, Ingram's costs go up and service suffers. Mecklenborg said his company pays $20 million in taxes a year into the Inland Waterways Trust Fund. Congress currently appropriates $160 million a year for inland waterways locks and dams. The legislation seeks a $220 million increase, to $380 million a year, said council president and CEO Michael Toohey. He said the bill represents the best way to clear a backlog of $8 billion in projects. With more money and faster turnaround, "at that rate these 26 projects can be done in 20 years versus three projects done in 20 years." Fueling calls for reform is a long-running Corps of Engineers project to replace Depression-era facilities at Olmsted, which the council says provide $648 million a year in economic benefits. Originally estimated to cost $775 million, the Olmsted project is being built with an experimental wet construction process and has experienced major cost overruns. Latest completion estimates are $3.1 billion in 2024, Toohey said. The Olmsted project has virtually drained the Inland Waterways Trust Fund and prevented other important work from moving forward. "This is not working, and the industry is expected to have to pick up half the cost of this monumental mistake," Toohey said. The council's top six projects include three that closely affect Tennessee: Olmsted, Chickamauga Lock on the Tennessee River above Chattanooga, and Kentucky Lock addition on the Tennessee River in Kentucky. Toohey said completion of Panama Canal expansion in 2014 is expected to be a "game changer" for inland waterways operators because of the potential to shift the nation's transportation axis from east-west to north-south. It could be huge for agriculture, providing a more efficient way to move larger quantities of farm products to export markets in Asia. Waterways Council spokeswoman Debra Colbert said the industry-backed bill meshes with President Barack Obama's call to restore economic competitiveness in part by doubling America's exports in five years. "You can't do that if you don't have a reliable transportation and logistics network," Colbert said.

# Land based transportation better

## Land based transportation is much more efficient – the reports the aff cites are flawed data from the barge industry to sustain their dominance in shipping

Brad Walker et al., Feb 2010. Writer for the Izaak Walton League of America, dedicated to environmental protection. “Big Price, Little Benefit: Proposed Locks on the Upper Mississippi and Illinois River Are Not Economically Viable.” < <http://www.iwla.org/index.php?ht=a/GetDocumentAction/i/2079>> pg15-16//jt

The barge industry asserts that inland waterways barge traffic is more fuel efficient than other modes of transportation. Industry representatives cite a 2007 Texas Transportation Institute report28 to support this claim. The report includes the data in Table 3 portraying the superior fuel efficiency of barges in shipping cargo compared with trains and trucks. However, these comparisons do not take into account the variation in miles traveled to get from one point to another by water, rail, or road. The comparison between the distance of two modes of transportation both leaving one destination and going to the same final destination is called circuity. The Texas report acknowledges that nationally, barges have a 1.3 to 1 circuity factor when compared with trains,29 which means that a barge must travel 30 percent farther than a rail car to reach the same destination.Any comparison of barge and rail efficiencies on the UMR-IWW must include the geographic realities of rivers. Rivers do not flow directly in straight lines; there are many turns that increase the distance a barge must travel. The rail system is not constrained by the flow of the river and follows a much straighter path to the Gulf of Mexico at New Orleans. But instead of comparing rail miles to barge miles on the Mississippi River using the acknowledged national 1.3 to 1 circuity factor, the Texas report uses a barge to truck comparison to establish a 1 to 1 circuity factor. (For comparison, a researcher at the University of Illinois30 estimated a 1.38 to 1 circuity factor for barges specifically on the Upper Mississippi River.)Also ignored in this report was the use by rail companies of “unit trains” for shipping grain long distances. Unit trains are made up of cars going to the same final destination carrying one type of commodity. A 2008 study by researchers at Iowa State University31 shows that unit grain trains moving from Iowa to New Orleans have a much better fuel efficiency – 640 versus 413 ton-miles per gallon – than an average train. Incorporating both the rail circuity factor and unit grain trains into a revision of the Texas Transportation Institute’s table (see Table 4) shows that barges have virtually no fuel efficiency advantage over an average train and are far less fuel efficient than unit grain trains.The primary grain commodity used in the NESP studies to support the construction of new locks is corn, which is also shipped by unit grain trains. The barge industry, as stated above, asserts that shipping commodities on barges is more efficient than rail, saving fuel and therefore emitting fewer pollutants. However, normal rail shipping is nearly equivalent to the fuel efficiency of barge shipping, and unit grain trains are significantly more efficient than barges.

