DOCK AND PIER MANAGEMENT,
THE SOUTH CAROLINA EXPERIENCE

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Keywords: docks, piers, planning, cumulative impacts, management

INTRODUCTION
The South Carolina Office of Ocean and Coastal Resource Management (OCRM) has direct permitting authority in tidal wetlands. Since the inception of permitting regulations in 1977, OCRM has issued approximately 10,000 permits for private docks and piers as well as other water access structures such as boat ramps, community docks, and marinas. The number of dock applications has risen annually since 1992 and currently exceeds 900 per year. Coupled with other development pressures due to an increasing population, the proliferation of private dock structures is a cause of concern to OCRM, local governments, and various interest groups. As in other states, OCRM is wrestling with the private dock issue in a variety of ways including comprehensive project review, dock master planning, dock impact studies, and regulation revision.

PRIVATE DOCK ISSUES
Agency and citizen concerns over private docks are numerous. Docks have the potential to impede navigation and restrict public access to coastal resources. There is at least some evidence of adverse environmental impacts from shading of vegetation by dock structures, as well as leaching of wood treatment chemicals. The most vehement objections to private docks in South Carolina arise over two factors; aesthetic impacts and dock proliferation concerns. Since there is basically no public interest in private docks constructed in public trust waters, the South Carolina experience has been that private docks have become essentially a social problem rather than a purely scientific issue.

Navigation issues are among the easiest to resolve. During application review, site visits are made, often at low tide to determine the location of low water channels. As a general rule of thumb, dock extension is limited to ¼ of the creek’s width as measured from marsh grass to marsh grass. By regulation, boats moored at docks cannot impede navigation or restrict public access. What is a relatively simple issue in larger creeks becomes more complex in smaller creeks, particularly in those less than 20’ wide. OCRM generally requires pierhead structures to be placed over open water to minimize any shading impacts. However, a structure extension and any boat moored channelward of this structure will impede navigation in a narrow creek. This issue of docks in small tidal creeks is becoming a prime concern in this state and will be addressed in several areas of this abstract. In order to insure public access to coastal resources, OCRM does not allow small creeks to be “bridged” to gain access to larger creeks. This, however, leads us back to problems associated with docks in small creeks.
The purely environmental impacts of private docks are more difficult to quantify. The shading issue surfaces regularly in South Carolina and is often cited in opponent’s objections to applications. Most scientific studies on this subject focus on structure effects on submerged aquatic vegetation (SAV). South Carolina coastal marshes are predominantly *Spartina Alterniflora* systems; no SAV resources exist here. In our type of coastal environment, scientific studies of shading impacts are limited. Kearney, et.al. 1983, looked at vegetation changes along structures built in salt marsh. This study analyzed the correlation between dock height, width, and deck spacing and plant height and density for *Spartina alterniflora* and *patens*. This study concluded that structure height was an important variable. OCRM requires dock heights to be a minimum of 3’ above mean high water. Although walkway width does not appear to be as important a factor as height in minimizing shading impacts, OCRM restricts walkway width to a maximum of 4’. OCRM also employs current ADA guidelines for public water access structures in private dock permitting. These guidelines for insuring handicapped accessibility allow 5’ by 5’ turnaround areas every 200’ along walkway lengths. Another study, Colligan and Cori NMFS/NOAA in 1995, found statistically significant differences in plant height and density caused by pier shading. More study is needed on potential impacts of shading, particularly when viewed cumulatively.

In an OCRM sponsored study of the Charleston Harbor Project, Wendt et. al., SCDNR, analyzed contamination from wood treatment chemicals leaching into the marine environment. The study concludes, “wood preservatives leachates from dock pilings have no acutely toxic effects on four common estuarine species.” There is growing concern, however, over secondary impacts of dock structures, particularly in small tidal creeks. Docks obviously foster boat usage, and wave action from boats can cause erosion of marsh areas and shellfish beds. Prop wash also increases turbidity in small creeks. OCRM does not permit floating docks to rest on the bottom at normal low tide. This prohibition makes any fixed dock less conducive to boat moorage. There is also some evidence that flat bottom floating docks can cause erosion underneath floats and can alter sediment size thus changing bottom habitats (The Science & Management of Docks & Piers, Woods Hole Oceanographic Institute, 2000.)

We are now led to the “non-scientific” issue of aesthetics. OCRM has more appeals of issued dock permits over concerns of visual impacts than any other factor other than the difficult to quantify “too many docks” concern. The state Coastal Zone Management Act requires that we consider the effects any project has on the “use and enjoyment of adjacent property owners.” Many dock appeals boil down to the fact that neighbors simply do not want to look at other docks, despite the fact they may have their own dock. OCRM has taken some regulatory steps in an attempt to at least minimize visual impacts of docks. These steps include prohibiting roofs in all new developments and limiting any handrails to minimal structural members. Additionally, where Special Area Management Plans (SAMPS) exist that place a high priority on view sheds, OCRM has denied a number of applications.
ONGOING MANAGEMENT EFFORTS
OCRM is undertaking significant steps to better manage private dock matters since they are of such significant concern in South Carolina. Though not as a direct result of the dock issue, OCRM consolidated all agency regulatory functions, including tidal wetlands and land disturbance permitting, state and federal certification and compliance into one division. This enables us to perform better comprehensive impact reviews of major projects that require multiple approvals. This also puts OCRM into a position of being able to “negotiate” fewer total dock numbers in return for approval of, for example, smaller buffer widths around isolated wetlands.

