

Report of the  
**SUBMERGED TIMBER  
TASK FORCE**



Presented to  
**Commissioner Lonice C. Barrett**  
**GEORGIA DEPARTMENT OF  
NATURAL RESOURCES**

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## Executive Summary

The Georgia Department of Natural Resources Commissioner appointed a Submerged Timber Task Force (STTF) in October 1998 to review issues associated with the commercial removal of submerged timber (deadhead logs) from Georgia waters. This report addresses legal, biological, historical, economic, administrative, and forestry related concerns and recommendations in regards to the recovery of submerged timber.

Early in the process the STTF requested a survey to determine the number of submerged logs available for recovery in order to help determine how big of an economic asset deadhead logging would be to Georgia's economy. A survey of the Altamaha River using side-scanning sonar revealed that there was a relatively low number of submerged logs and consequently very limited economic returns expected.

Several complex and often intertwined legal issues surround deadhead logging. Legal ownership of submerged logs is dependent upon whether that particular reach of water body is delineated as navigable or nonnavigable. The majority of evidence points to the fact that, if these logs are in navigable waters, they are property of the state. However, in one particular case the court ruled that only logs imbedded in the bottom of navigable waters are property of the state. The court did not clearly define what percentage of a log must be buried for it to be considered state property. The navigability of many of Georgia's waters is currently legally undetermined and would need to be resolved in order to determine ownership of submerged timber. According to the Georgia Constitution, if the submerged logs are state property, they may not be given away by the state and would require the implementation of a fee or sales system for deadhead logs. If submerged logs are branded they are likely the property of the original logger or their heirs.

The major historical issue discussed during the deliberation of the STTF centered on whether or not submerged logs would be considered a significant historical or cultural resource. According to OCGA 12-3-80 *et seq.*, archeological sites that rest on the bottom for more than 50 years in navigable waters of the state are protected. However, OCGA 12-3-80 (b) authorizes the department to allow retention of submerged cultural resources by a permitted applicant, provided that those resources are deemed of no "significant historical, archeological, or monetary value". The opinion of the task force was that submerged logs might be of historical and archeological significance and definitely possess a monetary value.

Numerous biological and environmental concerns surround deadhead logging practices. Previous studies have documented the biological importance of wood debris in streams. The impacts of removing submerged timber on gamefishes, mussels, endangered species, water quality, and stream morphology could not be sufficiently addressed with existing studies. The STTF did not feel that it would be responsible to make a recommendation allowing the commercial removal of submerged logs without the completion of scientific studies that would ensure that important biological resources are not significantly impacted. The cost of such studies would likely range from \$600,000-\$1,000,000 and require three to five years to complete.

In 1996 the economic impact of recreational fishing statewide in Georgia was estimated to be \$2,290,557,000. Georgia has over a million recreational anglers ages 16 and older. Many of

Georgia's rivers possess high quality recreational fisheries and the potential biological impacts, such as potentially decreased sportfish abundances, of deadhead logging may have detrimental effects on recreational fisheries. Such impacts could lead to a decrease in angler satisfaction and participation, which would result in a decreased economic impact from recreational fishing. Two other major concerns with log removal at public boat ramps are the potential interference with recreational boating access and severe damage to public boat ramps caused by log-loading equipment.

Based on the current level of understanding the task force recommends that recovery of submerged timber not be allowed in Georgia. Biological, legal, economic, and historical concerns prompted this conclusion. If it were decided to further consider allowing removal of submerged timber, the task force believes it is critical that several studies be completed beforehand.

## Introduction

During the 1800's and early 1900's, the rafting of commercially harvested logs down Georgia's rivers and streams was a common route for the transportation of timber to coastal markets. It is estimated that approximately 5% of these logs sank to the bottom, resulting in sunken commercially-harvested logs located on both private and state-owned water bottoms of Georgia's rivers. Salvage logging, often called deadhead logging, occurred in the 1800's and early 1900's. There is an increased market demand and a diminishing supply (less than 2000 acres) of old-growth longleaf yellow pine in the United States. Old growth logs have a very tight grain pattern, greater than about eight growth rings per inch, and are utilized in the production of fine furniture, flooring, musical instruments, crafts, and other products. The growing market demand for this product has increased interest in deadhead logging in Georgia with several individuals inquiring into the permitting process through the United States Army Corps of Engineers (ACOE) and the Environmental Protection Division (EPD).

