

Chapter 7

The Effects of the 404 Program



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The Effects of the 404 Program

CHAPTER SUMMARY

According to U.S. Army Corps of Engineers estimates for 1980-81, Corps districts (excluding Alaska) processed permits for projects that, if completed as requested, would have resulted in direct and indirect conversion of approximately 100,000 acres of wetlands per year. The Corps authorized projects that, if completed in accordance with the conditions of the permits would involve the conversion of approximately 50,000 acres of wetland or about half the acreage applied for. National Marine Fisheries Service (NMFS) data for the coastal wetlands (in the lower 48 States) indicate that the 404 program, in combination with State regulatory programs, reduced the conversion of coastal wetlands by 70 to 85 percent in 1981. Thus, several thousand acres of coastal (saltwater) wetlands are probably being converted to other uses each year. Moreover, each year about 5,000 acres of vegetated wetlands either are created or restored for mitigation purposes as a direct result of the "conditioning" of 404 permits.

There are probably numerous cases where regulatory costs or delays to developers have been substantial—in some cases, millions of dollars. But little verifiable data are available to document the overall impacts of 404 on development activities, especially as they relate to other costs imposed by other policies and programs (such as sec. 10, the

National Environmental Policy Act (NEPA), State programs; and local ordinances) and general economic conditions. Information collected by this study suggests that 404, for the most part, minimizes or compensates for impacts rather than prevents development.

All permit applicants bear at least some 404-related costs resulting from permit denials, modifications of projects, permit processing, and/or processing delays. Of approximately 11,000 project applications per year, slightly less than 3 percent are denied; about one-third are modified significantly to reduce wetland impacts; and about 14 percent are withdrawn by applicants. About half are approved without significant modifications. From 1977 to 1981, the average processing time for non-EIS (environmental impact statement) permits was about 130 days; in 1983, the average processing time was about 70 days. Less than 1 percent of all projects permitted by 404 require an EIS, which may take several years to complete. Delays in processing permit applications for the relatively few large-scale projects that represent the bulk of the economic value of all proposed development activities probably account for a substantial portion of the total costs to industry associated with the 404 program.

EFFECTS ON WETLANDS

In many areas of the country, the 404 program is the only Government program controlling the use of wetland resources. This chapter discusses the *effects* of the 404 program on wetlands; however, it does not evaluate the *effectiveness* of the program. Analysis of effectiveness requires judgments about how the program should optimally or realistically perform to reach both specified goals and measurements of the actual performance against the ideal.

This chapter presents evidence of how the 404 program actually has affected wetlands.

Theoretically, the effect of the 404 program on wetlands use can be quantified from permit data by tallying the acreage of wetlands that are not converted as a direct result of the permit evaluation process, or the acreage on which the impacts of development have been lessened, and the acreage of

wetlands that have been created or restored as a result of the program. In practice, it is very difficult to present an accurate picture of the effects of the program. Very little quantitative information has been compiled detailing what the program has accomplished.

Although many sources were consulted, the following are the only available sources of hard data on the effects of the program nationwide:

- The Corps' Regulatory Functions Branch summaries, covering basic information such as number of permit applications, denials, and withdrawals.
- The Corps' Institute for Water Resources (IWR) report, *Impact Analysis of the Corps Regulatory Program*. The major source of data for the IWR report was a "regulatory impact assessment" (RIA) questionnaire, sent to all Corps districts by the Regulatory Functions Branch in 1981. This report only appeared in draft form and has not been released officially (1).
- OTA survey of Corps districts. OTA sent all Corps offices a questionnaire designed to supplement information available from other sources. Of 38 offices, 37, including all 36 Corps districts, responded. (The Honolulu office did not respond to the survey.)

These sources were supplemented by other materials, such as an OTA survey of the 50 States, case studies of 21 States conducted by contractors for OTA, data on NMFS Southeast region permit recommendations, and interviews conducted by OTA staff.

While adequate data are available on such basic indices as the number of permit applications and issuances, information is far more sketchy concerning permit modifications, mitigation, and other things necessary to assess the impact of the program on wetlands. Few districts compile the permit information necessary for an evaluation of the program. Usually, Corps personnel have been forced to make unverifiable estimates when asked to provide quantitative data on the program. Composites of such approximations probably convey an accurate overall picture but make the accuracy of resulting statistics open to question. In the absence of firm data,

estimates from different sources must be weighed against one another.

Interpretation of data from the above materials is complicated further by several factors. First, Corps districts have great independence and flexibility in how they interpret the requirements of the 404 program and often differ considerably in the types of wetlands and development activities encompassed within their boundaries. Many of the conclusions of most studies of 404-program effects are based on information from a limited sample of districts.

Second, it is extremely difficult to separate the effects of the 404 program from the effects of other influences on the use of wetlands. It is likely that general economic conditions, such as interest rates, and conditions specific to particular development activities or areas have much greater effects upon wetland development than do governmental regulations.

Third, while reduction of wetland loss rates cannot be *exclusively* attributed to the 404 program, it is clear that in the great majority of States, the program plays a crucial role in regulating the use of many wetlands. When States were asked by OTA to evaluate the relative importance of the 404 program in comparison with State programs, 10 States asserted that the 404 program is redundant and relatively unimportant in management of both coastal and inland wetland areas and that their State programs play the dominant role. However, separation of the effects of the 404 program from those of State programs is possible only where State programs do not exist or do not cover activities or areas dealt with by the 404 program.

Program Effects Not Reflected in Permit Data

The 404 program has been successful in reducing damage to wetlands through actions not reflected in permit data and which are difficult to quantify. The greater the number of projects submitted to the 404 process and the more environmentally damaging those projects are, the more permit modifications and denials are likely to be required by the Corps. Measures taken by the Corps

to improve the program have reduced the number of permits submitted and made those that are reviewed less environmentally damaging, thus masking the quantifiable effects of the 404 program,

The *expanded use of general permits* has reduced the number of permit applications by an estimated 90,000 cases annually.¹ While these permits may decrease control over the use of wetlands (as is discussed elsewhere in this report), other general permits benefit wetland protection when best management practices (BMPs) are required as part of permit conditions.

*Preapplication consultations*² also lessen project impacts; they may result in applicants changing a planned activity so that it requires less wetland acreage or no longer occurs on a wetland—i. e., either transferring the activity to an upland area or canceling it. Better management practices may be suggested that limit the impacts on those wetlands that are used. The activity also may be altered so that it falls under a general permit, thereby presumably having an acceptable impact on the wetlands of a particular region (2).

Consultations also may result in savings to applicants. Permit application requirements can be clarified, reducing the chance that applications would have to be resubmitted, for example, to make up for gaps in information. On the other hand, Corps suggestions may entail additional costs to the applicant or reduce the benefits expected from a project.

According to district estimates in the OTA survey, a range of 5 to 90 percent (with a mean of 30 percent) of applicants consult with the Corps prior to submitting an application. A much higher percentage of parties planning large projects consult with the Corps. Several districts reported that nearly all applications for major projects entailed preapplication consultations, and most industry associations and firms responding to another OTA survey said that they routinely set up appointments with the Corps to discuss planned activities, particularly if the activities are large scale.

¹Pacific Legal Foundation, "A Report to the Presidential Task Force on Regulatory Relief, Mar. 18, 1982, p. 28.

²This term refers to advice given by Federal personnel to those inquiring about activities that might require a 404 permit.

Results of consultations are more difficult to summarize. Most consultations take place at an early stage in project planning, before applicants have detailed plans that specify the acreage of wetlands potentially involved. Still, most districts believe that such consultations have had significant benefits for wetland protection. Because of the lack of data, very few estimates were made of reductions of amounts of dredged and fill material or of alterations of wetland acreage that were achieved by consultations. Instead, more qualitative estimates were given, sometimes in terms of the percentage of permits that were modified in the course of consultations. These estimates can be categorized as follows: 9 districts said they could not estimate the effects of consultations; 4 indicated that results were insignificant (e. g., "very few" projects were modified); 10 indicated that results were good (e. g., consultations had a "good" effect; 10 percent of applications were modified); and, 14 said results were very good (e. g., consultation results were "substantial"; 50 percent of applications were modified).

A last form of program success not reflected in permit data stems from the increased public knowledge that has arisen about wetland benefits and about regulations that require the developer to apply for a permit to develop many wetlands. This awareness has meant that an unknown number of projects have been initiated than might otherwise have been, that many projects affect wetlands less than they otherwise might have, and that fewer permits, therefore, are denied or modified by the Corps.

Program Effects Reflected in Program Data

Reduction of Wetland Loss

The major effects of the 404 program are the reduction of wetland conversions through permit denials, modification of permits to reduce the number of wetland acres affected, and conditions attached to permits that lessen the impact of activities on the wetlands that are used.

Only a small number of section 404 and section 10/404 permit applications are denied; (291 out of 10,718 applications received in fiscal year 1981,

about 2.7 percent). It should be noted that districts vary greatly in the percentage of permits denied. Twelve reported on the OTA survey that they deny 1 percent or less of permit applications, while ten deny more than 5 percent. About 14 percent of permit applicants (1,545) withdrew their applications before the Corps rendered a decision,

A much greater number of permits are modified in the course of the permit process. The IWR report estimated that one-third are "substantially modified."² Another source estimated that more than half have conditions attached.³ Information collected by OTA supports these estimates. OTA asked districts to estimate the percentage of permits requiring a 404 review that were substantially modified. Several districts separated their estimates into permits that were modified substantially and those that received more minor modifications, saying that almost all permits were conditioned or modified to some degree. Two districts said they did not require substantial modifications to any permit in the period considered. One of these, however, denied a large percentage of 404 applications. Two others did not make percentage estimates, saying that many or most permits were modified substantially. The estimates of the remaining districts varied from 3 to 95 percent. The majority of districts gave estimates ranging from 20 to 40 percent, and the mean of all districts was 31 percent.