# Land based transportation better

## Comparisons between land transportation and barge do not account for the barges having to travel further.

Nicollet Island Coalition February 2010 “B i g P r i c e — L i t tL e B e n e f i t: Proposed Locks on the Upper Mississippi and illinois rivers Are not economically Viable S e c t i o n 4 : Superior Barge fuel efficiency claims Are Questionable” http://www.iwla.org/index.php?ht=a/GetDocumentAction/i/2079

The barge industry asserts that inland waterways barge traffic is more fuel efficient than other modes of transportation. Industry representatives cite a 2007 Texas Transportation Institute report 28 to support this claim. The report includes the data in Table 3 portraying the superior fuel efficiency of barges in shipping cargo compared with trains and trucks. However, these comparisons do not take into account the variation in miles traveled to get from one point to another by water, rail, or road. The comparison between the distance of two modes of transportation both leaving one destination and going to the same final destination is called circuity. The Texas report acknowledges that nationally, barges have a 1.3 to 1 circuity factor when compared with trains, 29 which means that a barge must travel 30 percent farther than a rail car to reach the same destination. 28 Texas Transportation Institute – Center for Ports & Waterways, December 2007 (Amended March 2009), “A Modal Comparison of Domestic Freight Transportation Effects on the General Public Final Report,” prepared for the U.S. Maritime Administration and the National Waterways Foundation, http://www.americanwaterways.com/ press\_room/news\_releases/NWFSTudy.pdf 29 Cambridge Systematics, 1999, “NCHRP Report 388: A guidebook for forecasting freight transportation demand,” Transportation Research Board, National Research Council, Exhibit A.2, page 51, supports the statement that overall barge circuity relative to unit rail is approximately 1.30 Any comparison of barge and rail efficiencies on the UMR-IWW must include the geographic realities of rivers. Rivers do not flow directly in straight lines; there are many turns that increase the distance a barge must travel. The rail system is not constrained by the flow of the river and follows a much straighter path to the Gulf of Mexico at New Orleans. But instead of comparing rail miles to barge miles on the Mississippi River using the acknowledged national 1.3 to 1 circuity factor, the Texas report uses a barge to truck comparison to establish a 1 to 1 circuity factor. (For comparison, a researcher at the University of Illinois 30 estimated a 1.38 to 1 circuity factor for barges specifically on the Upper Mississippi River.) 30 Anthony V. Sebald, 1974, “Energy Intensity of Barge and Rail Freight Hauling,” CAC Document No. 27, University of Illinois S e c t i o n 4 : Superior Barge fuel efficiency claims Are Questionable Table 3: Fuel Efficiency Comparison of Transportation Modes Mode Tons-Miles/Gallon inland towing 576 Western railroads 413 eastern railroads 413 truck 155 table 3: texas transportation institute’s fuel efficiency comparison. Also ignored in this report was the use by rail companies of “unit trains” for shipping grain long distances. Unit trains are made up of cars going to the same final destination carrying one type of commodity. A 2008 study by researchers at Iowa State University 31 shows that unit grain trains moving from Iowa to New Orleans have a much better fuel efficiency – 640 versus 413 ton-miles per gallon – than an average train. Incorporating both the rail circuity factor and unit grain trains into a revision of the Texas Transportation Institute’s table (see Table 4) shows that barges have virtually no fuel efficiency advantage over an average train and are far less fuel efficient than unit grain trains. 31 Baumel, C. Philip, Charles R. Hurburgh, and Tenpao Lee, 2008, “Estimates of Total Fuel Consumption in Transporting Grain from Iowa to Major Grain Countries by Alternatives Modes and Routes,” Iowa State University, http://www.extension.iastate.edu/Grain/Topics/ EstimatesofTotalFuelConsumption.htm The primary grain commodity used in the NESP studies to support the construction of new locks is corn, which is also shipped by unit grain trains. The barge industry, as stated above, asserts that shipping commodities on barges is more efficient than rail, saving fuel and therefore emitting fewer pollutants. However, normal rail shipping is nearly equivalent to the fuel efficiency of barge shipping, and unit grain trains are significantly more efficient than barges.