Deadhead logging is currently allowed in California, Michigan, and Florida. Florida received approximately 200 reports of illegal deadhead logging during 1997. Florida legalized deadhead logging in many of its rivers in April 2000. During this same time period several reports of deadhead logging and inquiries into the permitting process for this activity were received by various state and federal agencies within Georgia. Currently Georgia does not have a permitting process or regulations specifically addressing the removal and sale of submerged logs located within Georgia's waters. Even though the ACOE's Section 10 permitting process requires a Section 401 Water Quality Certification from the EPD, which may address questions strictly concerning water quality, there does not presently exist a clear legal state process whereby other environmental and safety concerns may be addressed or where the state's interest in the logs could be considered.

The process of deadhead logging includes the identification of likely locations of submerged logs from historical information, such as the location of old landing and mill sites, and/or identification of stream features, such as sharp bends where logs might have been jammed. Loggers then search the bottom with poles or in scuba gear. Once a log or pile of logs is located, lines with inflatable buoys are attached to the log, which is floated to the surface or winched out by cables mounted on a small boat or barge. The logs are floated to a landing site and pulled or lifted on to a log truck. Nearly all logs found must be lifted from the bottom before growth rings are checked, but only those that are old growth timber are removed from the river. Harvesting practices have in the past included the use of blowers to remove sediment from around embedded logs.

Deadhead logging activities may affect the water quality and physical integrity of streams, aquatic habitats and organisms, and have several potential legal ramifications. Due to the numerous environmental and legal concerns regarding deadhead logging, Department of Natural Resources (DNR) Commissioner Lonice Barrett issued an Administrative Order on October 30, 1998 prohibiting the removal of sunken logs for commercial purposes, with the intent that the order was to stay in place until the report of a task force created by the Commissioner is received and its recommendations implemented or rejected. The task force consists of a diverse group of

volunteers appointed by the Commissioner and charged with gathering information and making recommendations to him on the issues surrounding the commercial removal of sunken logs.

The members of the submerged timber task force are:

<b>Bert Deener</b>	Fisheries Regional Supervisor, DNR-WRD Fisheries Management Section, Chairman (effective January 2003)
<b>Michael Spencer</b>	Assistant Chief, DNR-WRD Fisheries Management Section, Previous Chairman
<b>Mark Bowers</b>	U.S. Fish and Wildlife Service
<b>Ben Brewton</b>	Coastal Environmental Organization
<b>David Crass</b>	DNR-Historic Preservation Division
<b>Bill Frazier</b>	Citizen
<b>Bud Freeman</b>	UGA Institute of Ecology
<b>Gary Grossman</b>	UGA D.B. Warnell School of Forest Resources
<b>Scott Jones</b>	Southeastern Lumber Management Association, (Formerly of Georgia Forestry Association)
<b>Christi Lambert</b>	The Nature Conservancy
<b>Ron Michaels</b>	DNR-Coastal Resources Division
<b>Keith Parsons</b>	DNR-Environmental Protection Division, Water Protection Branch
<b>John Walden</b>	DNR-Commissioner's Office
<b>Robert Wilson</b>	Army Corps of Engineers

## Concerns and Recommendations

During the early deliberations of the task force it became apparent that there were several areas of concern regarding deadhead logging. The task force discussions led to the classification of the major concerns into seven categories, which are addressed in this report. The categories are economic, forestry, legal issues, historical/cultural issues, biological/environmental issues, recreation and commercial fisheries issues, and administrative issues.

### Survey of Submerged Timber

During the first task force meeting, one of the primary questions posed was how many logs are on the bottom of Georgia's rivers. Unable to address that question for the entire state, the task force chose the Altamaha River to serve as a gauge for other rivers. The Altamaha River was chosen because of the interest in deadhead logging there and it was thought to be the largest potential source of submerged timber. The STTF asked DNR to survey the Altamaha River and estimate how many logs were on the bottom of the river.

The Wildlife Resources Division (WRD) of the DNR contracted with the United States Department of the Navy to survey the Altamaha River using sidescanning sonar and interpret the results. Sidescanning sonar produces a three-dimensional image, which is viewed on a computer monitor and then stored digitally for interpretation and enumeration later in the laboratory. The sonar device was effective at locating logs laying on top of the sediment and those partially submerged.