The effects of the 404 and State regulatory programs on potential wetland conversions can be estimated using two main sources of data: NMFS Southeast region figures and results of a Corps survey. The NMFS Southeast region, has jurisdiction over coastal areas from Texas to North Carolina including about 90 percent of all coastal (saltwater) wetlands in the lower 48 States (according to FWS trend data). The Southeast region made recommendations that, if implemented, would have had the following effects: During fiscal year 1981 NMFS reviewed projects that would have resulted in the conversion of about 14,000 acres of vegetated wetlands. NMFS recommendations, which were accepted in about 98 percent of the cases, could have

resulted in the potential preservation of about 85 percent of these wetlands proposed for conversion. Since about 20 percent of the projects were in violation of permit conditions, the actual acreage of wetlands saved from conversion by Federal and State permitting programs in coastal areas probably ranges from 70 to 85 percent.⁴ Thus, several thousand acres of coastal (saltwater) wetlands are probably being converted to other uses each year.

According to recent estimates compiled by the Corps for 1980 and 1981 (table 23), its districts (excluding Alaska) processed permits for projects that, if completed as requested, would have resulted in direct and indirect conversion of approximately 100,000 wetland acres per year. However, the Corps authorized projects that involved converting approximately 50,000 acres of wetlands. In other words, the 404 program, in combination with State programs, was responsible for preserving about 50,000 acres of wetlands if there is compliance with all permit conditions. This is a 50-percent reduction in potential conversions from modifications, withdrawals, and denials of 404 permits. Actual compliance with permit conditions in NMFS Southeast region is about 70 percent. The acreage saved by the 404 program is probably less than 50,000; how much less is uncertain. In addition, some conversions may have been deterred simply by the existence of the regulatory programs; other conversions may have been prevented through preapplication consultations with the Corps.

Creation of New Wetlands/Restoration of Degraded Wetlands

New wetlands are created and degraded wetlands are restored or enhanced as a result of the 404 program. In some cases, 404 permit applicants create or restore wetland acreage as compensation or mitigation for acreage degraded or converted by a permitted activity. In other cases, persons who have altered wetlands under the scope of the Corps' regulatory program without a permit, or who have violated permit conditions, have been required to miti-

²Institute for Water Resources, U.S. Army Corps of Engineers, "Impact Analysis of the Corps Regulatory Program," unpublished report, November 1982, p. 62.

³Jeffrey A. Zinn and Claudia Copeland, "Wetlands Management, Congressional Research Service, July 1982, p. 125.

⁴Figures from W. N. Lindall and G. W. Thayer, "Quantification of National Marine Fisheries Device Habitat Conservation Efforts in the S.E. Region of the United States," vol. 44, No. 12, 1982, pp. 18-22. During a conversation in June 1983, Lindall estimated that 75 to 80 percent of the acreage in columns 2, 3, and 4, table 1 from this paper were vegetated wetland; 90 percent of acreage in columns 8, 9, and 10 were vegetated.

Table 23.—Corps of Engineers' Wetland Acreage Survey, 1980 to 1981

	Total acreages (in thousands)	
	Exclusive of Alaska and Hawaii	Including Alaska
1. Total acreage of "technical" wetlands ^a	64,100	287,100
2. Total acreage of wetlands regulated under individual permit	46,700	209,700
3. Wetland fill requested, past 2 years:		
Direct (smothered)	56.0	63
Indirect (flooded, drained, etc.)	124.9	124.9
4. Wetland fill authorized, past 2 years (direct only)	30.2	36.7
5. Wetlands created for mitigation, past 2 years	9.6	9.6
6. Wetland dredging requested, past 2 years:		
Direct (dredged)	13.4	14.4
Indirect (sidebank, slumping, etc.)	15.0	15.0
7. Wetland dredging authorized past 2 years (direct only)	3.3	4.3

^aTotal wetland acreage estimates based on the Corps' "technical" definition of wetlands. They are therefore less than the average of wetlands estimated from the FWS National Wetland Trends Study.

SOURCE: Army Corps of Engineers.

gate impacts through wetland creation or restoration.

IWR reported an estimate that "less than 5,000 acres' of wetlands are created annually,⁵ presumably as a result of the 404 program. While several individual cases of restoration were listed, IWR did not estimate the total acreage of wetlands restored annually.

The NMFS Southeast region office recommended that 2,493 wetland acres be created and 1,469 be "generated/compensated" in that area from July 1981 to June 1982.⁶

⁵Institute for Water Resources, op. cit., p. 114.

⁶Lindall and Thayer, op. cit.

Based on the OTA survey, 25 Corps districts estimated that 1,200 to 1,700 acres were created and 2,300 to 2,800 acres were restored annually (3). These amounts do not include two cases in which Florida phosphate mines have or will "re-create" about 3,500 acres of wetlands "to obtain the required State and Federal permits' or to satisfy State requirements. A Corps survey of districts and Corps responses to OTA's questionnaire indicated that about 5,000 acres of wetlands are created annually.

EFFECTS ON DEVELOPMENT ACTIVITIES

Although many development activities benefit from wetland protection, the 404 program also imposes costs on development from the processing, modifications, and delays entailed in the 404 permitting process. Aside from financial costs, more general objections to the program voiced by such parties as industry trade associations include questions about the need for the program to protect wetlands, congressional intent regarding wetlands and the 404 program, the value of wetlands versus the

value of their development, and possible inefficient or inequitable program administration.

Some firms state that they have borne major 404-related costs, in some cases millions of dollars, and it is evident that all firms that go through the permitting process bear at least some costs. However, although many individual firms have abundant material on their own experiences, very little data are available that aggregate individual experiences into

industrywide estimates. Very few trade associations have collected detailed statistics from their membership.

The desire to reduce costs brought by the 404 program to permit applicants has been a major factor in many or most efforts to change the 404 program through legislative and regulatory revision. Many industry associations and firms have voiced their unhappiness with the current program. In particular, the program is said to be unnecessary, or at least overly restrictive and cumbersome, and to cause large financial losses to permit applicants through modifications and delays to projects imposed by Federal agencies. The Office of Management and Budget (OMB) stated that its suggested reforms to the program could save \$1 billion annually.⁷ On the other hand, defenders of the program argue that it is not costly, either in absolute terms or in comparison with the benefits it brings, and that many sectors of society, including several major industries, are aided by the program.⁸

This section discusses perceptions of the 404 program held by regulated sectors and the costs and benefits to permit applicants of this program. There is a paucity of data on the costs and benefits of the 404 program and of other Federal and State wetland programs to regulated sectors. OTA examined previously published estimates, surveyed industry associations, and collected data from other sources (4). OTA also surveyed States about whether they had made estimates of the costs to permit applicants of State or Federal wetland permitting programs. No State had collected information on such costs. Massachusetts officials estimated that, assuming that the average bank carrying cost "to hold option on raw land, assuming an average 20-acre subdivision, single-family homes, " of a project is \$2,000/month, and the average decision time for State permitting is 2.5 months, the average cost to the project would be \$5,000, plus consulting and legal fees. Several States gave data on permit fees charged to applicants. Not including EIS costs, fees ranged from zero (e. g., Maryland) to 0.5 percent of construction costs with a minimum of \$100 (New

Jersey). Most fees ranged from \$15 to \$75. One industry association, the Fertilizer Institute (FI), reported that permit application fees in Florida now are \$100 for the short form, for more minor projects, and \$1,000 for the standard form, for relatively major projects.

Benefits of the 404 Program to Regulated Sectors

Environmental Benefits Captured by Industry

Many types of firms experience both costs and benefits from the 404 program. For example, members of the housing-construction industry believe that 404 program costs severely impact the industry's operations; at the same time, land values adjacent to wetlands protected by section 404 often increase, benefiting some builders as well as existing homeowners.

The RIA questionnaire asked Corps districts to rate the impacts of the regulatory program (including sec. 10) on 14 sectors (5). Districts unanimously believed that the fishing industry benefited from the program and were near unanimous that the general public benefited. More than 80 percent thought that government and public service and land values adjacent to permit areas benefited, and more than 60 percent saw benefits accruing to the agricultural industry and to private individuals (6).

Technology Transfer

Advice given by Federal personnel to permit applicants prior to submission of an application, and in the course of permit review after submission of an application, may result in savings to applicants as well as protection of wetlands. Small projects and private individuals, in particular, may benefit from information about current engineering and management practices that can make projects more efficient and less costly. Called "technology transfer" by the Corps, these practices produce such benefits as avoidance of erosion losses and stabilization costs when natural vegetation and drainage features are preserved and utilized.

Based on a telephone survey of 12 districts, the IWR report estimated that for 15 to 30 percent of issued permits, the projects approved are more ef-

⁷Office of Management and Budget press release, May 7, 1982.

