Assessment of the North Carolina Wildlife Resources Commission Environmental Permit Review Program

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Abstract: The North Carolina Wildlife Resources Commission (NCWRC) Environmental Permit Review Program was evaluated. The objective was to classify and compare a sample of environmental permit reviews conducted in 1989 with permit disposition. A secondary objective was to assess the degree of incorporation of conditions attached to permits recommended by NCWRC personnel for approval with modification. One hundred and ten permit applications were reviewed. State and federal regulatory agencies, with few exceptions, denied fewer permit applications than were recommended for denial by the NCWRC. Survey data indicate 72% of NCWRC recommended conditions for avoiding, minimizing, or compensating for impacts to wetland areas are incorporated into permits.

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The North Carolina Wildlife Resources Commission (NCWRC) is responsible for the protection, enhancement, and conservation of fishery and wildlife resources within North Carolina (G.S. 113-132), but has little jurisdiction over activities that impact their habitats. Mandated by various state (Mining Act, 1971; the North Carolina Environmental Policy Act, 1971; Coastal Area Management Act (CAMA), 1974) and federal (Fish and Wildlife Coordination Act, 1934; National Environmental Policy Act, 1969; Clean Water Act, 1977) laws, the NCWRC is responsible for providing a comprehensive review of development projects which have the potential to adversely affect the state's fishery and wildlife resources and associated habitats. State and federal regulatory agencies administering these statutes are required by law to consult with the NCWRC before issuing permits for proposed development projects.

Wetlands, which include streams, rivers, ponds, lakes, wooded swamps, marshes, bogs, and pocosins, are important to a variety of aquatic, terrestrial, and

avian wildlife, including threatened and endangered plant and animal species. They provide nesting and feeding areas, serve as key travel corridors, and store floodwaters. Wetlands also function as a buffer between surface waters and adjacent uplands and serve to filter sediment and other pollutants associated with runoff. Wetlands and riparian areas are especially important in urban and developing areas as they often represent vestigial wildlife habitat. NCWRC habitat protection policies are detailed in Policies and Guidelines for Conservation of Wetlands and Aquatic Habitats (NCWRC 1988). A recent report by the U.S. Fish and Wildlife Service (Dahl 1990) revealed North Carolina has lost 2.2 million ha (5.4 million acres), or about half, of its historic wetlands to development and ranks 23rd nationally in wetland acreage destroyed. It is therefore imperative the remaining wetlands be protected.

Increased construction of second family homes, golf courses, marinas, shopping centers, coastal resorts, highways, and bridge replacements has occurred throughout the state and has resulted in further destruction of wetlands. Construction has also increased the number of projects which must be reviewed before state or federal permits are issued.

NCWRC personnel are responsible for reviewing environmental permit applications, making on-site inspections when necessary, assessing potential impacts associated with the proposed development project, and providing recommendations to regulatory agencies. Personnel within the NCWRC's Divisions of Boating and Inland Fisheries (DBIF) and Wildlife Management (DWM) spent over 1,000 man-days in 1989 reviewing, investigating, and providing comments on 470 environmental permit applications. The effectiveness of the NCWRC's permit review program has not been evaluated. There is no state or federal regulatory agency responsible for compiling information about the final disposition of these permit applications versus NCWRC recommendations for approval, modification, or denial.

This project was initiated to assess the effectiveness of the NCWRC's Environmental Permit Review Program. The objectives were to classify and compare a sample of NCWRC environmental permit reviews with their final permit disposition and determine if modifications recommended by the NCWRC were incorporated into the issued permits

Methods

DBIF personnel classified 470 environmental permit applications reviewed by agency personnel from 1 January 1989 through 31 December 1989. Applications were classified according to permit type: CAMA Major, State Dredge and Fill/CAMA Major, Mining, Section 404 Public Notice, Section 201 Wastewater Treatment Plant, Federal Energy Regulatory Commission (FERC -Hydroelectric Plants), and Section 404 Public Notice/Trout Exclusion.

A trial review of several applications revealed some permit categories could not be evaluated because they involved permits which take several years to obtain

Table 1. Environmental permit review database: number of permit applications in 1989 by permit type and sample allocation.