The field survey was conducted on September 18-20, 2000 at cost to WRD of \$8,045. A total of 22 miles of the mainstream Altamaha and 1.7 miles of oxbow lakes were sampled using sidescanning sonar. The average density of logs per river mile sampled was calculated, then expanded to estimate the number of logs present in the entire 107 river mile section from the western beginning of the Altamaha River to the Glynn/Wayne County line (approximate beginning of tidal influence). Mainstream estimates of log density varied from 2.3 to 7.2 logs per river mile with an average density of 3.6 logs per river mile. In the oxbow lakes, many of which are privately owned, the estimate of log density varied considerably from 12 to 463 logs per river mile.

These numbers do not include logs that were deeply buried in sediment, as the sonar was not able to detect deeply buried logs. Additionally, it is likely that not all of the logs detected would be the old-growth logs sought by individuals conducting deadhead logging, thus the value of some of the logs would be minimal. Furthermore, the condition of submerged old-growth logs is variable and some are likely to have become severely degraded, thus losing their commercial value.

This survey revealed that there was a relatively low number of submerged logs and, consequently, very limited economic returns. The economic benefit to Georgia would be further minimized by the fact that specialized mills in other states would process a majority of recovered old-growth logs.

## Forestry Issues

A representative of the Georgia Forestry Association stated that they did not believe deadhead logging was a forestry issue because submerged logs are a non-renewable resource that cannot be managed for sustainability. In their opinion the removal of submerged logs is not a true forestry practice and the potential biological impacts and legal concerns were the main issues that needed to be addressed.

## Legal Issues

The task force identified several complex and intertwined legal issues surrounding deadhead logging. This section of the report attempts to address the legal aspects of property ownership, navigability, environmental standards, and cultural resources in regards to the commercial removal of submerged logs.

Establishing ownership of submerged logs and consequently who is entitled to the proceeds from the sale of the logs is an issue that must be resolved if commercial deadhead logging were to be further considered. Determining the ownership of the river/stream beds where these submerged logs are located and thus the ownership of these logs is one possible way to establish rights to submerged timber. Ownership of the bottoms of non-navigable streams is no different than that of the lands adjoining them. That is, private property boundaries may extend into and even across stream bottoms. However, the bottoms of all navigable fresh waters and streams, and all tidal waters and streams (regardless of navigability), which were not the subject of either a King's Grant or a State Grant, are owned by the State of Georgia and are in the custody of the governor of the state (OCGA §50-16-61). The owner of land adjacent to a navigable stream owns to the low water mark in the bed of the stream (OCGA §44-8-5(b)). An opinion of the attorney general stated, "River beds and sunken timber in navigable streams are state property. Because the title to the beds of navigable streams is in the state, legislative authorization would be necessary to remove sunken timber from rivers of the state." (Op. Attorney General 1958-1959, p. 220). Another opinion stated in a Georgia ruling (Chance vs. DNR) involving **U.S. Marine Salvage Law** was that objects lying on the river bottom are salvageable while imbedded objects are relics and property of the state. According to this ruling the state would only own those logs that are imbedded in the stream bottom. Old growth logs have been on the river bottom for many decades and over this time it is most likely that some portion would have become imbedded in the stream bottom to some degree. There is currently no clear definition as to what extent a log would have to be buried in sediment to be considered imbedded and thus property of the state. A further implication of this interpretation is (Duane Harris, Coastal Resources Division) that the Georgia Constitution provides that the State may not grant a gratuity, and may not allow state-owned property to be given away. Therefore, a fee or sales system would have to be implemented in order to remove state-owned logs from navigable waters.

However, the designation of waters as navigable or non-navigable under state law has not been determined for most reaches of rivers and streams in Georgia. OCGA §44-8-5(a) states that a "*Navigable stream* means a stream which is capable of transporting boats loaded with freight in the regular course of trade either for the whole or part of the year. The mere rafting of timber or transporting of wood in small boats shall not make a stream navigable." The first part of this

definition must be considered in its historical context. The legislature was referring to the type of boats and freight being transported on the state's streams and rivers before 1863 when OCGA §44-8-5 was passed. A search of historical records will reveal many accounts of agricultural products, bricks, whiskey, and other materials being transported in the course of trade on relatively small streams. The phrase "for the whole or part of the year" implies the intent to include small streams as navigable if they could accommodate trade during part of the year. There are no specific requirements on the size of boats and small boats were commonly loaded with whiskey or other goods for transport to downstream markets. A plausible legal theory might be that once a stream of a particular size and configuration is deemed by an appellate court to meet the state definition of navigable, every other stream of similar size and characteristics would also be capable of doing so, and thus, would be a navigable stream under this definition.