⁸National Wildlife Federation and 13 other organizations, "Section 404: A Response to the Army-OMB Regulatory Reform Proposals, " May 1982.

ficient or less costly to develop than those originally proposed. Average savings were estimated to be 15 percent of total project costs. (However, in a table showing calculations, savings were estimated to be 15 percent of 'site development costs,' which in turn were thought to be 25 percent of the total project cost.) Using an estimated total financial cost of over \$217 billion for all projects and an amortization factor of 10 percent for 25 years for the "social value" of projects, IWR estimated total benefits from technology transfer to range from \$135.5 million to \$271 million.⁹

Many projects undoubtedly experience benefits. However, the IWR estimate appears to be overstated greatly. The methodology used for the IWR report has serious flaws (7), and does not correspond to the responses received by OTA from Corps districts.

The OTA survey of Corps districts asked respondents to estimate the proportion of permitted projects that have benefited from technology transfer, and the average percentage of savings in terms of project development costs. Most districts do not keep any records on technology benefits. As stated by one, "As project costs are seldom, if ever, provided with permit applications, it is impossible to estimate savings in project costs without loss of benefits." * Thus, answers to the survey questions were estimates rather than calculations from data.

As with all aspects of the 404 program, districts vary tremendously in how they perceive technology transfer. Owing to lack of data, 14 districts did not make any estimates of technology transfer benefits. Seven districts said that the program did not result in savings to projects. Five of this latter group thought that costs were increased rather than decreased to applicants. Four districts said that "few" or "very few" projects experienced savings. One district said that "a number" of modifications to projects resulted in "potential savings." Finally, 11 districts gave numerical estimates of technology-transfer benefits.

Estimates of the percentage of projects gaining savings from technology transfer and the percentage of those savings, in order of magnitude of estimated savings, are shown in table 24.

⁹Institute for Water Resources, op. cit., pp. 135-36.

● Response from the Corps' Detroit District.

Table 24.—Estimated Effects of Technology Transfer on Financial Costs

District	Percentage of projects	Percentage of savings
1		No estimate
		No estimate
3 :::::	5	10
4	5	20
5	5-10	5-10
6	10	5
	10-15	5-10
7 :::::	15-20	10-20
9	20	10
10 :::::	25	20-30
11	40-45	20-30

SOURCE: Data from Corps district responses to OTA's questionnaire.

While the means of these estimates (13 to 15 percent of permitted projects benefiting; 12- to 16-percent savings) are more or less in the range given by IWR, the view of most Corps districts is that technology transfer benefits are infrequent or cannot be documented. As stated by several districts in response to the survey, the goal of permit modifications is not to reduce costs to applicants but to reduce or avoid environmental impacts of projects on wetlands.

OTA also asked industry associations to estimate technology transfer benefits to their members. The associations involved generally have strong objections to aspects of the 404 program and may not be representative of the experience of other industries with respect to such benefits.

Of the eight associations or groups of firms responding specifically to this question, seven said that such benefits do not accrue. One association said that its members benefited from Corps advice on water-related projects (e. g., building of structures in waterways and the design of dams and impoundments). The percentage of projects that were estimated to experience such benefits was less than 5 percent; the amount of savings less than 1 percent of total project costs. *

General Objections to the Program by Regulated Sectors

The major concern of regulated sectors about the 404 program are the costs suffered as a result of the program processing, delays, modifications, and

*Response from the American Mining Congress.

opportunity costs—and related effects on national interests, such as energy supply. How these costs are evaluated depends not only on their absolute magnitude but also on how the observer evaluates the 404 program itself. A strong supporter of the objectives of the 404 program could find even large costs in all categories acceptable if it could be shown that these goals were met as a result. Conversely, even relatively small costs in a single category could be regarded as unacceptable if the 404 program were judged unnecessary or of low priority. In addition, the evaluation of costs is affected by how the administration of the 404 program is viewed—whether the program is seen as efficiently and equitably implemented or needlessly costly and time consuming to applicants. Before discussing specific quantifiable costs, some of the more important objections to the rationale and administration of the program are summarized.

The Need for the 404 Program to Protect Wetlands

Although most industries agree that at least some wetlands provide important benefits to society, * a number of sources contend that the 404 program is not essential for protecting wetland resources. One argument is that conversion rates were only 0.5 percent per year between the 1950's and 1970's and are probably less now. Since wetlands are not under great threat from the activities regulated by the program, the scope of the 404 program may be reduced without great harm to wetlands. One source, using the U.S. Department of Agriculture (USDA) Soil Conservation Service (SCS) information, stated that annual creation of new wetlands exceeds wetland destruction.¹⁰ Another source, interpreting IWR figures, contended that annual wetland conversion is small relative to the total wetland acreage in the United States—about 300,000 acres per year out of more than 148 million acres regulated by the program, or 0.2 percent. If the 404 program prevents a similar amount of wetland acreage from being converted annually, as claimed by IWR, abolition of the 404 program would result

only in approximately doubling this conversion rate, which in the eyes of this source would represent an insignificant amount of wetland converted.

Similar arguments are made with respect to the impacts of development activities in specific areas. For example, according to one estimate, oil company operations on the North Slope of Alaska have resulted in the "disturbance" of approximately 7,300 acres of tundra.¹² Depending on the frame of reference used—whether this acreage is compared with the total tundra acreage of all of Alaska, the North Slope region alone, or just the area within the oilfield where the disturbance is concentrated—this area represents from considerably less than 1 percent to 4.5 percent of tundra. It is argued that the impacts of oil extraction should be considered in relation to the far greater number of acres left undisturbed.

Last, many sources favoring relaxation of the 404 program contend that States are capable of providing adequate wetland protection and, indeed, are better suited to do so, both in terms of knowledge about their own resources and in terms of what observers see as the desirable amount of power States should possess vis-à-vis the Federal Government.

Some of the above arguments can be viewed from a different perspective. Between the mid-1950's and the mid-1970's, about 500,000 acres of wetlands were converted to other uses each year. Also, conversion rates differ for different types of wetlands and for different areas of the country. Some wetlands are under much greater pressure than the national figure indicates. For example, conversion rates for the Lower Mississippi Alluvial Plain between the mid-1950's and the mid-1970's were three times higher than the national average. Conversion rates for freshwater emergent wetlands in this period were four times greater than those for freshwater scrub/shrub.

*This was stated by several industry representatives in talks with OTA staff, and no association has explicitly challenged this notion in its public statements on the 404 program.

¹⁰Julian Simon, "Are We Losing Our Farmland?," *Public Interest*, No. 67, spring 1982, p. 53.

¹¹Pacific Legal Foundation, "A Report to the Presidential Task Force on Regulatory Relief in Support of the Army-OMB Regulatory Proposals for Clean Water Act Section 404," Mar. 18, 1983, pp. 11-12. This reasoning is rather unfair, as IWR was only considering losses in the approximately 90 million vegetated wetland acres of the continental United States.

¹²Alaska Corps District, as reported in ESA/Madrone, "Wetlands and Regulation: Alaska Case Study," contract study for OTA, January 1983, pp. 2-11.

In addition, it is very difficult to estimate what conversion rates would be without the program. Although efforts are being made to reduce duplication between State and Federal programs, substantial duplication exists in some States, increasing costs to applicants in various ways including, for example, in added filing fees and in time spent in preparation and discussion of applications. Permit applicants must sometimes explain their projects to different sets of governmental personnel or endure one agency denying a permit after another has approved it. Whether these drawbacks are warranted depends on how the results of duplication are judged. Many observers, including many States where duplication is present, believe that the positive general results of duplication outweigh the disadvantages to applicants, such as increased assurance that violations missed by one level of government will be dealt with by another. In addition, duplication is less common than lack of duplication—the 404 program is the only available means of wetland protection in many areas of the country.

Congressional Intent

Some sources contend that the current jurisdiction of the Corps under the 404 program, the 404 program's presumption in favor of wetlands, and its protection of wetlands for reasons other than the narrow grounds of water quality, were not intended by the Congress when the Federal Water Pollution Control Act was passed and amended.¹³ In support of these contentions, the following arguments are made:

- Section 404 of the Clean Water Act (CWA) does not mention wetlands. Wetlands are mentioned in the report supporting the 1977 amendments to the CWA. It also is argued that Congress originally intended historically navigable waters to be regulated. Certain Federal court decisions and agency discretion in rulemaking, rather than congressional action, have expanded the program into its cur-

rent form. This extension is held to constitute unwarranted Federal involvement in land-use decisions.

- The appropriateness of regulating wetlands that do not conform to popular definitions of swamps, marshes, and so forth is especially controversial. Wetlands that are only infrequently under water or that are the byproduct of manmade activities (e. g., drainage ditches or structures) have been the subject of several battles between the Corps and developers (8). Regulation of Alaskan tundra, playa lakes, and several other specific types of areas as wetland also is controversial.
- Because section 404 has obvious deficiencies in the protections it offers to wetlands, as explored later in this report, it can be argued that it should not be seen as a wetland-protection statute. If Congress had wished to protect wetlands, it would have written more explicit language to that effect.
- The intent of Congress in passing CWA was to safeguard water quality, narrowly interpreted to refer to water pollution. If wetlands are to be protected under the act, it is argued, this protection should only be extended when the water quality benefits of wetlands are endangered. Further, it is believed that only interstate water quality benefits of wetlands clearly fall under the purview of the act.
- The current mode of operation of the 404 program is held to conflict with more clearly expressed congressional intent to encourage agriculture and other types of development activities.

