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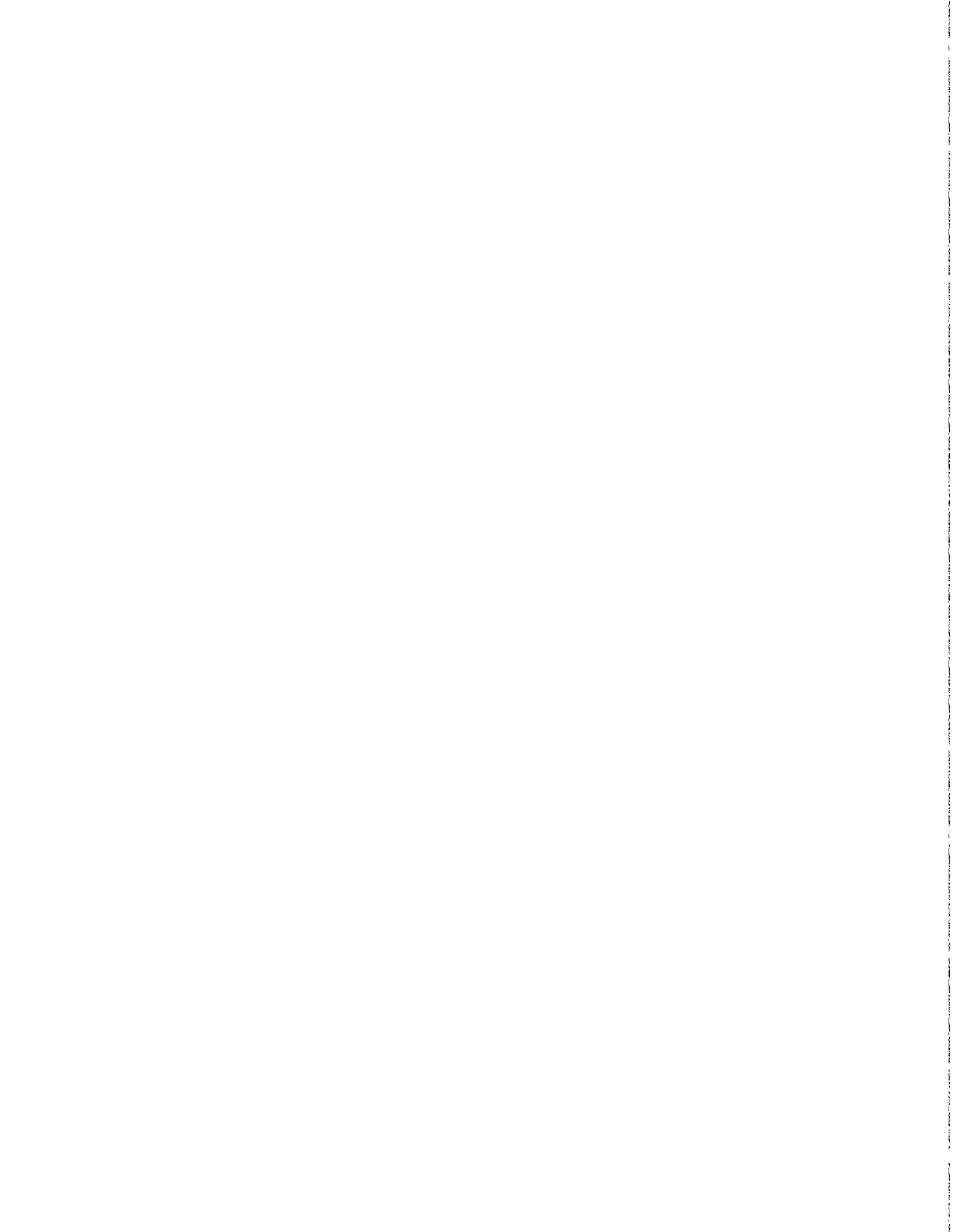
TAX POLICY

Allocating Motorboat Fuel Excise Taxes to the Aquatic Resources Trust Fund



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United States
General Accounting Office
Washington, D.C. 20548

General Government Division

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June 9, 1987

The Honorable Gerry E. Studds, Chairman
The Honorable Don Young, Ranking
Minority Member
Subcommittee on Fisheries and Wildlife
Conservation and the Environment
Committee on Merchant Marine and Fisheries
House of Representatives

You have asked that we review the Department of the Treasury's allocation of gasoline excise tax revenues to the Aquatic Resources Trust Fund (ARTF). Treasury is required to determine what percentage of the gasoline sold is used by motorboats and to transfer that percentage of the gasoline excise tax revenues into the ARTF. The ARTF supports boating safety and sport fishing restoration projects.