## Evidence saying barges are more efficient have omitted critical aspects of measurements.

Nicollet Island Coalition 2010 “FACT SHEET: Superior Barge Fuel Efficiency Claims are Questionable” http://www.iwla.org/index.php?ht=a/GetDocumentAction/i/7801

The barge industry promotes barge navigation as the most fuel efficient mode of domestic shipping. By measuring the number of miles one gallon of diesel fuel can move a ton of freight, the barge industry asserts that barges can move freight significantly further than both trucks and trains. However, critical aspects of the measurement are omitted, making the assertion inaccurate in regard to trains. 1. Barges must travel between 30 and 38 percent further than trains to go to the same destination. This is because rivers are not aligned in a straight line; they have many bends and turns that increase their length. (Comparing the length of trips from the same start and end points between differing modes of transportation is called “circuity.”) 2. The barge industry compares their barges to general freight trains, not to unit trains that are far more fuel efficient. Barges are typically filled with the same type of commodity (e.g. corn, coal, etc.), and are transported to the same destination. General freight trains can have a large number of different materials and commodities that have different destinations and require many stops and separations of the train’s cars. However, unit trains carry only one commodity, as is typical for barges, and also typically travel to one destination. When comparisons between trains and barges are adjusted for the additional distance of river travel and compared with unit trains, the alleged advantage in fuel efficiency touted by the barge industry disappears. The fuel efficiency advantage for trains over barges is confirmed by the U.S. Department of Energy (DOE) in their Transportation Energy Data Books. The DOE compares the amount of energy used per ton-mile by modes of transportation (the less energy used per mile, the more efficient the transportation). In 2006, the latest available data for barges, rail averaged 330 BTUs per ton-mile and barges averaged 571 BTUs per ton-mile.

# Land based transportation better

## The inland waterways are actually the most expensive forms of shipping systems.

Nicollet Island Coalition 2010 “FACT SHEET: Historic Subsidy of Inland Waterways Navigation System Proposed Changes to the Inland Waterways Trust Fund (IWTF):’’ http://www.iwla.org/index.php?ht=a/GetDocumentAction/i/7807

Barge Industry contributions are inadequate to properly fund the Inland Waterways Trust Fund’s projects backlog, yet the industry wants to restore IWTF solvency and increase inland waterways navigation investment primarily by increasing the burden on all other taxpayers. • The barge industry touts itself as the cheapest form of commodity transportation. Unfortunately, the equation used to derive that designation excludes over 90 percent of the costs to support the inland waterways system. According to the National Academy of Sciences, 1 U.S. taxpayers pay 92 percent of the inland waterway system (IWS) costs of constructing, operating and maintaining barge navigation infrastructure. This is compared to virtually no taxpayer support for rail system users and only 20 percent for highway system users. • The general public does receive some benefits from the current dams on the rivers, though it can be argued that the costs, both financial and to the environment, have far exceeded these benefits. The barge industry paid nothing for the original lock and dam system and do not contribute to repairing and restoring degraded riverine ecosystems, which the inland waterways navigation system is largely responsible for causing. The taxpayers have been totally responsible for these costs, and as mentioned above all of the O&M costs and 50 percent of the construction and rehabilitation costs. • When all costs are accounted for, the inland waterways system is by far the most expensive shipping system in the country.

Barge industry calculations of efficiency are flawed.

Charles V. Stern Analyst in Natural Resources Policy April 2012 Inland Waterways: Recent Proposals and

Issues for Congress Congressional Research Service http://www.fas.org/sgp/crs/misc/R41430.pdf

Taxpayer and environmental groups have questioned studies citing environmental benefits as abasis for new investments in barge shipping. For instance, groups have disagreed with industryfuel-efficiency calculations, noting that many industry studies have not taken into accounttechnical factors such as the directional constraints of river flow, or “circuity.”61 They argue thatthe use of a conversion factor to account for circuity creates a more accurate picture of fuelefficiency among various modes. They have also noted that using the fuel efficiency for “unitgrain trains” instead of an average for all rail shipping would allow for a more accuratecomparison of fuel efficiency between barge and rail shipping.62

## **Harms not justified - – be suspect of all their evidence – its barge industry propaganda**

Kellie Lunney, 2001. Senior Correspondent for the Government Executive. “Report finds Army Corps used flawed data on river project.” < <http://www.govexec.com/defense/2001/03/report-finds-army-corps-used-flawed-data-on-river-project/8571/>>