Opposing these contentions, environmentalists and other sources have argued that Congress has strongly recognized wetland values and has at least implicitly approved the current scope of the program by not excluding wetlands, adopting a narrow navigable-waters standard, or restricting the program to water quality, when it passed amendments to the act in 1977. Parties favoring the current geographic scope of the program also can point to language in the legislative history of the act calling for a broad interpretation of its scope. Environmentalists also believe that the objective of CWA—to 'restore and maintain the chemical, physical, and **biological** integrity of the Nation's waters'

¹³For example, Pacific Legal Foundation, *op. cit.*, pp. 8-9; Gary E. Parish, J. Michael Morgan, "History, Practice and Emerging Problems of Wetlands Regulation: Reconsidering Section 404 of the Clean Water Act," *Land and Water Law Review*, vol. 17, No. 1, 1982; Washington Legal Foundation, "The Feds: Even Dry Land is Wetlands," 1982. See also statements by Assistant Secretary of the Army Gianelli in *National Journal*, Mar. 6, 1982, pp. 412, 413.

(emphasis added)¹⁴ justifies the protection of wetlands for other than water-quality reasons, in particular, to safeguard wildlife habitat.

The Presumption of Wetland Value

Prior to the suggested regulatory revisions of July 1982 put forward by the Corps, the Corps reviewed permit applications with the presumption that, "Wetlands are vital areas that constitute a productive and valuable public resource, the unnecessary alteration and destruction of which should be discouraged as contrary to the public interest."¹⁵ In this view, the benefits of proposed projects must outweigh the damage to wetlands, and the proposed wetland alteration must be necessary to realize the

benefits. If a proposed activity is not water-dependent—if a feasible alternate site is available—it normally will be denied. Further, all appropriate and practicable steps must be taken to minimize potential adverse impacts of the discharge in question. Parties opposed to these provisions have the following arguments against the above presumptions:

- The benefits of wetlands often are difficult to discern and measure. Not all wetlands are of equal value, and many wetlands are regarded by various sources as being of little value to society. In particular, the water quality values of many wetlands protected by the program are questionable; as mentioned, some sources believe that only protection of water quality is mandated by CWA.



Photo credit: U.S. Fish and Wildlife Service, Bill Gill

Prior to the Corps' suggested regulatory revisions of July 1982, the Corps reviewed permit applications with the presumption that, "wetlands are vital areas that constitute a productive and valuable resource, the unnecessary alteration and destruction of which should be discouraged as contrary to the public interest"

- In specific permit decisions or in general, parties seeking to change the program hold that development values outweigh the benefits of natural wetlands. Employment, balance of payments, energy supply, and so forth are contrasted to the less quantifiable benefits of wetlands. Development values are held to be of national importance, while wetland values may be seen as having only local applicability.¹⁶
- Wetlands also may be contrasted to other lands in terms of their environmental benefits. For example, while some environmentalists see wetlands as the most valuable type of undeveloped area, others prefer upland environments. Many State resource agencies support schemes that create upland environment for nonwetland game species.

In summary, it is argued that, at most, section 404 should cover only wetlands of clear benefit to society. There should be no presumption that all wetlands are valuable. Secondly, a more explicit balancing of the values of conversion with the values of preservation of wetlands should be made. Some proposals would reverse the presumption of wetland value to a presumption of development value and would hold that unless an application can be demonstrated to injure the wetland, or even more narrowly, water quality, the application should be granted without the imposition of modifications.

In contrast, defenders of the program argue that all wetlands are valuable, albeit to varying extents. A presumption of value therefore is appropriate and necessary to reverse what some view as a disastrous rate of wetland conversion. Under treaties, conventions, and agreements, the United States has public trust responsibilities for resources, including migratory birds, anadromous fishes, and threatened and endangered species. Destruction of upland environment to protect wetlands is the result of a lack of comprehensive planning and poor coordination between agencies rather than an inherent flaw of the 404 program.

The July 1982 revisions changed the strength with which the presumption of wetland value is applied, i.e., by removing the provision that wetland alterations must be necessary to realize project ben-

efits. The presumption that “wetlands are vital areas . . . ” was changed to “some wetlands are vital areas . . . ” (emphasis added).

Program Administration

The administration of the 404 program has been criticized by a number of sources for three reasons:

- Those planning to conduct activities in wetland areas, especially individuals and small firms, often are unaware of or confused by program requirements. There often is uncertainty whether a particular area is a wetland. Definitions of wetlands used by State and Federal agencies often differ and may be difficult for nonspecialists to use to verify whether their land is covered by a regulatory program. For example, many plant species are found in both wetlands and nonwetlands. Determinations of whether wetland species are ‘prevalent’ in an area under consideration can be controversial. There is much desire that the Corps publish easy-to-use guidelines on how to identify wetland areas.
- Some firms claim that the modifications imposed by Federal agencies are unreasonable—e.g., that the activity applied for is not overly impacting wetlands or water quality—or that the firm’s own planned mitigation practices are adequate, and there is no need for the additional mitigation often required by Federal agencies (9).
- In the eyes of many permit applicants, delays resulting from agency permit processing seem unreasonable. Requests for additional information about projects often are seen as unnecessary. Some Corps districts are also thought to be unwilling to take a strong role in resolving disputes if any local, State, or Federal agency has any objections to the proposed development. Permit applicants and agencies are left to fight out problems among themselves, a situation seen as favoring agencies (10). On the other side, defenders of the program argue that while some exceptions may exist, the modifications required and the amount of time taken by Federal agencies have not been unreasonable considering the need for caution in dealing with project impacts.

¹⁶Parish and Morgan, *op. cit.*, p. 79.

Specific Impacts of the 404 Program

Costs related to the 404 program maybe divided into two categories: national costs and costs to individual permit applicants.

National Costs

Overall, the greatest potential impact on development activities from the 404 permitting process is the prevention of activities. In some cases, resources cannot be extracted, facilities built, and so forth, because of denials of permit applications (assuming that alternative means of conducting the activity cannot be found) or if delays, modifications, or other costs make the planned activity uneconomical or otherwise infeasible to undertake. Activities that are not prevented may be made more expensive, thus increasing costs to users of the products produced. These general types of impacts can have broader effects than just the costs to the permit applicants.

Potential national costs include reductions of production and price increases in regulated industries and other industries dependent on regulated firms. One oil company argued, for example, that 404 regulation is economically unproductive, adds no resources to the Nation, and creates many millions of dollars in costs that are "inevitably passed on to consumers and contribute to America's current economic malaise."¹⁷

In addition, if regulatory restrictions make wetland portions of a resource base impossible or more expensive to use, the remaining nonwetland portions also may become more valuable as a result of the diminished supply of the resource in question. While this outcome may not increase costs to the firms exploiting the resource, it could result in increases in the prices charged to consumers of the products derived.

Some industry associations and individual firms contend that the macro-level effects of the 404 program are of a different type than are direct effects on the gross national product (GNP) or consumer

prices. They argue that a deleterious effect of the 404 program on the operations of various industries adversely affects vital national interests. For example, petroleum industry members have stated that the 404 program has seriously interfered with the ability of the oil industry to explore and develop Alaskan North Slope oil reserves, which comprise roughly 40 percent of U.S. domestic reserves. They state that Alaskan reserves are "of obvious and crucial importance to America's domestic oil supply, and thus to American national security interest."¹⁸

OTA does not have sufficient information to determine the impacts of the 404 program on any sector of industry, on national indicators such as GNP, or on national interests in general. At least some individual firms have borne major costs as a result of the 404 program, and industry associations brought to OTA's attention instances in which costs ran into millions of dollars. The significance of these costs beyond the impacts to the firms concerned is difficult to assess. To some industry associations, the 404 program is one of the major sources of regulatory costs. *

OTA asked associations to estimate the significance of 404-related costs—e. g., the proportion of the total burden of Federal and State regulation entailed by the 404 program—and the importance of 404 program costs relative to other factors, such as high interest rates. Several associations said that the significance of program costs varies with the project. Two associations made more specific estimates. The range of the responses received by the FI from 2 firms in North Carolina was 10 percent and 50 percent; from 14 firms in Florida, 1 to 40 percent, with a median of less than 5 percent. The American Paper Institute/National Forest Products Association (API/NFPA) responded as follows:

The significance of section 404-related costs to our members has decreased steadily since the mid-1980 publication of the regulations implementing section 404(f). As a consequence, it may now be less significant than requirements imposed by other Federal or State programs.

¹⁷Sohio, "Briefing Paper for Regulatory Changes to Corps of Engineers Regulations Governing Section 404 of the Clean Water Act and Sections 9 and 10 of the River and Harbor Act of 1899," 1981. It was claimed that in one project alone, 404 problems caused tens of millions of dollars in costs.

¹⁸Ibid.

● For example, API listed section 404 permitting second in a list of 10 highest priority issues submitted to the Reagan administration, May 4, 1981.

Immediately after the expansion of the section 404 program to nonnavigable waters in 1975, we anticipated over 180,000 permit requirements per year for forest management activities. As the result of the passage of section 404(f), this problem has decreased to 0.1 percent of our original projection. We would currently estimate section 404 as representing a relatively small proportion of the total burden of Federal and State regulation that our industry faces.

With respect to the importance of section 404, compared to general economic conditions; high interest rates (to use the example cited) have resulted in the poorest forest products market since 1930. Consequently, compared to current economic conditions section 404 is a relatively minor concern.

The IWR report found that changes in the national economy caused by the 404 program are difficult or impossible to measure (e.g., using the GNP or consumer price index (CPI) figures). It concluded that while impacts on individual firms could be significant, such impacts are unlikely to have any major effect on the national economy.¹⁹

The impacts of the 404 program on national security concerns are unclear. For example, Alaskan energy development appears to be subject to permitting delays more from State agencies than from the Federal agencies involved in the program. It could be contended also that the development activities affected by section 404 are not constrained to such an extent that national security is threatened. For example, it could be argued that sufficient amounts of the resources in question can be obtained from nonwetland areas to meet U.S. needs.