You expressed interest in whether the percentage of gasoline excise tax revenues allocated to the ARTF is appropriate, and specifically asked us whether or not improvements could be made (1) in the allocation process and (2) in the data bases used to make allocations. We have briefed the Subcommittee staff on our work. They asked that we supplement the information provided in the briefing and prepare a written document summarizing our findings.

The excise tax revenue generated by the sale of gasoline for use in motorboats is known as the motorboat fuel tax. Under the Deficit Reduction Act of 1984, the motorboat fuel tax has become a major source of federal funding for the ARTF. However, because national data on motorboat gasoline consumption are not available, the amount of motorboat fuel taxes collected must be estimated. Consequently, determining the percentage of gasoline used in motorboats is critical in assuring that the funding intended by Congress is fully allocated to these programs. The objective of this study was to address methodological questions related to the allocation process and the adequacy of the data used. In our review we considered the merits and limitations of the data currently used by the Treasury as well as those of other possible data sources we identified.

To accomplish our objective, we interviewed program officials at the Departments of the Treasury, Interior, and Transportation; and the U.S. Coast Guard. We also spoke with representatives from the National Marine Manufacturers Association and the American Fisheries Society. Both of these groups are involved with the programs funded by the

ARTF and have expertise related to reliability of the data currently being used as well as to alternative sources of data. We also analyzed a variety of studies on both the national and state level which addressed motorboat usage. A complete description of our objective, scope, and methodology is contained in appendix I.

During the course of our review Treasury completely revised the method it used to estimate national motorboat fuel consumption. Although the new method may be an improvement over the previous method, the data used in the new method still have limitations. We found the same limitations were present in all of the currently available data sources we identified. In general the limitations reflect a lack of reliable data on motorboat fuel use separate from other forms of gasoline consumption.

For a more reliable allocation of gasoline tax revenues to the ARTF, more precise data on national motorboat fuel consumption are necessary. Obtaining these data would entail conducting an appropriately designed national survey of motorboat use. Whether such a survey would change the current allocation is uncertain. Short of doing a nationwide survey, Treasury could enhance the reliability of its calculation in the future by assuring that updated and new data are incorporated into the calculation as they become available. The Treasury officials we spoke with had not yet reached a decision as to whether this would be done routinely. The results of our review are presented in more detail in appendix II.

As requested by your office, we did not obtain official agency comments on a draft of this report. We did, however, obtain informal comments from Treasury officials we interviewed in the course of our work. Treasury for the most part agreed with our analysis and provided clarifying information. We have reflected this information in the text where appropriate.

We hope you will find this information useful as you examine whether Treasury's allocation process can be improved. As arranged with your office, we will make copies of this document available to interested parties. If you or your staff have questions, please contact Charles Vehorn of my staff on 376-0023.

Jennie S. Stathis
Jennie S. Stathis
Associate Director

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ABBREVIATIONS

ARTF	Aquatic Resources Trust Fund
DEFRA	Deficit Reduction Act of 1984

OBJECTIVE, SCOPE, AND METHODOLOGY

The general objective of this study was to address methodological questions concerning the allocation of gasoline excise tax revenues to the Aquatic Resources Trust Fund (ARTF). Specifically, our review examined (1) the allocation process, including the method of calculating what percentage of the tax should be transferred to the ARTF; and (2) the adequacy of the data used to make allocations. We also examined the merits and limitations of other data currently available on motorboat use in the United States. We did not conduct our own survey of motorboat fuel consumption. Nor did we address the use of these funds once transferred to the ARTF. Our review was conducted between December 1985 and July 1986.