The Army Corps of Engineers used flawed data in a cost-benefit analysis studying navigation improvements to the Mississippi and Illinois rivers, according to a report from the National Academy of Sciences. The report, by the National Research Council, said the flawed results from the analysis should not be used in the project, and advised that the Corps explore less expensive alternatives for managing barge traffic on the waterway system, before it goes ahead with its lock extension plan. The lock extension project is expected to cost $1 billion. According to the report, the Corps used several faulty assumptions and data in forecasting grain shipments and in estimating the cost of demand for barge services along the waterway. "The problem lies not in the theoretical motivation behind these [economic] models, but in their implementation and data used as input," said the report. Dave Hewitt, a spokesman for the Corps of Engineers, said the agency is reviewing the report. Last February, the Army asked the National Academy of Sciences to evaluate the validity of the Corps' cost-benefit analysis that studied navigation improvements to the Mississippi and Illinois rivers, following a whistleblower's allegations of data-rigging. The navigation project has been put on hold until June 2001. So far, the Corps' cost-benefit analysis of the project has cost roughly $50 million. The report suggested the Corps study less expensive alternatives for reducing traffic congestion on the waterway, such as better scheduling and congestion fees. "Although the Corps has made important improvements in its analysis, it apparently considered lock extensions as the only means to reduce congestion, ignoring a range of less expensive options that wouldn't require rebuilding locks and dams," said Lester Lave, chair of the committee reviewing the navigation project. The report also recommended an independent group of experts, including environmental and social scientists, review the Corps' study on the navigation project. During a hearing Tuesday before a Senate Appropriations subcommittee, Lt. Gen. Robert B. Flowers, the head of the Army Corps of Engineers, said the Corps plans work with other federal agencies on how to improve the project and will incorporate the National Academy of Science's findings.

# Waterway shipping harms environment

## Inland waterway projects can damage the environment – causing species loss, pollution, erosion, etc.

Charles V. Stern Analyst in Natural Resources Policy April 2012 Inland Waterways: Recent Proposals and

Issues for Congress Congressional Research Service http://www.fas.org/sgp/crs/misc/R41430.pdf

Environmental groups also note that inland waterway projects can negatively affect riparianhabitat and species by altering natural flows.63 Structural changes to rivers such as locks anddams (which can create sedimentation, increase turbidity, and lead to other reservoir-like effects)and levees (which separate rivers from flood plains) affect the natural state of these bodies ofwater. Additionally, waterway traffic may also cause bank erosion through wave action. Thus,increased construction and expansion of inland waterways can have negative environmentaleffects.

## Many negative environmental effects from shipping on inland waterways

OECD, (ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT) 1997 THE ENVIRONMENTAL EFFECTS OF FREIGHT.. http://www.oecd.org/dataoecd/14/3/2386636.pdf

Shipping poses threats to the environment both on inland waterways and on the ocean. These problems come from six major sources; routine discharges of oily bilge and ballast water from marine shipping; dumping of non-biodegradable solid waste into the ocean; accidental spills of oil, toxics or other cargo or fuel at ports and while underway; air emissions from the vessels' power supplies; port and inland channel construction and management; and ecological harm due to the introduction of exotic species transported on vessels.

## Use of inland waterways for shipping is damaging and hurts the environment.

OECD, (ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT) 1997 THE ENVIRONMENTAL EFFECTS OF FREIGHT.. http://www.oecd.org/dataoecd/14/3/2386636.pdf

The normal operation of transportation vehicles does not generate water pollution in the way that it generates air pollution. However, transportation has both direct and indirect impacts on water quality. Shipping activity, in particular, directly affects the environment in a number of ways. The routine discharge of ballast water from marine vessels, if ballast is not segregated from cargo, introduces oil pollution at sea and in coastal waters, and can lead to introduction of nuisance species transported from the boat's origin to its destination. Shipping is a source of oil and chemical spills at port, in coastal waters, and more rarely at sea. The routine maintenance dredging of ports and inland waterways stirs up toxic sediment and frequently leads to the disposal of dredged material in the open ocean. (Of course the existence of the toxic sediment stems from many sources other than transport; the dredging simply raises the toxics and poses the problem of where to resettle them.) These problems increase with growth in shipping, although they are less directly linked to ton-kilometers of freight than is air pollution.