One study of the effect of section 404 on the deepening of coal ports concluded that 404 reviews have

¹⁹Institute for Water Resources, op. cit., p. 184. The IWR report concluded that it is likely that all Federal environmental regulation combined has had a very small effect on the GNP and CPI, and the 404 program is only a small part of this regulation. See also the Western Governors' Policy Office, 'Permitting and Siting of Energy Projects: Causes of Delay, and State Solutions,' Denver, 1981, which concluded that environmental regulations constituted a relatively minor source of delay to energy projects in Western States, as compared with equipment- and labor-related problems.

not and are not likely to constrain either such deepening or the development of U.S. coal exports. Delays in port dredging are attributable to other sources.²⁰

Environmentalists are quick to point out that there may be national costs associated with degradation and conversion of aquatic habitats required to sustain wildlife. National estimates for 1980 show that commercial and noncommercial activities associated with fish, wildlife, and associated outdoor activities are worth many billions of dollars per year. Some of these economic values are described in chapter 3. Maintenance of the habitat base required to perpetuate wildlife resources is important for economic as well as other purposes.

Costs to Permit Applicants

Major categories of costs to applicants for 404 permits involve processing, modification, delay, and opportunity.²¹ These costs are borne not only by permit applicants but also by people who would otherwise benefit from the activities permitted. Projects that are abandoned, made less profitable, or never initiated mean potential losses in job opportunities, economic development, and tax revenue. On the other hand, protection of wetlands has its own set of benefits that may include higher returns in some areas. In addition, losses both to project initiators and potential beneficiaries will be offset if, as is likely, the resources that would have been used in a wetland-related project are used in some other fashion. From the standpoint of the national economy, there might be no net change. However, great changes in which areas experience benefits could result.

Finally, there are nonquantifiable costs to the permit process, such as the energy and aggravation entailed in filling out forms and meeting with agency officials.

²⁰Michael Rubino, "Dredge or Fill, Section 404, and Coal Port Development, Brookhaven National Laboratory, 1983, pp. 6-7.

²¹Institute for Water Resources, op. cit., pp. 144-145. Categories are modifications of categories listed.

PROCESSING COSTS

Processing costs are those costs incurred by applicants to produce information needed for the permit process. Such information may include application fees, maps, project plans, and EISs.

Private individuals are charged a \$10 application fee for a 404 permit. Permit applications for commercial purposes cost \$100. A set of drawings showing the location of the proposed project and the work to be performed must be submitted. Many applicants employ engineering firms to produce such drawings. According to IWR, some firms will handle all procedural details of applications, with fees ranging from \$100 to \$500.²²

Applicants may be required to submit additional information beyond what is required normally, however. Applications that appear to have major environmental impacts, for example, often must be accompanied by detailed EISs.²³ The fees paid by applicants to environmental consultants preparing EISs often are substantial, costing tens of thousands of dollars and representing a major share of permitting costs. * The costs of EM preparation, however, cannot always be attributed to the 404 program. Authority to require a developer to submit an EIS comes from NEPA, not from section 404. In many cases, if the Corps did not require an EIS for 404 considerations, another Federal agency with permitting authority over the project could require it or be sued by an outside group seeking to make the agency exercise this prerogative. Another major difficulty in estimating the costs of 404 application and preparation is that some, or even most, of the environmental analyses undertaken by firms (which can constitute the greatest source of expense) may be required in any case by

States with strong environmental programs and may be undertaken not only for wetland-related concerns but also for other environmental considerations. Also, many firms engage in advance planning and environmental programs of their own, the results of which are used in 404 applications.

The OTA survey asked associations to estimate the costs of application and processing of 404 permits. Most associations said that costs vary with the scope and controversy of the proposed permit. Only a few associations gave quantified estimates. The FI estimate was \$1,000 to \$3 million. Of the three firms making up the American Waterways Operators, Inc. (AWO), response, one estimated such costs as \$500, another's estimate was \$20,000 to \$25,000, and one said that "costs can run into the tens of thousands of dollars. For the two ports answering this question on the American Association of Port Authorities (AAPA) response, one said that "preproject paperwork' increased by 20 to 50 percent for small projects. The other said that costs can vary from \$25,000 to over \$100,000.

The response from API/NFPA said that significant costs are experienced occasionally when Federal agency evaluation is necessary to assess the applicability of 404(f) exemptions to a project. In one instance, a firm devoted 120 staff hours to preparing support for its view that planned activities fell under 404 exemptions.

IWR estimated that processing costs in fiscal year 1980 totaled \$17.3 million, averaging \$911 per application, or \$1,226 for government, \$652 for individual, and an implied \$1,179 for commercial applications.²⁴ The assumptions and methods by which IWR calculations were made were not explained, and the resulting estimations may be inaccurate (11).

²²Institute for Water Resources, op. cit., p. 146.

²³*The Washington Post*, Sept. 13, 1982. The number of NEPA suits filed for "projects affecting wetlands or bodies of water" constituted almost 13 percent of all suits filed in 1980, tying for second place among 18 categories.

²⁴The Fertilizer Institute claimed that in one instance fees totaled \$3 million.

²⁴Institute for Water Resources, op. cit., p. 173. IWR did not give an average for commercial applications. The figure listed here was calculated using IWR figures for the cost borne by different types of applicants and for the number of commercial applications.

MODIFICATION COSTS

Project modifications made in response to Federal agency requirements or pressure as a condition for permit approval may entail additional outlays by applicants—i. e., to restore or create wetlands, transport material to more expensive upland sites, or use more expensive technology or management practices. In addition, such modifications may reduce the profitability of a project, for example, by making the project smaller. There also may be modification costs not directly required by agencies. Applicants may modify projects before an agency objects to them in expectation of permit denials if modifications are not undertaken.

Rough estimates indicate that one in three permits is modified. The figure is probably lower for small projects and higher for large projects. Many projects undoubtedly were modified in anticipation of comments by Federal agencies; many others were modified as a result of preapplication consultations (12).

According to one supporter of the program, 90 percent of recommendations made by Federal resource agencies to permit applicants during permit review are “accepted” by applicants,²⁵ meaning that few such suggestions result in the applicant withdrawing a permit application or refusing to make the change. However, the requirement of modifications often has an element of coercion. Apart from the threat of denial of a permit by the Corps or the Environmental Protection Agency, (EPA), Federal agencies without the power to deny a permit could, before the regulatory changes proposed by the administration in 1982, threaten to elevate a decision on a permit to higher levels in the Government, with the concomitant delay entailed in processing. As stated by OMB, the threat of elevation often has caused applicants to “accede to unnecessary and unreasonable changes in their plans” to avoid agency objections.²⁶

The cumulative amount of outlays for modifications and the average cost per permit applicant are

almost entirely unknown, given present data. IWR estimated that the cost of modifications equals the amount of savings to permit applicants through “technology transfer.”²⁷ These savings were estimated to be 15 percent of site development costs, or an annual amount of \$135.5 million to \$271 million.²⁸ However, no basis was given for the assumption that sums for modifications and technology transfer are the same. Further, as previously discussed, the IWR estimate of technology transfer savings is extremely uncertain.

The OTA survey asked associations to estimate the ranges of costs for modifications. Very few quantitative estimates were made. The American Mining Congress (AMC) and the American Petroleum Institute (API) said that modifications range from minor, relatively inexpensive changes to major modifications costing millions of dollars. AAPA said that costs for riprapping increased by 10 to 20 percent.

An example of increased costs was given by API, which said that drilling a 12,000-ft oil or gas exploratory well may cost \$2.5 million for a straight hole and \$7.5 million when directional drilling is employed. Out of the API survey sample of 40 firms, representing a total of 794 permits from August 1978 to October 1981, 53 cases of increased costs from “the adoption of stipulations or special conditions” were noted, totaling \$17 million, an average of about \$320,000 per case. However, this average is not representative, one permit alone accounted for \$10 million in costs. Secondly, not all firms submitted all of their past permitting experiences to API: some firms gave only examples where problems were encountered, possibly biasing the overall picture presented. API also gave an alternate figure: averaging the \$17 million figure across all 794 permits, API determined the average cost to be about \$22,000.

Among the nonquantitative estimates, API/NFPA said that “with respect to specific project

²⁵National Wildlife Federation, *op. cit.*

²⁶Office of Management and Budget, *op. cit.*

²⁷Institute for Water Resources, *op. cit.*, p. 153

²⁸*Ibid.*, p. 135.

modifications, forest-access road construction usually requires certain modifications (e. g., adequate culverts) to insure flow and circulation when crossing waters or wetlands. This is not a major difficulty. The construction of water intake and effluent-

outfall structures must be undertaken in a fashion that does not involve unnecessary disruption of wetland areas. This has not generally proven to be difficult."

DELAY COSTS

Delays in processing applications past "normal" processing time can result in costs to applicants, such as payments to idle workers and contractors, possible increases in interest rates and prices for raw materials, labor, machinery, and the like. Unanticipated delays are especially costly.

OMB stated that the 404 program has been "plagued by severe delays that have generated complaints and imposed heavy economic burdens on the public" and "has introduced long delays into a substantial number of major permit applications."²⁹ Such delays are contrary to statutory language in section 404, which requires that memorandums of agreement be concluded among agencies to minimize delays. The major source of delays was said to be the multiple layers of review or elevations of permit decisions possible if another agency disagrees with the Corps.