To evaluate the reliability of the data available on motorboat use, we identified relevant nationwide and state studies on the topic. We obtained copies of these studies and analyzed the methodologies used to estimate motorboat fuel consumption. We also interviewed program officials at the Departments of the Treasury, Transportation, and the Interior, and the U.S. Coast Guard as well as representatives of the National Marine Manufacturers Association and the American Fisheries Society. These special interest groups are involved with the programs funded by the ARTF and have expertise in this area.

Our review focused on the study done by the Department of the Treasury in 1986 entitled Gasoline Excise Tax Revenues Attributable to Fuel Used in Recreational Motorboats. This study represents Treasury's most current attempt to estimate these tax revenues and presents the methodology Treasury is now required to use in making its estimate. In analyzing this study we concentrated on identifying any limitations associated with the data used by the Treasury.

To identify congressional actions related to the allocation of motorboat fuel tax revenues to the ARTF and its predecessor funds we reviewed the Highway Revenue Act of 1956, the Land and Water Conservation Fund Act of 1965, the Recreational Boating Safety and Facilities Improvement Act of 1980, the Deficit Reduction Act of 1984, and the Coast Guard Authorization Act of 1986.

ESTIMATION OF THE
MOTORBOAT FUEL TAX

For a number of years federal excise tax revenues from the sale of gasoline¹ for motorboats have been used to fund the federal contribution to boating safety and other recreational programs. While the policy of using revenues generated by the motorboat fuel tax to support boating related programs is generally not disputed, the problem is in making an accurate determination of the amount of tax revenue that is actually generated by the use of gasoline in boats.

BACKGROUND OF MOTORBOAT FUEL TAX

In 1956 Congress enacted the Highway Revenue Act of 1956. Under the terms of the act the revenues from the excise tax on gasoline are generally paid into the Highway Trust Fund and are dedicated to funding the federal contribution to the construction and operation of the nation's highway system. However, Congress recognized that a percentage of the gasoline sold was used by motorboats and not highway vehicles and exempted those sales from the tax. This exemption was implemented by refunding the revenues collected from the sale of motorboat fuel to those taxpayers who requested it. While not a separate tax, this part of the gasoline excise tax is specifically known as the motorboat fuel tax.

In the Land and Water Conservation Fund Act of 1965, Congress directed that revenue from the excise tax on fuels used in recreational motorboats be transferred to the Land and Water Conservation Fund rather than refunded to the limited number of taxpayers who requested it. The funds were to be used for the acquisition and development of land and water areas for recreational purposes. In the Recreational Boating Fund Act of 1980, Congress established the National Recreational Boating Safety and Facilities Improvement Fund and required that motorboat fuel tax revenues be divided between this fund and the Land and Water Conservation Fund. The objective of establishing the boating safety fund was to spend motorboat fuel excise tax

¹While excise tax revenues derived from the sale of special motor fuels, such as benzene, for use in motorboats is also allocable to the ARTF, Treasury has assumed in its calculations that none of these fuels are used in motorboats and considers only tax revenues generated by gasoline sales. Accordingly, throughout this report we use the term "gasoline excise tax."

revenues on behalf of recreational boaters. The boating safety fund was to be the source of federal funding for state recreational boat safety and facilities improvement projects. Although the Deficit Reduction Act of 1984 (DEFRA) repealed the provisions of the 1980 act that established the boating safety fund, it established instead the Aquatic Resources Trust Fund (ARTF).²

Aquatic Resources Trust Fund

The motorboat fuel tax is the ARTF's major source of funding. The ARTF consists of two separate accounts: the Boat Safety Account and the Sport Fish Restoration Account. Funds in the Boat Safety Account are dispersed to the states to support boating safety programs and to the U.S. Coast Guard for recreational boating safety services. In each fiscal year the first \$45 million³ transferred to the ARTF is allocated to this account.⁴ ARTF funds used to support state boating safety programs cannot exceed 50 percent of program costs.

The remaining funds transferred to the ARTF are placed in the Sport Fish Restoration Account and are dispersed to the states to support marine and freshwater sport fishing projects, to improve access to recreational boating waters, and to provide aquatic resource education programs. ARTF funds used to support sport fish projects can be no more than 75 percent of program costs.

In fiscal year 1985 \$65.9 million was transferred to the ARTF from the Highway Trust Fund. For fiscal year 1986 the amount is estimated to be \$71 million.