The determination of navigability of Georgia's waterways has historically been addressed on a case-by-case basis. In a Georgia Supreme Court affirmation, the court issued a summary judgment against the defendant (Givens) who claimed that the Ichauwaynochaway Creek was navigable (*Givens v. Ichauway, Inc.*). The court said "Although Givens testified it was navigable under nineteenth century standards, his deposition shows his testimony was inadmissible hearsay based upon the statements of others and upon documents that were not introduced." The Court went on to say that Givens did not introduce evidence that the raft he floated down the creek to prove navigability replicated the dimensions of boats used in historical commerce. It is clear the creek did not necessarily fail the test of navigability, but instead the defendant lost based on failure to introduce evidence. The dissenting opinion written by Justice Fletcher and joined by Justice Hunstein makes it clear that such evidence is available. A careful historical search and study of commerce and trade along streams and rivers before 1863, and a review of legislative notes or studies completed in 1863 could more clearly delineate the intent of the 1863 Legislature. These studies will have to be completed on many of Georgia's waterways to determine navigability and thus ownership before submerged logs could be removed. If a stream or river or a portion thereof is determined to be non-navigable waters, an agreement between the logger and landowner must be reached.

Many of the submerged logs have brands (that are recorded in county courthouse records), which served to identify the original logger for payment when the logs reached the mills. Unless proof of abandonment exists, these branded logs remain the property of the original owner or heirs, regardless of their location, and such ownership should be respected to allow or permit the recovery and sale of these logs. If branded submerged timber were retrieved from rivers, a search of the appropriate county courthouse records must be completed in an attempt to identify the original owner or heirs. The task force believes that it would be the responsibility of the present-day deadhead logger to properly research ownership of branded logs. If the original owner or heirs were established, the deadhead logger and the owner or heirs would need to reach an agreement before the sale of the logs was completed.

Submerged logs may (Chip Morgan, Historic Preservation Division) fit the definition of a submerged cultural resource found within the **Submerged Cultural Resources Act** (OCGA 12-3-80 *et seq.*). If logs were considered a cultural resource, the title and exclusive rights to logs resting on the bottom in state navigable streams would belong to the State of Georgia. However, the Board of Natural Resources may determine and provide by rule that certain submerged

cultural resources are not subject to the provisions of this Act. While the value of submerged logs as significant historical or archeological artifacts may be questioned, there is no question that submerged old-growth logs have significant monetary value and could not be granted as a gratuity to individuals. In non-navigable waters, sites and artifacts (except burials) resting on the bottom are owned by the adjacent landowner to the thread of the stream and OCGA 12-3-621 would apply in these cases.

The removal of submerged logs may also have an impact on the navigability of rivers. **Section 10 of the Federal Rivers and Harbors Act of 1899** requires that the ACOE regulate all activities that could affect the navigability of defined waters. The Act provides for the permitting of activities that could affect navigability and also provides for certification (pursuant to **Section 401 of the Federal Clean Water Act**) by EPD of whether water quality standards would be violated by the permitted activity. Submerged logs may help maintain current flow patterns and maintain bank stability in certain areas. Removal of logs from critical areas may negatively impact both water quality characteristics and the navigability of rivers.

### **Historical/Cultural Issues**

Archeological sites are valuable in a natural resource context for two general reasons. First, they provide unique windows into the relationship between human occupation and exploitation of the environment, and the effects of that exploitation. Second, archeological sites are generally excellent educational tools, and offer a way for both young and adult students to literally touch a past that is hundreds of years old.

One of the most fragile archeological site types is an underwater or shoreline site. Paradoxically, such sites also often yield very well preserved deposits, including plant remains and soft tissue, due to the anaerobic or near-anaerobic conditions. Underwater or shoreline sites along Georgia's rivers include mills, ferry landings, Indian villages, vernacular watercraft, and others. Unfortunately, Georgia is the only southeastern Atlantic seaboard state that has no program to inventory, assess and manage such sites. However, cultural resources that rest on the bottom for more than 50 years in navigable waters of the state are protected under OCGA 12-3-80 *et seq.* OCGA 12-3-80 (b) authorizes DNR to allow retention of submerged cultural resources by a permitted applicant, provided that those resources are deemed of no "significant historical, archeological, or monetary value". The opinion of the task force was that submerged logs may in many cases be of historical and archeological significance and, that old-growth logs definitely possess a monetary value.