As the OMB letter did not define "long delays," or "substantial number of major permits, it is difficult to assess the accuracy of its criticism. Opinions differ about what constitutes normal processing time. A coalition of environmental groups believes that 131 days, the average period for processing non-EIS permits from 1977 to 1981, is a reasonable figure.³⁰ Following the figure employed by RIA, IWR used 120 days. The General Accounting Office (GAO) says 105 days.³¹ Some industry spokesmen have used a 90-day figure (13). OMB recommended that 60 days be the normal processing time.

Statutory and regulatory language on processing deadlines provides that the Corps must issue a public notice of a permit application within 15

days of receipt of a **complete** application.³² Applications lacking required information must be resubmitted. CWA requires that memorandums of agreement be concluded among the Federal agencies involved such that "to the maximum extent practicable,"³³ decisions about permits can be made not later than 90 days after public notice. This deadline allows for some deviation. Federal agencies are given 30 days from the issuance of public notice to forward comments to the Corps; however, they may request extensions of up to 75 days under what are supposed to be unusual circumstances. Section 404(m) directs the Fish and Wildlife Service (FWS) to submit comments within 90 days of receiving the public notice.

In addition to the time allowed for Federal agency action, States are given up to 1 year to perform water quality certifications, which apply to practically all **404** permits. Without such certification, the Corps cannot grant a permit. As discussed below, according to IWR, much of the time involved in processing permits stems from the length of time it takes States to grant 401 certifications. Most States claim, however, that they issue such certifications within 90 days. Arrangements have been made between some Corps districts and State agencies to set time limits on State certifications, after which certification is considered to be de facto granted.

Percentage of Permits Delayed

OTA calculations based on RIA material are that if only issued permits are considered (i. e., not including permit withdrawals and denials), 43 percent of commercial, 29 percent of private, and 33

²⁹Office of Management and Budget, *op. cit.*, p. 28.

³⁰National Wildlife Federation, *op. cit.*

³¹General Accounting Office (Tech. Note No.9), p.28.

³²Clean Water Act, sec. 404(a).

³³Clean Water Act, sec. 404(q).

percent of governmental permits, or 34.5 percent of all permits, took longer than 120 days to process in fiscal year 1980 (14). As described earlier, RIA data include non-404 permits. While it is not certain that these percentages would hold if 404 and 10/404 permits were considered, it is likely that these figures for delay do represent minimum estimates: 404-related permits constituted 54 percent of permits issued in fiscal years 1980 and 1981, and it is reasonable to assume that 404-related permits were, on average, more controversial, and thus more subject to delay, than were non-404 permits. If these percentages are accepted, a substantial number of permit applicants do appear to suffer delays, especially for commercial projects.

Taking all oil- and gas-related 404 permits in Alaska from February 1980 to September 1981, GAO found that approximately 76 percent took more than 105 days to process, that length of time being GAO's definition of normal processing time. Even using the more generous standard of 130 days, more than half of such permits were delayed.³⁴

Length of Delays

According to IWR, the average Corps processing time for routine permits (permits to which agencies have not raised objections) has been reduced from 84 days in 1977 to 70 days in 1981.³⁵ As mentioned, another source estimated that average processing time for all permits except those requiring an EIS was 131 days.³⁶

By a great margin, permits take longest to process when EISs are required. Based on fragmentary data, IWR estimated that processing such permits takes an average of 815 days.³⁷ The percentage of all 404 permits that require an EIS, however, is very small, about 0.03 percent. Large-scale projects are affected disproportionately. If permits requiring EISs are not considered, the average length of time to process permits is much less.

The OTA survey asked associations to estimate how long, on average, it takes to receive a final decision on a permit. API reported that processing takes

an average of 131 days (median time, 106 days). Routine permits are processed in under 4 months; permits to which objections are made average over a year. These totals factor in permits for which EISs are required. For Alaskan oil and gas permits alone, according to GAO, the average permitting time was 150 days.³⁸ AMC found average processing time to be 8 months, with routine permits usually processed within 90 days and controversial permits taking an additional 5 or 6 months. FI did not provide an average figure, saying that application approvals take from 2 months to over 3 years. The three firms making up the AWO response reported that processing takes from 3 to 8 months, 4 to 7 months, and "at least" 12 months, respectively. Finally, the three firms making up the AAPA response reported that processing takes 4 to 9 months for routine permits, and several years for more controversial permits.

Sources of Delays

It is difficult to determine what percentages of delays are due to the various possible sources of delay. OMB focused on delays caused by elevation procedures and found that between March 24, 1980, and an unspecified date, there were 281 cases in which a district engineer proposed to issue a permit over the objection of another Federal agency. Seventy cases, or 25 percent of such cases (and about 0.6 percent of all 404-related permits processed), were elevated. Of these, the division engineer resolved 55 (about 79 percent), for an average delay time of 150 days. Five cases were resolved by the Office of the Chief of Engineers for an average delay time of 320 days. Five cases were resolved by the Assistant Secretary of the Army (Civil Works) for an average delay time of 650 days, and five cases were pending. (It is unclear if these delay times represent additional days over what is considered normal processing time [120 days], or whether they are total processing times.) The average delay for the 70 cases was 202 days. OMB also stated, without listing a source, that the threat of elevation flected an additional 1,700 cases, causing an average delay of 75 days. Of the 70 cases in which permits were elevated as described by OMB, requests for elevation were made in 50 days

³⁴General Accounting Office (Tech. Note No.9), p.28.

³⁵Institute for Water Resources, p. 39.

³⁶National Wildlife Federation, op. cit.

³⁷Institute for Water Resources, op.cit.

³⁸General Accounting Office (Tech. Note No.9).

by FWS, 36 by NMFS, and 16 by EPA (elevation requests are sometimes made by more than one agency).

It has been argued, however, that these agencies have steadily reduced processing delays and only rarely elevate permits. According to FWS statistics for the period July 1 to December 31, 1980, average processing time was 17.2 days for routine permits and 22.5 days for all permits. FWS requested the elevation of 42 out of the 6,376 received 404 and 10/404 public notices, about 0.7 percent. Of these, resolutions in the permit applicant's favor were made in 15 cases; in FWS' favor, in 2 cases; and a compromise was made in 25 cases. Of the four cases elevated as high as the Washington level, two resolutions were made in the applicant's favor, with two compromises.³⁹ In the NMFS Southeast region, which handles about half the NMFS 404 workload, 97 percent of the 5,240 permits reviewed were handled within 30 days in 1980.⁴⁰

According to IWR, elevation requests and handling by Federal agencies are not the only, or even the primary, source of delays. In order of importance, the following sources of delay were mentioned by Corps districts in response to the RIA questionnaire:

Applicant Behavior

Many permit applicants fail to provide sufficient information on applications, leading to requests for additional information by Federal agencies and delay for the applicant. One possible reason for this problem, suggests IWR, is that application requirements are complicated and beyond the capability of many applicants.

State Water Quality Certification

As mentioned, section 401 of CWA requires all 404 applicants to obtain a certification or permit from the State in which the discharge of a pollutant may take place to the effect that the discharge will comply with applicable State standards. States are given a period not to exceed 1 year to make a decision on whether to give such certification, after which this requirement is considered to be

waived. In the absence of 401 certification, a 404 permit will not be granted by the Corps. A number of States use 401 requirements as a way of gaining concessions from permit applicants without having to establish explicitly a separate wetland-protection program.

Manpower

Corps district personnel responsible for processing applications are unable to keep pace with the number of permit applications received. Manpower was not expanded when the Corps expanded its activities from phase I to phase II and III waters.

FWS Comments

Although FWS actually elevates relatively few permits, it has exercised considerable influence by threatening to elevate permits unless applicants implement changes in their applications. To avoid the greater delay of elevation, applicants accept the lesser delays entailed in revising applications to meet FWS concerns.

Other sources of delay were not judged by Corps districts to be nearly as significant as the above four causes.⁴¹

The relative importance of these sources of delay varies with the Corps district, State, and project involved. For example, in most cases, State certifications become factors in delay only when projects are controversial, large in size, or otherwise difficult or complex to evaluate. Many States say that delays come from poor applications and poorly planned projects: time is taken to assist applicants in resubmitting or even redesigning applications and projects. Most States responding to the OTA State survey claimed that they process routine 401 and 404 permit applications and applications for State permits within 2 months, with more major applications taking longer (6 months, or in exceptional cases, even years). While there are few data on the proportion of projects that are delayed by

³⁹U. S. Fish and Wildlife Service, "Fact Package," Feb. 26, 1982.

⁴⁰Natural Resources Council of America, "Statement on 404," Mar. 5, 1982.

⁴¹Ibid., pp. 180-183. Corps delays in issuing public notices in Alaska were ascribed by GAO to Corps manpower problems. Rather than the 15-day period mandated, the Alaska district averaged 21 days, with two-thirds of the notices late in issuance in fiscal year 1981 (down from 28 days and 71 percent delayed in 1980). GAO made a similar finding in 1980 for three other Corps districts. GAO (Tech. Note No. 9), p. 30.

State processing, several States said that only a small percentage are delayed (e. g., Massachusetts stated that 90 percent of its projects are processed within 2 months).