²Under the 1984 act the Land and Water Conservation Fund remains intact. However, its funding from the ARTF is limited to no more than \$1 million annually. As this is not technically part of the ARTF, we do not discuss it further in this report.

³The Boat Safety funding for fiscal year 1987 was increased to \$60 million in the Coast Guard Authorization Act of 1986. It returns to \$45 million for each fiscal year thereafter.

⁴The next \$1 million is transferred to the Land and Water Conservation Fund.

CALCULATION OF MOTORBOAT FUEL TAX

As specific data on national motorboat consumption of gasoline are not available, the amount of motorboat fuel tax revenues collected must be estimated. Under the 1965 and 1980 acts the Secretary of the Treasury is charged with estimating what percentage of the gasoline excise tax is attributable to the tax paid on motorboat fuel and subsequently allocated to the boating safety, sport fishing, and conservation accounts.

Between fiscal years 1969 and 1986 the estimate used was 0.75 percent. This estimate was developed in 1968 by the Secretary of the Treasury in conjunction with the Secretary of Transportation and the Director of the Bureau of Outdoor Recreation of the Department of the Interior. It was based on the only two studies of motorboat gasoline use available at the time, one done by the state of California, the other by the state of Washington. No national studies were available.

In 1979, Treasury was asked by the Chairman of the Subcommittee on Coast Guard and Navigation, House Committee on Merchant Marine and Fisheries, to re-examine the motorboat fuel tax estimate. The chairman thought that motorboat fuel use may have increased as a percentage of total gasoline consumption. After re-examining the issue Treasury concluded that

"there is no reason to believe that there has been a faster growth in motorboat fuel use relative to automotive use that would require an upward revision of the amount of fuel attributed to motorboat use."⁵

Consequently, Treasury retained the 0.75-percent allocation.

However, concern remained over the prevailing rate used to estimate the revenue allocation. Subsequently, in 1980 Congress required that Treasury undertake a new study to determine what the allocation should be. This study was issued in June of 1986 and contained a new methodology for estimating the tax. In the Coast Guard Authorization Act of 1986 Congress required that the methodology developed in the 1986 Treasury study be used to determine the level of funding for the ARTF in the future.

⁵Letter from the Deputy Assistant Secretary of the Treasury to Representative Mario Biaggi, Subcommittee on Coast Guard and Navigation, House Committee on Merchant Marine and Fisheries, September 17, 1979, p. 2.

CURRENT TREASURY ESTIMATE

The 1986 Treasury study estimated that for 1985, 1.08 percent of gasoline sales were from the sale of motorboat fuel. If Treasury had used this estimate rather than 0.75 percent, the ARTF would have received approximately \$97.9 million rather than \$65.9 million in 1985. While the new methodology increases the level of funding to the ARTF, the precision of all the estimates, including Treasury's, continues to be undermined by the reliability of the data used to calculate them.

Treasury methodology

In its 1986 report Treasury estimated motorboat fuel consumption in the following manner:

- 1) The average motorboat fuel consumption for boats in each of three size classes was estimated using data from seven state studies that reported fuel consumption by boat size: Arizona (1985), California (1972), Hawaii (1981), Nevada (1972), New York (1979), Pennsylvania (1984), and Wisconsin (1985). These studies were selected because they estimated fuel use by boat size and because Treasury, on the basis of a statistical test, assumed them to be representative of boating use nationally.
- 2) Total motorboat fuel consumption in each size class was calculated by multiplying the estimated average fuel consumption by the number of registered boats in the class as reported by the Coast Guard.
- 3) Total fuel consumption was calculated by adding the estimates for the three size classes.

Treasury's methodology involves two crucial assumptions: (1) the average fuel consumption estimates by size of motorboat from the seven state studies are representative of recreational boating and boat use nationally,⁶ and (2) the average fuel consumption in each size class was unchanged from the time that the state studies were completed.

⁶Treasury performed a statistical t-test that compared three factors (heating degree days, inland water density, and coastline density) affecting recreational boating use in the seven states and all states to support this assumption.

According to Treasury this approach was adopted because it offered a "rational methodology" that could be updated from time to time as new studies became available. However, while the Coast Guard data on the number of boats in each of the three size categories is updated annually, there is no guarantee that data used to estimate fuel consumption by boat size will be updated. Two of the state studies used by Treasury are 15 years old. In addition, according to Treasury officials, it had not yet reached a decision on whether it would routinely incorporate updated Coast Guard data and new state studies into its calculation.