However, if DNR deemed that if some submerged logs were not of significant historical or archeological value and decided to consider allowing the removal of submerged logs, the Office of the State Archeologist recommends a two-stage permit process. The first stage is an exploration phase to ensure that potential cultural resources such as ship timbers are not mistakenly identified as deadhead logs. This is necessary due to the lack of an underwater archeology program to inventory and assess the resource base. The second stage is the actual log recovery phase and the decision to permit such activities would be based on the findings of Stage 1.

The above recommendations only address the historical and archeological value aspects of OCGA 12-3-80. They do not address the monetary value aspect. The task force believes such logs do indeed have a “significant” monetary value. Whether the state can give such items to an individual is not an archeological issue, but rather a legal issue as addressed in the legal issues section.

### **Biological/Environmental Issues**

This section presents information on biological and environmental concerns that were raised during task force meetings. The effects of deadhead logging on gamefishes, mussels, endangered species (such as spiny mussels and shortnose sturgeon), and water quality and stream integrity are currently unknown.

To date, the most definitive and comprehensive study of the importance of woody structure to the biological integrity of southeastern coastal plain streams is the work of Benke et al. (1979). This study focused on the secondary production within three major habitat types found in coastal plain streams: 1) sandy bottoms, 2) muddy backwater slough bottoms, and 3) woody structure. For the resource manager, secondary production is particularly important because it represents the intermediate part of the food chain on which recreational and commercial fisheries rely. This particular study was conducted on the Satilla River in Georgia and the results indicated that submerged wooden substrate (snags) was the most important type of habitat for invertebrates. Snag habitat had the greater diversity of species, higher biomass, and higher production of invertebrates than the other habitat types. Production values of 57 to 72 grams dry weight/m<sup>2</sup> of snag surface were higher than mud or sand areas that had production values from 14 to 28 grams dry weight/m<sup>2</sup>. Eighty percent of the numbers and biomass of invertebrates drifting downstream originated from snags. This study also reported that several species of gamefish forage almost exclusively on invertebrates that originated from these wooden substrates.

In 1999, Donald Ray with Florida Department of Environmental Protection studied the abundance and diversity of invertebrates found on submerged deadhead logs removed from two rivers in Florida. His results were very similar to those reported by Benke et al. (1979). In both rivers he found that a more abundant and diverse invertebrate community existed on a 0.25-m<sup>2</sup> area of a deadhead log than in assessments of a 100-m reach of river near these same areas. Ray also stated that Atlantic sturgeon and the endangered Chipola bass and speckled chub used these logs for cover and feeding. At this time the importance of submerged logs to endangered fish species, such as the shortnose sturgeon and the gulf sturgeon, found in Georgia waters is unknown.

As well as providing food and cover for many fish species, submerged wooden substrate may also reduce interspecies predation, and habitat and diet competition between fish species. A recent study (Wheeler, unpublished) investigated the habitat use and food habits of shoal bass and largemouth bass in the upper Chipola River, Florida. This study indicated the diets of adult shoal bass and largemouth bass were similar, but their habitat use differed. Adult shoal bass tended to be associated with rocky substrate and largemouth bass were associated with woody

debris. The difference in habitat selection may allow for healthy populations of both species to coexist in the same river. These findings may have direct implications for the Flint River, Georgia where DNR is currently trying to enhance the shoal bass population through intensive management efforts, including stocking fingerling shoal bass. The removal of submerged logs may lead to increased competition between largemouth bass and shoal bass due to a decrease in the availability of habitat preferred by largemouth bass. The potential loss of habitat segregation, associated with the removal of submerged logs, may also lead to increased predation of stocked fingerling shoal bass by largemouth bass. These two factors, increased predation and competition, could hinder any benefits of current shoal bass management activities.

The importance of submerged logs lying on/in the bottom of rivers to the health of mussel populations is unknown. In the Flint River, aggregations of mussels are known to inhabit the microhabitats at the downstream end of logs. These mussels are dependent on the sediments that are trapped behind the logs. Because the Flint River bottom is primarily rock, these microhabitats of fine particulate matter may be very important in providing sufficient habitat for mussels. There are several threatened or endangered mussel species found in Georgia's rivers and the removal of submerged logs may negatively impact these species. Some of the more noteworthy threatened and endangered mussel species are the shinyrayed pocketbook, the gulf moccasinshell, the oval pigtoes, the purple bankclimber, and the spiny mussel. The spiny mussel is found only in the Altamaha River and the other four species are found in the Flint River.