Permit type (stratum)	*N* applications	*N* with no objections/ no comments	*N* with objections comments	(*N*)[a]
CAMA Major	106	65	41	25
State Dredge and Fill/CAMA Major	133	52	81	25
Mining	45	2	43	20
404 Public Notice	115	22	93	40
Total	399	141	258	110

[a] *N* = actual sample size for this study.

and final disposition had not yet been determined. These included (1) the Section 201 Wastewater Treatment Plant permits, and (2) FERC - Hydroelectric Plant licensing permits. These permit categories were not included in the study. In addition, permit applications that received no comment or objection by agency personnel were not reviewed.

A random sampling design, stratified by permit type, was used. Proportional allocation of 110 applications over the 4 permit strata was made to provide a minimum of 20 applications within each permit type. Forty applications were chosen for the largest stratum (404 Public Notice) and 20 each from the other 3 strata. Ten additional denied permits, omitted from the original database, were also reviewed and included 5 CAMA Major and 5 State Dredge and Fill/CAMA Major permit applications. Table 1 lists the distribution of applications in the database and sample size allocation by permit type.

NCWRC personnel recommendations for permit disposition were determined by reviewing and categorizing the field investigation form as: approve (no conditions attached), approved with modifications (conditions attached), or deny. Final permit disposition, as determined by the regulatory agency, was also assigned to 1 of the above categories. A Chi-square goodness-of-fit test (Sokal and Rohlf 1981) was employed to test for significant differences between NCWRC permit recommendations (expected frequencies) and final permit disposition (observed frequencies). All significance testing was conducted at $\alpha = 0.05$.

Results

CAMA Major Permits

Of the 25 CAMA Major permit applications reviewed, 20 were issued permits by the Division of Coastal Management (DCM) and 5 were denied. NCWRC personnel had recommended approval with modification for 13 permits and denial for 12 (Table 2). Two of the 12 recommended for denial were approved unconditionally (no conditions attached), 6 were approved with conditions attached, and 4 were denied out-right. Also, 1 of the applications recommended for approval with

Table 2. CAMA Major Permit Applications: NCWRC recommendation versus final permit resolution.

	NCWRC recommendation		Final permit resolution	
	N	%	*N*	%
Approve	0	0	2	8
Approve with modification	13	52	18	72
Deny	12	48	5	20
Total	25	100	25	100

modification was denied out-right. Overall, 64% of the CAMA Major permit applications were resolved as recommended, 32% were issued contrary to NCWRC recommendations, and 4% were denied contrary to NCWRC recommendations (Table 2). NCWRC personnel had attached a total of 32 conditions to the permits and 20 (63%) were incorporated into the final permits.

The DCM issued a significantly higher ($P < 0.05$) number of CAMA Major permits than had been recommended for approval or approval with modification by NCWRC personnel and there were significantly fewer ($P < 0.05$) CAMA Major permits denied by the DCM than had been recommended for denial by NCWRC personnel. About 63% of the conditions recommended by NCWRC personnel were incorporated into the final permits regardless of whether the NCWRC initially recommended approval or denial.

State Dredge and Fill/CAMA Major Permits

Twenty of the 25 State Dredge and Fill/CAMA Major permit applications reviewed were issued permits and 5 were denied by the DCM. NCWRC personnel had recommended 1 be approved unconditionally, 17 be approved with modifications, and 7 be denied (Table 3). Two of the permits which had been recommended for approval with modifications were denied while 4 which were recommended for

Table 3. State Dredge and Fill/CAMA Major Permit Applications: NCWRC recommendation versus final permit resolution

	NCWRC recommendation		Final permit resolution	
	N	%	*N*	%
Approve	1	4	5	20
Approve with modification	17	68	15	60
Deny	7	28	5	20
Total	25	100	25	100

denial were approved unconditionally. Seventy-six percent of the State Dredge and Fill/CAMA Major permit applications were resolved as recommended, 16% were issued contrary to recommendations, and 8% were denied contrary to recommendations (Table 2). A total of 33 conditions were attached to the permit applications recommended for approval with modifications and 20 (61%) were incorporated into the final permits.

The difference in the number of State Dredge and Fill/CAMA Major applications issued by the DCM was significantly higher ($P < 0.05$) than NCWRC recommendations for approval or approval with modifications. Also, there were significantly fewer ($P < 0.05$) State Dredge and Fill/CAMA Major applications denied contrary to NCWRC recommendations for denial.