Questions also exist about the validity of the state studies. A 1986 analysis⁷ done by the Oak Ridge National Laboratory for the Department of Transportation concluded that, in general, the state estimates are accurate to no more than plus or minus 50 percent. Treasury recognizes the limitations on the state data used but concludes that these are the only data available and that the development of new, reliable data bases would require substantial expenditures of time and money.

Since the data used by Treasury to estimate the amount of excise tax revenues received from motorboat fuel have limitations, we did an analysis of the data sources currently available and of ways to improve the quality of the data. In summary we found that higher quality sources of data do not at this time exist and that Treasury's conclusion regarding the development of new data bases is reasonable.

DATA SOURCES

Possible data sources we considered included taxpayer-reported information on motorboat fuel purchases and state and nationwide studies of motorboat fuel consumption. We found that taxpayer information is not available because the gasoline excise tax is remitted by the producer.⁸ Between 1956 and 1965, when taxpayers could request refunds of the motorboat fuel tax paid, according to Treasury, too few refunds were requested to

⁷Oak Ridge National Laboratory, Off-Highway Use of Gasoline in the United States, June 1986. Prepared for the Office of Highway Information Management, Federal Highway Administration, U.S. Department of Transportation.

⁸In Publication 510 "Excise Taxes for 1986," the Internal Revenue Service defines producers as refiners, compounders, blenders, and wholesale distributors.

indicate the percentage of the gasoline excise tax being generated by sales to motorboat users.

State and nationwide studies of boating use (app. III lists the studies we reviewed) show a wide variance in estimates of average fuel use by motorboats as well as the percent of total gasoline consumption represented by motorboat use (see table II.1). The state estimates of annual fuel consumption per boat range from 44 to 284 gallons, with Oregon (346) and Hawaii (386) as outliers. For reasons discussed later in this report, the nationwide studies produced higher estimates than most state studies. Our analysis of estimates made during the 1980s in states that conducted earlier studies reveals that the most recent estimates are generally below the earlier estimates. However, most of the estimates have shortcomings of various degrees.

State studies

The state studies we identified⁹ contained estimates of limited usefulness due to a variety of methodological problems. For example, some estimates were based on an average fuel consumption figure for all boats despite the fact that fuel usage varies with engine horsepower and boat size. In addition, some studies used questionable statistical procedures to develop the estimates. Finally, several of the surveys we reviewed were conducted some months after the boating season, so consumers had to rely on their ability to recall the amount of gasoline purchased and the amount of time spent boating. Each of these factors reduces the confidence of the resulting estimate.

In addition, the usefulness of state studies in developing national estimates is limited because (1) comparisons between state estimates frequently cannot be made due to differing assumptions and methodologies and (2) some of the surveys are quite dated. The latter may be a limitation, as the mix of boat sizes and patterns of motorboat fuel consumption may change over time, and current patterns of use may not be reflected in existing survey results.

⁹These studies include the seven used by the Treasury in its 1986 study.