Estimates of Delay Costs

Very little information is available bearing on the monetary costs of permit processing delays. OMB, evidently using the IWR analysis, put such costs at "over \$1.5 billion."⁴² The IWR estimated delay costs, including opportunity costs due to delay, to total \$1.7 billion. The extremely complicated formula used by IWR to calculate delay costs entailed many assumptions for which no basis was provided. Some data that went into the calculation almost certainly were inaccurate. For these reasons, the IWR estimate is of uncertain reliability (15).

Only one industry association made a specific monetary estimate of delay costs: FI put the range of such costs at \$17,000 to \$2.2 million. The \$2.2 million estimate was based mostly on opportunity

costs: according to one firm, delay made it necessary to cancel a mining project, thereby negating previous sums spent on environmental studies and foregoing the value of the resource. Individual accounts of increased costs from delays are frequent. One application in Alaska by an oil company to construct a drilling mud pit took 225 days to process, mostly as a result of repeated extensions granted to an Alaskan State agency. The company involved claimed that project costs more than doubled, mostly because construction was moved from summer to winter.⁴³ Two other estimates from the petroleum industry also indicate substantial costs: API stated that 55 permit delays in southern Louisiana cost firms \$19 million (with "lost or deferred production" totaling 428,000 barrels of oil and 14.9 billion cubic feet of gas as a result).⁴⁴ Another industry study claimed that 57 out of 89 oil- and gas-related permit applications experienced delay-related economic losses.⁴⁵

⁴³General Accounting Office (Tech. Note No.9).

⁴⁴Ibid.

⁴⁵Mid-Continent Oil and Gas Association, 1979, quoted in Institute for Water Resources, op. cit., p. 175.

⁴²Office of Management and Budget, op.cit

OPPORTUNITY COSTS

Opportunity costs are created when the permitting process denies applicants the use of capital, labor, and machinery that could otherwise produce an investment return. For example, modifications to projects that require additional outlays by the applicant may create opportunity costs, assuming that the funds going into modifications could be used in other ways that would generate more revenue than that produced by the modification. Similarly, delays could mean that investments sunk in project planning and kept in reserve for project implementation remain idle rather than produce revenue when expected. In some cases, delay produces opportunity costs when the opportunity to exploit a resource is withdrawn, owing to delay (e. g., if time-based leasing arrangements are not fulfilled). Even normal processing of permits produces opportunity costs in time and money that conceivably could be used elsewhere to produce a greater return.

Denials and withdrawals of permits presumably create opportunity costs greater than those of normal processing, as no return is realized from the resources spent on such permit applications. Opportunity costs in terms of the value of lost raw materials also are created when permit denials prevent a resource from being exploited if an alternate plan of resource extraction subsequently cannot be worked out.

An even more speculative category of opportunity costs is costs related to planned projects that never were submitted as permit applications out of fear, perhaps based on meetings with Federal officials, that they would be denied or modified in a way unacceptable to the applicant.

Opportunity costs are the most difficult of all the costs listed to estimate. It is possible to approximate roughly the number and proportion of projects sub-

ject to such costs beyond the opportunity costs associated with normal processing. In fiscal year 1981, 291 permits were denied to section 404 and 10/404 projects, about 2.7 percent of total permits processed. About 14 percent, or 1,545 permits, were withdrawn. As stated in the IWR report, not all withdrawals can be attributed to the regulatory program. Other factors, such as changed economic conditions, can cause applicants to change their plans. However, the majority of withdrawals probably stem from difficulties encountered in the course of agency review of permit applications. As discussed earlier, roughly one-third of issued permits are modified substantially; about the same percentage are delayed. Some overlap probably exists in these last two categories. It also is likely that of permits not issued, some proportion were in processing for over 120 days; however, no estimate is available of what this figure might be. At minimum, the percentage of delays/modifications, withdrawals, and denials can be added together, resulting in a figure of at least half of all permits that experience opportunity costs beyond those associated with routine processing.

A large part of the problem in estimating opportunity costs is the difficulty of getting objective information. Investments are not necessarily idle, even if "sunk" in a project. For example, machinery may be contracted out to other firms. In some industries, some periods of the year normally are slack, and permit delays cannot justly be regarded as the source of idle labor and machinery. However, few 404 program critics volunteer such information. To give a more common example of

the difficulty in making estimates, modifications of permits often require changing the timing of a planned activity so that it will have less impact on various wetland species of animals (e. g., not performing the activity during spawning season). Delays also will affect project timing. The cost of the impact depends on the extent to which the applicant already has committed resources to the time originally asked for in the permit. This will only be known to the permittee. According to Corps personnel, consultations before permits are submitted will make it known to prospective applicants what generally can be expected; hence, to commit large amounts of time and money in advance to a project before submitting an application is not prudent, and delay costs, if they occur, thus are not entirely due to Corps actions.

Few estimates of opportunity costs were given by associations. According to FI, the value of 33.5 million tons of phosphate rock underlying 2,862 acres not approved for mining in permit applications from 1975 to the fall of 1982 totaled between \$804 million and \$838 million per ton at 1982 prices. The IWR's estimate of opportunity costs—apparently including only such costs that are related to modifications—was \$409 million, with median costs of \$13,523 for commercial projects, \$8,000 for government, and \$263 for individuals.⁴⁶ As with other IWR estimates, these figures suffer from more or less serious methodological difficulties (16).

⁴⁶Institute for Water Resources, *op. cit.*, p. 174. See pp. 153-157 for methodology.

DISTRIBUTION OF COSTS

As highlighted by IWR, the manner in which the costs of a regulatory program are distributed across different sectors of society is of interest. Respondents to the RIA were fairly consistent in their classification of those sectors of industry and society that they rated as being negatively affected. The great majority of responses rated residential development, small business, the manufacturing industry, and the mining industry as suffering adverse impacts from the Corps regulatory program. Oil

and gas development was highlighted specifically by several respondents. Somewhat less but still large majorities also saw negative impacts occurring in the 'business-commercial-industrial sector' and in the construction industry.⁴⁷

⁴⁷Institute for Water Resources, *op. cit.*, p. 175. "Transportation Utilities" were also rated by IWR as being negatively affected; however, responses to the RIA questionnaire were divided almost evenly.

Some costs are borne by taxpayers. IWR estimated that the regulatory functions program of the Corps had a budget of \$41 million in 1980. IWR accepted an estimate that other agency support totaled one-fourth of the Corps' effort, an additional \$10.25 million. These figures may be high, as they encompass activities outside of 404 administration. On the other hand, the budget maybe understated. For example, Corps employees from branches other

than regulatory may work part time on permitting matters but are not counted as regulatory branch employees. It is difficult to get exact estimates, because the Corps districts apparently do not keep separate records for 404 expenditures. The fiscal year 1982 Corps budget for 404 and section IV was approximately \$50 million, with 800 people on the regulatory staff nationwide.

CHAPTER 7 TECHNICAL NOTES

1. Much of the quantitative information presented in the IWR report is of questionable quality. Where this information is used in this report, the limitations of the data are examined. In many cases better data were available or collected for this study. For example, the IWR report is quoted often as evidence that the 404 program is responsible for 'saving' about 300,000 acres of wetlands that otherwise would be developed if the 404 program did not exist. However, it is unclear how this IWR estimate was made. Since the Corps now is regulating those activities that were responsible for the conversion of about 175,000 acres of wetlands per year between the mid- 1950's and the mid- 1970's, it is highly unlikely that the 404 program could be saving almost twice this acreage, even if all permits were denied. In fact, data recently collected from all Corps districts and presented in this chapter suggest that this IWR estimate is about six times too high.
 2. Activities also may be altered to fall under nationwide permits or exemptions, with benefits to applicants but with less clear benefits in terms of wetland protection.
 3. Many districts did not separate estimates on a yearly basis, instead giving totals for 1980 to mid-1982. These were divided by 2.5 to derive a yearly figure.
 4. OTA mailed surveys to 20 industry associations. The following associations provided responses: American Association of Port Authorities (AAPA), American Farm Bureau Federation (AFB), American Mining Congress (AMC), American Petroleum Institute (API), American Paper Institute/National Forest Products Association (API/NFPA), American Public Power Association (APPA), American Waterways Operators, Inc. (AWO), The Fertilizer Institute (FI), National Cattlemen's Association (NCA), National Association of Conservation Districts (NACD), and National Association of Home Builders (NAHB). Not every association answered every survey question.
 5. Sectors considered were: business-commercial-industrial, agricultural, fishing, mining, construction, manufacturing, transportation utilities, wholesale trade and retail trade, residential development, land values adjacent to permit areas, small businesses, general public, private individuals, government, and public serv.
 6. The IWR report said that wholesale and retail trade also benefited. However, OTA's examination of RIA responses shows that a slight majority of districts believed that this sector was negatively affected by the program.
 7. In its unpublished and quickly prepared report, the IWR used what in effect were educated guesses by Corps personnel to calculate savings to applicants. These percentages were applied to the number of permits *processed* (18,939 in 1980) rather than the number of permits issued (16,286)—a 16-percent difference (the number of sec. 404 and sec. 10/404 issued permits was 8,013; the remainder were sec. 10 permits). It is possible that permit applications denied or withdrawn experienced similar amounts of benefits as those submitted. For example, as a result of discussions with agencies, projects could be reconfigured to fall under general permits or be conducted on nonwetland areas with savings over original plans. On the other hand, it is likely that at least some applications were withdrawn, owing to the expense of complying with potential requirements, and that alternate projects were not initiated or were more expensive than those originally envisioned.
- Site development costs were assumed to be 25 percent of the total costs of projects; no rationale was given for this percentage. Further, no basis was given for the figure of total costs (\$217,619 million) of projects. Even if these estimates were accepted, IWR calculations of benefits almost certainly are overstated, due to two factors:
1. Large projects represent an overwhelming share of the total costs of projects (in the first IWR draft, 20 percent of applications were said to account for 95 percent of economic impact [1 -7]), yet these are the least likely to benefit from technology transfer. It is likely that large firms planning large projects already will have discovered the least expensive way (though not necessarily the least environmentally damaging way) to develop such projects without benefit of Federal advice,
 2. According to the IWR, report itself, at least some sectors are negatively affected by the program. Based on responses to the RIA questionnaire, these sectors include the business-commercial-industrial sector, the mining, construction, and manufacturing industries,

residential development, and small business. These sectors clearly encompass a large share of the total project cost figure given by IWR, yet logically should not be included in a calculation of benefits.