The importance of submerged logs may play a vital role to the physical integrity of many Georgia rivers. Wallace and Benke (1984) stated that wood was found to be a major structural feature in a study of middle-order streams of the southeastern coastal plain. Gordon et al. (1994) reported that larger woody debris may play an important part in channel stabilization and removal may have long-term effects on both a streams ecology and morphology. A 6-year study (Megahan 1982) concluded that logs were the most important type of obstruction in stream channels because of their longevity and the large volume of sediments trapped behind them. This study also reported that only large stable obstructions remained in the channel during a high-flow year and fifteen times more sediment was stored behind obstructions than was delivered to the drainage outlets. Ray (1999) concluded that the removal of woody debris accelerated bank instability and added to habitat smothering from eroded soil. Large old growth timbers, such as deadhead logs, have remained in place for many years and may play an important role in the morphology of a river. The potential implications of increased bank instability and sediment loading due to the removal of deadhead logs must be seriously considered before allowing their commercial harvest. If DNR decided to allow deadhead logging, **Section 401 of the Federal Clean Water Act** would require Georgia to develop a permitting process for these activities that would certify that such activities would not violate water quality standards.

These examples illustrate the importance of submerged wooden substrate to fish and fish food organisms, and must be considered against any proposal to remove the submerged timber. The most important logs for fish food production would be those resting at least partially above the mud, which provide invertebrate attachment sites. Buried logs may be more important to stabilize the bottom and to provide mussel habitat. The Wildlife Resources Division has used the

Benke (1979) study in the past to limit snagging and clearing operations in streams, and we should not encourage removal of timber without serious consideration of the value of these logs to fish and fish food organisms.

### **Recreational and Commercial Fisheries Issues**

The effects of deadhead logging on recreational fisheries are unknown, but the value of these fisheries is extremely high. According to the “1996 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation” (U.S. Dept. of the Interior, 1996) Georgia has over a million anglers ages 16 and older. This survey also reported the economic impact of recreational fishing statewide in Georgia in 1996 was estimated to be \$2,290,557,000. On the Altamaha River during the same year, the value was estimated to be \$5,063,080. The economic impact of all commercial fisheries statewide in 1996 was estimated to be \$43,147,606. The estimated economic impact of the commercial fishery on the Altamaha was \$296,388.

The removal of submerged logs at public boat ramps may interfere with recreational boating access. Additionally, log-loading equipment has the potential to severely damage public boat ramps. The state currently spends a significant amount of money on the construction and maintenance of boating access sites. During the last five years DNR has spent over \$500,000 on boating access sites on just the Altamaha River. The impacts of deadhead logging to the recreational and commercial fisheries, from both direct interference and potentially lower quality fisheries, could lead to a decline in the economic value of these fisheries that would be greater than the revenues generated by deadhead logging. The cost to repair public boat ramps damaged by logging equipment also needs to be addressed before considering allowing loggers to operate at these facilities.

### **Administrative Issues**

If DNR were to consider permitting the recovery of submerged logs, a permitting and monitoring program must be developed. From state of Florida personnel the STTF learned that the cost of implementing the submerged log recovery program in Florida approached \$200,000 the first year and \$120,000 in subsequent years. The STTF believes that the administrative cost would be much higher than the economic benefit gained from deadhead logging.

### **Recommendation of Task Force**

Given the uncertainties regarding log ownership, the non-renewable nature of the resource, the potential negative biological/environmental impacts, recreational impacts, status as cultural artifacts, and administrative cost of implementing a permitting and monitoring program versus the small economic benefit that Georgia would receive due to the relatively low number of logs, the STTF recommends that recovery of submerged timber not be allowed in Georgia. If it were decided to further consider allowing the removal of submerged timber, it is critical that several studies be completed beforehand. The STTF developed a list of necessary studies, and these are discussed in the following research recommendations section. The STTF did not believe that public hearings were warranted before submitting recommendations to the Commissioner, and

that he could release the task force recommendations for public review, as he deemed appropriate.

## Research Recommendations

During the deliberations of the STTF it became clear that there were unanswered questions regarding many aspects of deadhead logging. Therefore, the task force has developed a list of studies that it believes are necessary if the removal of logs were further investigated. They are listed in order of priority.