Table II.1 Estimates of Motorboat Fuel Consumption

Region	Year of Study	Annual Fuel Consumption per Boat (gallons)	Motorboat Fuel Consumption as Percent of Total Fuel Consumption for Region	Region	Year of Study	Annual Fuel Consumption per Boat (gallons)	Motorboat Fuel Consumption as Percent of Total Fuel Consumption for Region
Arkansas	1967-68	167	0.54%	Nevada	1968	233	n/a
Arizona	1964	144	n/a		1972	247	0.88%
	1965	142	n/a	New York	1973	232	n/a
	1984	104	n/a		1979	157	0.81%
	1985	76	0.80%		1982	176	n/a
California	1964	137	n/a	North Carolina	1964	118	n/a
	1964	n/a	0.58%		1968	113	n/a
	1972	164	0.77%		1968	134	0.34%
Colorado	1970	94	n/a	Ohio	1961	162	n/a
Delaware	1976	284	n/a		1962	162	n/a
District of Columbia	n/a	135	n/a	Oregon	1961	125-346	n/a
Georgia	1965	138	n/a		1969	159	n/a
Hawaii	1974	n/a	1.00%		1978	208	1.13%
	1981	386	1.25%	Pennsylvania	1966	107	n/a
Illinois	1970	145	n/a		1978	69	n/a
Michigan	1965	225	n/a		1984	50	0.21%
	1966	247	n/a	Tennessee	1970	155	n/a
	1970	72	n/a	Utah	1964	211	n/a
	1971	n/a	0.73%		1970	250	n/a
	1982	150	1.67%	Washington	1966	n/a	0.83%
	1984	122	n/a		1968	114	n/a
Minnesota	1978	59	n/a		1981	92	0.71%
	1980	80	n/a	Wisconsin	1960	80	n/a
	1983	101	1.74%		1978	44	n/a
	1983	n/a	1.35%-2.00%		1985	50	0.89%
Mississippi	1968	163	n/a	U.S. (Coast Guard)	1973	330	n/a
Missouri	1967	71	n/a		1976	351	2.82%
	1967	180	0.42%	U.S. (DOT)	1984	145	1.26%
Montana	1980	93	n/a	U.S. (Oak Ridge)	1986	205-219	1.77-1.97%

Sources: California Department of Public Works and Department of Navigation and Ocean Development; Gopalakrishnan, Vieth, and Hodgkinson (1974); Michigan Department of Natural Resources and Department of State Highways; Oak Ridge National Laboratory; U.S. Department of Transportation; U.S. Department of the Treasury; and GAO calculations.

Nationwide studies

In addition to the 1986 Treasury study, we identified three nationwide estimates of motorboat fuel use. Only one represented an attempt at a nationwide survey of motorboat use--the Coast Guard's 1976 Nationwide Boating Survey. The value of the survey is undermined both because of its age and methodological limitations identified by the Coast Guard. A Coast Guard analyst said that the estimate of motorboat fuel consumption in the survey is very inflated due to upward biases contained in survey questions. Using the Coast Guard's 1976 estimate of motorboat fuel consumption and the Federal Highway Administration's statistics on gasoline consumption, we calculated a 1976 motorboat fuel consumption rate of 2.82 percent of total gasoline use. As table II.1 reveals, this percentage is higher than all of the state estimates available.

The 1986 Oak Ridge National Laboratory study for the Department of Transportation attempted to estimate motorboat fuel consumption using Coast Guard data and state estimates and two regression models. Using the Oak Ridge and Federal Highway Administration data we calculated motorboat fuel consumption estimates from 1.77 to 1.97 percent of total gasoline use for 1982.

The Oak Ridge report compared estimates of motorboat fuel use produced by its models with individual state estimates from the most recent year available. The report states that the comparison lends little credibility to either the state or model estimates. The report concludes that more accurate estimates can be obtained only by obtaining statistically valid survey data for the states.

The final nationwide consumption estimate we identified was done by the Department of Transportation. However, a Transportation analyst told us that the Department's motorboat fuel consumption estimate of 145 gallons per year per boat for 1984 was rough and probably unscientific due to the methodology used to calculate it. Using Transportation data, we estimated the 1984 motorboat fuel percentage at 1.26 percent.

More precise data could be obtained

To correct current data limitations and obtain accurate estimates of motorboat fuel use, more precise, credible data on motorboat fuel use would be necessary. The most methodologically sound way of collecting these data would be to conduct a well-designed nationwide survey of motorboat fuel use. A well-

constructed survey could establish a credible nationwide usage estimate.

It is unclear at this time whether an estimate derived from a new nationwide boating survey would differ from that calculated by the methodology contained in the 1986 Treasury report or if the difference would merit the cost of the nationwide data collection effort. Before such a survey is done, the costs, including those associated with periodically updating it, would have to be weighed against the potential benefits.

SUMMARY

Due to limitations in the data used by Treasury in calculating the current allocation of funds from the Highway Trust Fund to the ARTF, it cannot be said with confidence that the current allocation accurately reflects national motorboat fuel consumption. However, we found the same limitations were present in all of the currently available data sources we identified. In general this is a result of a lack of reliable data on motorboat fuel use separate from other forms of gasoline consumption.

For a more precise allocation of gasoline excise tax revenues to the ARTF, more precise data on national motorboat fuel use are necessary. The costs and benefits of obtaining such data are uncertain.