Last, the rationale for the amortization factor is not explained. If annual benefits are amortized so that only a small proportion is calculated to appear yearly, the total yearly benefits of the program would consist logically of not only the amortized figure for that particular year, but also the amortized benefits from *previous* years. This is not shown in the IWR estimate. The flaws in the IWR estimate are brought out more clearly when the amortization factor is eliminated. Accepting the IWRs figures without amortization, the annual benefits of technology transfer would be from \$1.2 billion to \$2.4 billion.

8. "In the case of 'Madrona Marsh' in Torrance, California, the Army Corps asserted jurisdiction over the area on February 27, 1980. The area known as the 'marsh' is located approximately two and one-half miles east of the Pacific Ocean and 15 miles southwest of the Los Angeles City Civic Center in a heavily developed commercial area of the City of Torrance. The 'marsh' is not a natural phenomenon, and in fact, did not exist until the late 1960's when it was 'built' as a sump by the City of Torrance to solve a localized drainage problem. In 1981, a petition for withdrawal of claim of jurisdiction was filed with the Army Corps. Jurisdiction was subsequently withdrawn, but in February of 1982, the Army Corps decided to review the decision of the district engineer withdrawing jurisdiction. It has been over two years since jurisdiction was originally asserted, yet under the current regulations and jurisdictional memorandum of understanding, there has been no final determination by the Army Corps." Pacific Legal Foundation, *op. cit.*, p. 17. See also Washington Legal Foundation, *op. cit.*, pp. 2-3.
9. One industry response (API/NFPA) stated that in some cases, permit reviewers required modifications to enhance wildlife habitat even though the requested modifications were not related to the habitat impact of the project concerned. This type of problem was said to be declining. In Alaska, some permits prohibit drilling except during winter, require that pipelines reach certain heights at animal crossings, and require that impermeable waste disposal pits be constructed. These stipulations are termed controversial by a GAO report because they are costly and their effectiveness has not been established. Often, stipulations requested by other Federal agencies are accepted routinely by the Corps. For Alaskan oil and gas permits, GAO found that 40 percent lacked "site-specific support" from February 1980 to September 1981. (GAO, "Developing Alaska's Energy Resources: Actions Needed to Stimulate Research and Improve Wetlands Permit Processing," June 17, 1982.)

Some Corps districts feel that other Federal agencies act unreasonably. For example, the Charleston district stated in its response to OTA's questionnaire: "This District frequently sees applicants deferring in the interests of more expedient application processing to somewhat questionable project modification imposed as conditions of 'no objection' by Federal environmental agencies. Many

of these modifications serve no useful purpose and act to increase project costs needlessly.

The Corps' Pittsburgh District responded: "When dealing with the Fish and Wildlife Service and the Environmental Protection Agency, all wetlands are determined to be of the highest quality and any application for filling wetlands, regardless of true quality, brings a recommendation for denial."

10. As with stipulations, GAO found that extensions of time to Federal and State agencies to comment on permits often were allowed by the Corps without sufficient documentation of the need for such extensions by the requesting agencies. Lack of documentation greatly decreased, however, after March 1980 Memoranda of Agreement (MOA) were signed between the Corps and other involved Federal agencies. Problems continue with State agencies. Further restrictions on reviewing times were contained in 1982 MOAs.
11. To give several examples of problems with IWR calculations:

The IWR gave average costs to applicants for routine permits (those taking under 120 days to process) as \$250. No basis was given for this figure, which is not even the midpoint between \$100 and \$500, the range given by IWR for fees charged by firms assisting permit applicants.

To estimate total costs, IWR multiplied \$250 by the number of permits estimated as taking 120 days or less to process. For permits taking over 120 days, IWR listed the average processing time for permits not requiring an EIS as 251 days and for permits requiring an EIS as 815 days. To calculate additional processing costs for these cases, IWR multiplied \$250 by 2 and 7 to arrive at \$500 and \$1,750, respectively. Apart from the questionable validity of including EIS costs and the problems of using the \$250 figure, no evidence was presented justifying the estimates of average processing time. Estimates evidently were based on a question on the RIA questionnaire that asked each Corps office to describe three permit cases, which would produce a nonrandom sample of small size (114 examples) when compared to the thousands of permits in various categories (e. g., total issued, total delayed, total processed).

Even if IWR assumptions are accepted, the calculations of total cost and of average processing costs to applicants presented by IWR appear to be incorrect. IWR did not present an explanation of how estimates were made. Using IWR figures of average cost and RIA questionnaire figures on numbers of permits handled in various categories (which also were used by IWR), OTA arrived at different estimates. For example, IWR gave a figure of \$4.8 million for the cost borne by all applicants for routine permits. The RIA questionnaire listed a total of 10,688 permits falling in this category, an amount which multiplied by \$250 totals \$2.67 million.

12. In response to a question on the OTA survey on how often modifications are required, only 1 association made a numerical estimate: FI said that 7 out of 14 projects had modifications requested of them. Nine out of seventeen projects incorporated modifications in anticipation of agency objections.

13. American Petroleum Institute representative before NACOOA meeting, December 1981. Some industry association staffers also have suggested that the time at which the permit process can be said to begin should be pushed back to the preapplication consultation stage, not so much to include this time in statutory limits on processing, but to give a better sense of the total length of time spent by industries in processing.

14. As far as overall percentages are concerned, the inclusion or exclusion of EIS permits makes an insignificant difference as so few EISs are required by the Corps: 47 in fiscal year 1980, including non-404 permits.

IWR estimates of the percentage of permits delayed were 36.3, 24.7, and 29.8 percent, respectively, for commercial, private, and governmental permits. However, these estimates are inaccurate, even if RIA figures on which IWR based its estimates are correct. IWR used the total number of permits, including denials and withdrawals, in its percentages, but the RIA survey only calculated the number of issued permits that were delayed.

15. The IWR did not write down the calculations it performed to arrive at its estimate; therefore, it is impossible to validate the figure of \$1.6 billion. Many unproven assumptions were employed (e. g., projects costing \$50 million and under were postulated to take 1 year to complete and be one-third complete at 120 days; projects over \$50 million were to take twice as long). Heavy reliance was placed on the small, nonrandom sample of 114 cases described earlier (footnote 13), e.g., to derive median cost figures.

Problems with the IWR methodology are exemplified in the use of one key piece of data. To determine the costs of projects subject to delay and to apply calculations of delay costs for different types of projects, IWR employed an RIA table giving percentages of how many projects fall into different categories of dollar cost (e. g., it was estimated that 46 percent of all projects are under \$25,000; 17 percent from \$25,000 to \$100,000). This table may be inaccurate. It was based on estimates from Corps personnel from each district who were not asked to supply hard data justifying estimates. The question generating the table was worded such that respondents were asked to estimate projects according to their "potential economic impacts on

your region and/or nation,' a far different basis than project cost alone. In addition, each district was treated equally for the purpose of calculating mean percentages for each category. However, as detailed earlier, districts are far from equal in the number of permits they handle. This disparity would not be serious if districts had responded in similar ways to this question. However, districts had widely varying estimates. For example, for the first category of project value, very few districts gave an estimate close to the 46-percent figure used by IWR; many gave estimates of over 75 percent or under 20 percent. Compounding the problems of using this table, IWR divided the cost categories of the table into commercial, individual, and government permits, although the RIA data gave no basis for doing so. (See IWR pp. 161-166 and RIA.)

16. It is very difficult to follow the methodology IWR used in calculating opportunity costs. Evidently, estimates of the cost of modifications, the amount of yardage of fill denied by districts, and increased costs in placement of fill were factored into IWR calculations. Some IWR assumptions on these items are questionable. As discussed earlier, IWR assumed, without a justification given, that the cost of modifications equals the amount of benefits from technology transfer (see footnote 4). IWR estimated that an average of 4 million yd³ of fill are requested annually by applicants in each district and that reductions of 33 percent of this figure are achieved by each district. The 33-percent figure, while higher than the average of estimates given by districts to OTA, is not unreasonable. However, the figure of 4 million yd³ is extremely high. Of the nine districts giving figures to the OTA Corps survey of cubic yardage of fill requested and approved—in five cases, listing totals for 1980-82 year to date, and in at least one case, combining dredged with fill material—only one district estimated that as much as 4 million yd³ was requested. The average amount requested per district was 1.5 million yd³. Rather than eliminating 1.32 million yd³, as can be derived from the IWR figures (33 percent of 4 million), all but one of the districts giving yardage figures estimated that they removed 500,000 yd³ or less. This indicates that IWR estimates of opportunity costs may be high.