Mining

Of the 20 mining applications reviewed, 13 were issued permits by the Division of Land Resources (DLR) and 7 were denied. NCWRC personnel had recommended 3 for approval, 11 for approval with modifications, and 6 for denial (Table 4). The DLR approved 90% of the mining permit applications as recommended, 5% were denied contrary to a recommendation of approval with modification, and 5% of the applications were approved contrary to NCWRC recommendations for approval with modification (Table 2). NCWRC personnel attached 37 conditions to their recommendations for approval with modification and 24 (65%) were included in the final permits. Of the 6 mining applications recommended for denial, all were denied permits by the DLR. Three mining applications were approved unconditionally, as recommended, 1 of which had 1 condition attached which was not incorporated into the final permit.

There were no significant differences ($P > 0.05$) between the number of mining applications issued or denied by the DLR and those recommended for approval or approval with modifications and denial by NCWRC personnel.

Section 404 Public Notice

Of the 40 Section 404 Public Notice permit applications reviewed, 26 were

Table 4. Mining Permit Applications: NCWRC recommendation versus final permit resolution

	NCWRC recommendation		Final permit resolution	
	N	%	*N*	%
Approve	3	15	4	20
Approve with modification	11	55	9	45
Deny	6	30	7	35
Total	20	100	20	100

Table 5. 404 Public Notice Permit Applications: NCWRC recommendation versus final permit resolution

	NCWRC recommendation		Final permit resolution	
	N	%	*N*	%
Approve	3	7	12	30
Approve with modification	17	43	14	35
Deny	20	50	14	35
Total	40	100	40	100

issued permits by the U.S. Army Corps of Engineers (COE), and 14 were denied. NCWRC personnel had recommended 3 for approval (no conditions attached), 17 for approval with modification (40 conditions attached), and 20 for denial (Table 5). Seventy-three percent of all 404 Public Notice applications reviewed were approved as recommended, 20% were approved contrary to a recommendation for denial, 5% were approved contrary to a recommendation for approval with modification, and 2% were denied contrary to a recommendation for approval with modification (Table 2). Ninety-four percent of the applications recommended for approval with modification were issued permits by the COE and 65% contained conditions recommended by NCWRC personnel. Twelve of the 20 applications for a 404 permit recommended for denial were denied permits by the COE.

The COE issued a significantly higher ($P < 0.05$) number of 404 Public Notice permits than had been recommended for approval or approval with modification by NCWRC personnel and there were significantly fewer ($P < 0.05$) 404 Public Notice permits denied by the COE than had been recommended for denial by NCWRC personnel.

Discussion

Survey results indicate state and federal regulatory agencies use NCWRC's comments and recommendations most of the time during the permit review process. However, state and federal regulatory agencies denied fewer permits than were recommended for denial by NCWRC personnel. The DCM denied only 20% of the CAMA Major and State Dredge and Fill/CAMA Major permit applications even though NCWRC personnel recommended 48% and 28% of the applications, respectively, be denied. The COE denied 60% of the Public Notices that had been recommended for denial by NCWRC personnel. The DLR was the lone exception, denying all mining permit applications recommended for denial by NCWRC personnel plus an additional 5%, which had initially been recommended for approval or approval with modifications.

One explanation why state and federal regulatory agencies override NCWRC recommendations for permit denial may be that the permitting agency inadequately

described the project, resulting in confusion or misunderstanding on the NCWRC's part concerning the scope or intent of the proposed development project. This often happens because the projects undergo extensive revision during the course of the permitting process and any proposed changes to the original project may not be well documented or may get lost in the lengthy paper trail that accompanies the review process.

Another explanation for overriding NCWRC recommendations for permit denial may be that denial is not justified or warranted according to criteria used by these agencies in determining final permit disposition. According to John Parker, Jr., chief of the Major Permits Processing Section for the DCM (pers. commun., DCM), State Statute 15 NCAC 07H-.0601 prohibits the issuance or denial of a permit by his agency when other state "rules" (as described under Chapter 7, Subchapter 7A, of the North Carolina Administrative Code (NCAC) for Coastal Management) may be violated. For example, his agency will not challenge a National Pollutant Discharge Elimination System permit (NPDES) issued by the Division of Environmental Management (DEM). This means that if NCWRC personnel recommend denial for a particular CAMA permit because of inconsistencies with its Policies and Guidelines for Conservation of Wetlands and Aquatic Habitats, but DEM has already issued a NPDES permit, then the applicant is almost assured of getting the CAMA permit. The same is also true with the State 401 water quality certification process.