Recognizing the limitations of the available data, Treasury could enhance the precision of its future estimates in several ways. It could include the most recent Coast Guard data on the number of boats in each size class. These figures are updated annually. In addition, as new gasoline consumption data pertinent to this process become available, they could also be considered and incorporated into Treasury's calculation if appropriate.

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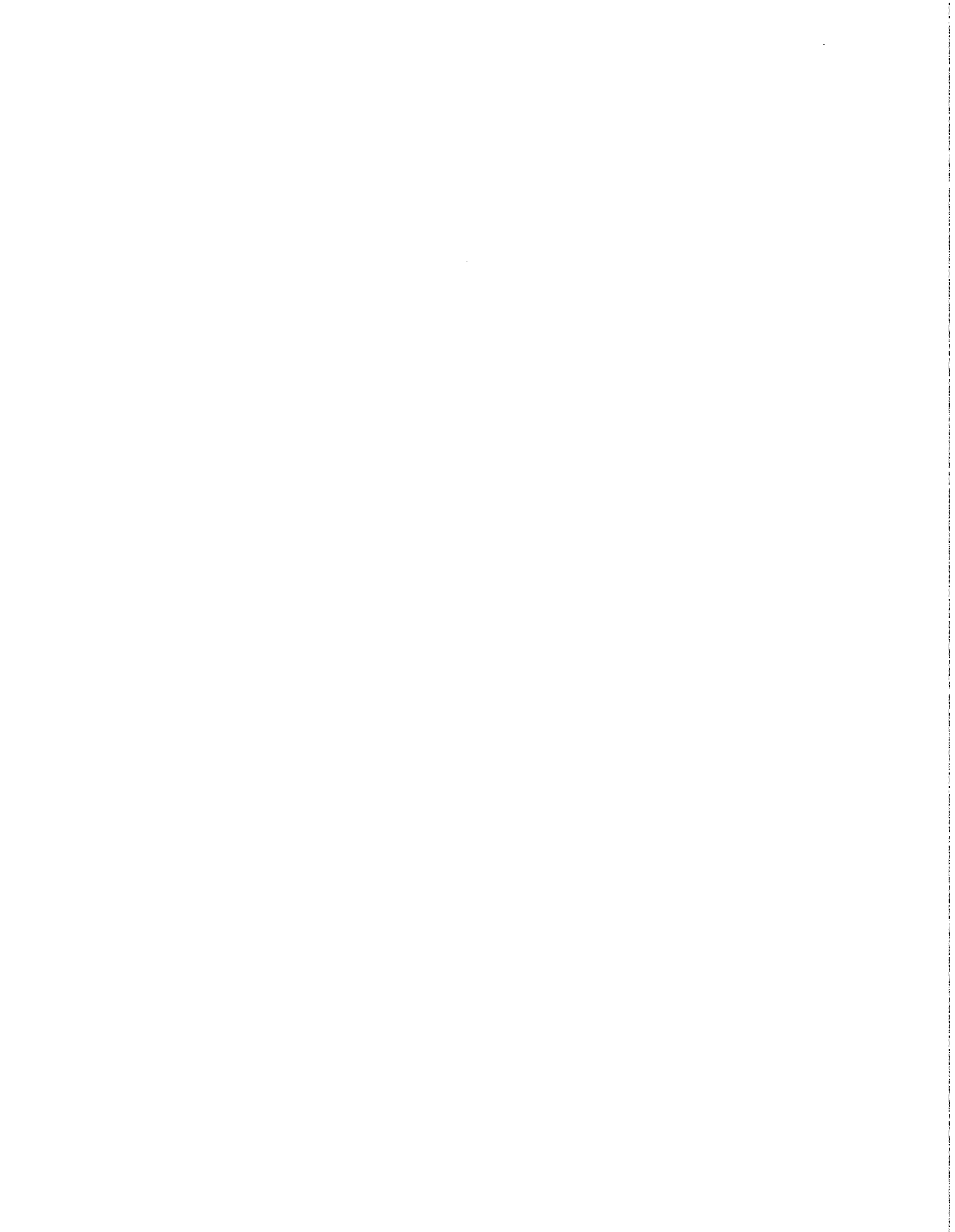
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