As part of any current project submittal, developers are required to submit a dock master plan (DMP). This plan, performed along strict submittal guidelines, must be approved prior to any other site authorizations. In a DMP, developers must identify all waterfront properties with recoverable lot lines. Dock corridors, also in the form of recoverable lines, must be shown. Lots must have a minimum of 75’ of frontage both at the upland edge and at the water’s edge to be eligible for private docks. The submittal of a dock master plan aids in a cumulative impact review as the effects of total dock numbers can be evaluated not only within the subject development but also within the entire watershed. This plan can also be reviewed in light of approvals for developments within the same geographic area. As an implementation tool, OCRM requires these dock master plans to be recorded with the particular local government body and also requires that reference to this plan be given in all contracts for lot sales. This allows potential purchasers to make informed decisions and decide if they wish to build in an area where docks may be located. As additional incentive, developers may also obtain a blanket construction permit for all docks covered by master plans.

OCRM is also facilitating further studies of dock impacts. We are currently about halfway through a dock impact study funded by OCRM and conducted by the South Carolina Department of Natural Resources under the leadership of Dr. Fred Holland, Director of the Marine Resources Research Institute. The objectives of this study, to be completed sometime in 2001, are ambitious. Among other objectives, this study will obtain an estimate of total dock numbers and linear footages of structures using aerial photography. By using existing data from South Carolina estuarine habitats, this study will evaluate relationships between the size and number of docks and environmental conditions in tidal creeks. The environmental conditions will include watershed development, sediment chemistry, water quality, and ecological integrity. Dr. Holland’s study will also use public opinion surveys to compile more information. Lastly, the study will develop and evaluate approaches for assessing cumulative dock impacts on the marine environment. As part of the ongoing Beaufort County SAMP, OCRM has contracted to have a boating management study performed for Beaufort County. Although this study is aimed primarily at cataloging and planning water access facilities, this study will also look at boating impact concerns, such as wake-induced erosion and shellfish bed damages.
OCRM is in the midst of major regulatory changes relative to dock permitting. One major change will be to require the use of joint use and community docks. In the dock master plan stage, developers must eliminate up to 1/3 of the docks on lots that would normally qualify for private use structures and substitute community use structures for water access. These new regulations will also prohibit any type of dock structure in creeks measuring less than 20’ wide as well as limit private docks to an overall length not to exceed 500’. This represents a significant reduction from the current 1,000’ limit. These measures represent an attempt to reduce overall dock proliferation in coastal South Carolina. These new regulations will be forwarded to the South Carolina General Assembly in April 2001, hopefully for approval.

CONTINUING PROBLEMS
A thorough understanding of cumulative private dock impacts continues to be an elusive goal, not only for South Carolina but for other coastal states as well. Most of us coastal managers are adept at describing the problem, but fail at quantifying the cumulative impacts. As an example, the previously mentioned Charleston Harbor Study contained “The Tidal Creek Project” as one component. This study, performed by the South Carolina Marine Resources Research Institute and the National Marine Fisheries Service, attempted to identify the connection between activities on tidal creek watersheds and the environmental quality of these subject creeks. A particular emphasis of the study was small, shallow tidal creeks. As a brief summary, the Tidal Creek Project found that salinity fluctuations were greater in creeks adjacent to developed areas than in reference, undeveloped creeks dominated by salt marsh. Developed creeks had much higher sand content on creek bottoms than did reference creeks. The study found that increases and decreases in the abundance of benthic organisms in the upper ends of developed tidal creeks can be attributed to human development of the watershed creeks. In other words, small tidal creeks in developed areas are “different” from pristine creeks due to upland development. When viewed in cumulative impact light, although these “differences” cannot be attributed to private docks and piers, there is no doubt that docks in these already stressed areas could cause additional adverse impacts. The ultimate cumulative impact question with docks remains unanswered. How many are too many?

CONCLUSIONS
South Carolina OCRM has extensive experience in reviewing private docks and piers. Over the years, we have taken a number of measures to better evaluate dock applications, to provide more science-based decisions, and to gather better information. Common sense tells us that fewer docks are probably better. Private docks usurp public trust waters and inhibit traditional uses of tidal waters such as trolling or shellfish gathering. Insuring public access to coastal resources is a vital mission for all coastal zone management agencies. Facilitating this access while minimizing impacts to the very resource we seek to utilize is an ongoing challenge.
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