## Waterway shipping introduces exotic species and pollution that damages the environment

OECD, (ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT) 1997 THE ENVIRONMENTAL EFFECTS OF FREIGHT.. http://www.oecd.org/dataoecd/14/3/2386636.pdf

Some environmental stressors--notably air and water pollutant emissions--are easily quantified, and clearly rise with increases in freight. Others, such as airport noise or the introduction of exotic species, increase with the number of trips made, but not with distance travelled or quantity of goods carried. Moreover, the ecological harm caused by such stressors may not be quantifiable or directly related to quantity of freight. This raises the question of how to address stressors which cannot easily be expressed as emission factors per unit of freight.

# Waterway shipping harms environment

## Shipping on waterways requires dredging which hurts the marine environment

OECD, (ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT) 1997 THE ENVIRONMENTAL EFFECTS OF FREIGHT.. http://www.oecd.org/dataoecd/14/3/2386636.pdf

Open water disposal of dredged materials can have both short and long-term impacts on the marine environment. In the short term, the problems are related to the placement of the sediment, and primarily concern the burial of marine organisms or their exposure to high concentrations of suspended particles, contaminants, and nutrients. Long-term effects are related to the rate of recolonization of the disposal area, the composition of the subsequent biological community, and the physiological and genetic impacts of exposure to contaminants. In the case of toxics which bio-accumulate, long-term concerns also include the possibility of human exposure as the chemicals move up the food chain. Assessment of these problems is difficult. Prevailing opinion among experts is that the effects are still largely unknown, so acautious approach should be taken to any marine dumping of contaminated sediment.

## Inland waterways shipping is a main cause of oil spills

OECD, (ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT) 1997 THE ENVIRONMENTAL EFFECTS OF FREIGHT http://www.oecd.org/dataoecd/14/3/2386636.pdf

Spills from waterborne vessels are one of the major sources of water pollution from shipping. They are of several types. Cargo spills frequently occur while loading or unloading in port, due to handling errors or equipment problems. Such spills are typically relatively small in volume. They may be of any kind of cargo, though petroleum products (primarily cargo rather than fuel) and other chemicals are most common. Spills of non-hazardous cargo are more common than spills of toxics or flammable materials, because the precautions taken in handling dangerous products tend to promote much greater vigilance and far fewer careless spills. Much less common, but potentially more dangerous, are cargo spills which occur when a boat runs aground or breaks up in bad weather. Such disasters typically occur when boats are moving into or out of ports or in other restricted areas, where there is little or no room for maneuvering or going off course in case of bad weather. In comparison, in the open ocean, boats can handle storms or high winds with little risk of accident, because if they are blown off course they are unlikely to run into anything.

## Construction and maintenance of inland waterways requires dredging which is harmful to the environment

OECD, (ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT) 1997 THE ENVIRONMENTAL EFFECTS OF FREIGHT http://www.oecd.org/dataoecd/14/3/2386636.pdf

The construction and maintenance of ports and inland shipping channels poses a number of environmental risks. Of particular importance is the dredging necessary to permit large vessels to enter ports, or to maintain inland channels. In natural estuaries and harbors, there is a balance between sediment transported out to sea and that which flows in with rivers and runoff, which tends to maintain an equilibrium depth. Often this is not deep enough to allow vessels safe passage, so navigational channel sand harbors are dredged to deepen them. Because natural forces will tend to build up sediment until the channels and port return to their equilibrium, dredging to maintain safe depth is an ongoing maintenance activity. The need for such dredging is likely to increase in the future as ships become larger and require deeper ports or as inland water transport grows in importance.

# Waterway shipping harms environment

## Dredging destroys marine environments

OECD, (ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT) 1997 THE ENVIRONMENTAL EFFECTS OF FREIGHT http://www.oecd.org/dataoecd/14/3/2386636.pdf

Dredging poses direct threats to the areas in which it occurs. It introduces sediment into the adjacent water column, which is then redeposited on the bottom. This has a variety of usually short-term effects on pelagic fish and the benthic community. The suspended sediment increases turbidity, decreasing light penetration and photosynthetic activity. Dredging can also have longer term effects on water circulation patterns, particularly in estuarine areas where water circulation determines the distribution of fresh and salt water, patterns of dissolved oxygen, and other water quality parameters. Changes in salinity can affect the viability of freshwater wetlands and tidal marshes, with consequent impacts on the distribution of marine life. Changes in water circulation patterns can also alter sediment accumulation, thus affecting all ecosystems in the immediate area.