### Legal

1. *Clearly define state navigability of streams and rivers as it relates to OCGA §44-8-5.*

Currently there is no clear definition or delineation of state navigable waters in the state of Georgia. Determining the ownership of submerged logs is contingent upon whether the reach of stream or river in which they lay is delineated as navigable or non-navigable. This study will require research on the history of commerce and trade along streams and rivers before 1863, and a search for legislative notes or studies that could more clearly delineate the intent of the 1863 Legislature. This would be a valuable study, which would address many additional issues far broader than just recovery of pre-cut timber. The task force recommends completing this study even if recovery of submerged timber is not permitted.

2. *Determine ownership of submerged logs and define imbedded as it relates to **U.S. Marine Salvage Law**.*

In accordance with OCGA §50-16-61 and the opinion of the attorney (Op. Attorney General 1958-1959, p. 220), “river beds and sunken timber in navigable streams are state property.” A somewhat contradictory opinion was stated by a court decision in *Chance vs. DNR*. The court’s opinion in this case was that the state only owns those objects (logs) that are imbedded in the stream bottom. However, the court failed to define imbedded as it relates to state ownership. It is currently unclear as to what degree (i.e.  $\frac{1}{8}$ ,  $\frac{3}{4}$ , or entirely buried) an object must be imbedded in a stream bottom to be considered state property.

The task force recommends that this historical and legal research be conducted by a university with appropriate personnel and resources to answer these questions. These studies could make an excellent graduate research project.

### Historical

1. *Determine if submerged logs are significant historical or cultural resources.*

Submerged logs are artifacts. Whether or not they are archeologically significant depends on their context. For instance, logs that are associated with an archeological site, such as a landing or mill, may well have an archeological value greater than that of an isolated log. Any log harvesting should be preceded by an archeological survey that could be paid for by the applicant, with review by DNR, in order to insure that archeological sites are not adversely affected. If DNR review indicates that these logs have no significant archeological value, then the agency

may allow permitted individuals to recover these logs. However, since these logs are of monetary value, the permitted applicant must purchase these logs from the state.

## **Economic**

### *1. Determine the economic benefit that deadhead logging would provide to Georgia's economy.*

One of the first questions raised during the meetings of the task force was how much would deadhead logging economically benefit the citizens of Georgia. The task force believes that a Cost/Benefit analysis needs to be completed to determine if deadhead logging is economically feasible. This study should include the cost of developing and administering a permitting and monitoring program, the cost of this study and all other studies, and the positive economic impact of deadhead logging. The task force recommends that a qualified economist complete such a study.

## **Biological**

### *1. Research biological impacts of deadhead logging.*

Based on existing studies the task force believes it is likely that there will be multiple negative biological impacts on riverine and stream ecosystems and believes that significant research on the biological impacts of deadhead logging is necessary. The task force recommends that a university with appropriate personnel and resources to determine the impact of deadhead logging on biota in rivers conduct these research projects. The cost of such studies would likely range from \$600,000-\$1,000,000 and require three to five years to complete. These studies could possibly be completed in states where deadhead logging is currently allowed.

### *2. Identify biologically sensitive areas, if DNR decides to proceed with allowing deadhead logging.*

The task force believes that it would be necessary to identify potentially sensitive areas (such as areas inhabited by endangered species, thermal refuges for striped bass, areas where log removal may result in bank instability, etc.) and prohibit deadhead logging in these areas. This would require a physical survey of sites proposed for deadhead logging. The task force believes that any cost associated with ascertaining whether logging will have an impact on a potential logging site should be borne by the person doing the impact. This person should be required to hire a qualified consultant to complete such surveys and that these surveys must be submitted for review before deadhead logging could occur.

## **Administrative**

1. *Research permitting and monitoring programs being utilized by other states that currently allow deadhead logging.*

In the event that the state should further consider allowing deadhead logging in Georgia, it would be vitally important that an adequate permitting and monitoring program be established. The task force recommends that the permitting and monitoring programs of other states be researched and evaluated thoroughly before development and implementation of such a program in Georgia.

This would allow DNR to see the positive and negative aspects of programs that are currently in use and allow for the development of an improved permitting and monitoring system that would take these positive and negative factors into consideration. From state of Florida personnel the STTF learned that the cost of implementing the submerged log recovery program in Florida approached \$200,000 the first year and \$120,000 in subsequent years.

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