Even though its Policies and Guidelines for Conservation of Wetlands and Aquatic Habitats has been officially adopted by the NCWRC for use by its personnel in the permit review process, the Guidelines do not constitute state "rules" used for determining final permit disposition. Therefore, to strengthen the NCWRC's comments and recommendations in the permit review process, the Policies and Guidelines manual, or portions thereof, would have to be attached to the NCAC, the state "rules" used by the DCM, DLR, and DEM in determining the final disposition of CAMA Major, State Dredge and Fill/CAMA Major, Mining permits, and any permits involved in the water quality certification process (DEM's 401 certification, NPDES, Section 201 wastewater treatment).

In addition, NCWRC personnel often qualify their recommendations for permit denial by stating, "the permit should be denied unless the following conditions for project modification are attached to the final permit." These conditions may be too restrictive and do not justify permit denial by the regulatory agency. In these cases, the regulatory agency reviews the entire environmental record for a given development project and looks for consistencies between review agency comments. Thus, the regulatory agency looks to see if other review agencies agree or disagree with the NCWRC concerning permit issuance or denial. Final permit disposition is, therefore, often a judgement call by the respective regulatory agencies and is based on how that particular agency interprets the state rules governing issuance of the permit for which it is responsible.

Finally, another possible explanation why state and federal regulatory agencies override NCWRC recommendations for permit denial may be that due to

budgetary and manpower constraints, they do not have the personnel or resources to adequately review all permit applications which come through their offices. Currently, there are only 2 people working in the NCWRC's Habitat Conservation Program. Even though these people are assisted by personnel in the DBIF and DWM, they are responsible for processing, reviewing, coordinating, investigating, and providing comments to the regulatory agencies on >1,000 permit applications each year. Therefore, the effectiveness within this 1 state agency can be greatly improved by hiring more personnel to assist with the continually increasing workload.

The survey data also indicate 72% of NCWRC recommended conditions are incorporated into issued permits. This is important because it emphasizes permit applications are modified by the regulatory agencies to avoid, minimize, or compensate for impacts to wetlands. An estimated higher rate of implementation of conditions was observed in permits issued contrary to a recommendation for denial than for permits recommended for approval with modification. Even though NCWRC personnel attached few or no conditions to permits they recommended for denial, the regulatory agency apparently attached conditions of their own to the issued permits. This might be due to greater caution by the regulatory agency in complying with conditions when overriding NCWRC recommendations. However, the difference in these rates was not statistically significant ($P > 0.05$).

Some of the more effective conditions which should be attached to permit applications recommended for approval with modification include: implementation of stringent erosion and sedimentation control devices before, during, and after construction to minimize water quality impacts; designating a specific construction window when the work can be performed, timed to avoid peak periods of biological activity; installation and maintenance of permanent light reflectors on structures with the potential for creating navigational hazards; bulkhead alignment landward of wetlands or no more than 5 feet waterward of existing shorelines; creation of in-kind habitat to compensate for unavoidable habitat loss; maintenance of 30.5-m buffer zones around large land clearing projects; and, preparation and implementation of an acceptable mitigation plan prior to initiation of construction.

It was discovered that Section 404 Public Notice/Trout Exclusion permit applications, even though handled in the same general manner as a standard 404 Public Notice (i.e., reviewed, inspected, comments provided), are not issued individual permits. For those 404 Trout Exclusion permit applications approved by the COE, the COE "grandfathers" the application to a "general" permit which was issued in September 1982 and revised in April 1989. They also attach a copy of the NCWRC's comments to the general permit and state that the work is "authorized by this general permit provided you comply with all permit conditions and the recommendations set forth by the Wildlife Resources Commission."

In summary, state and federal regulatory agencies are less restrictive concerning permit denial than the NCWRC. State and federal regulatory agencies are attaching about 75% of NCWRC recommended conditions for permit modification to issued permits.

Recommendations

Based on our survey, we make the following recommendations:

1. To strengthen its position in the permit review process, have the NCAC amended to incorporate the NCWRC's Policies and Guidelines for Conservation of Wetlands and Aquatic Habitats.

2. Encourage the NCWRC to expand the HCS and increase its staff.

3. Duplicate this study after recommendations 1 and 2 have been implemented to determine if the HCS effectiveness has improved.

4. Develop list of criteria used by regulatory agencies for evaluating the various permits.

5. Coordinate NCWRC recommendations on permit applications with other state review agencies.

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