



Hurricane Katrina's Effects on Mississippi Lumber Manufacturers



INTRODUCTION

The forces of change were altering southern production forestry long before August, 2005. The southern “woodbasket” had become well-known to consumers for inexpensive land prices, fertile soils, available labor, and a need for economic development. Demand for timber began shifting from the publicly owned lands of the West to the privately held lands of the South beginning in the 1980s. This was in large part due to public concerns over environmentally-endangered species and harvesting on public lands. In the South this was less of an issue since the “other private” ownership category accounted for over 50% of all forested lands.

Industry had a large presence as well in the South, accounting for roughly 20% of forest ownership. Ten to 15 years ago, this began to change as industrial lands were sold or transferred to other entities as companies believed that an open market would maintain a steady wood supply. Also, land liquidation provided necessary funding to alleviate both debts from consolidations and shareholders concerns over stock performance. These lands were being purchased by a variety of new owners, including Real Estate Investment Trusts

(REITs) and Timberland Investment Organizations (TIMOs)—often with long-term wood supply agreements attached. Landowners became more knowledgeable of land values and increased their attention and recognition of timber as an investment. Competition for timber increased and the struggle for market share intensified. Utilization of new technologies drove economies of scale as the number of sawmills declined and capacity increased in the mills that remained.

Hurricane Katrina struck on August 29, 2005, as a category III storm with winds of 125 miles per hour. According to the U.S. Forest Service, over 3 million acres of Mississippi’s timberland suffered damage, approximately 12 billion board feet. Timber loss was documented over a range extending 400 miles east and west.

Much research has been performed concerning natural disaster recoveries in the South; however, those reports only focused on quantifying timber damage and its effect on supply. Researchers in Mississippi State’s Forest and Wildlife Research Center were tasked with determining how Mississippi’s lumber manufacturers were impacted by the storm.

Forest & Wildlife Research Center
RESEARCH ADVANCES



Wood Utilization Following a Natural Disaster

Due to the South's relatively high temperatures and humidity, damaged timber has only a short period before being attacked by insects, molds, and decay fungi. This decreases the value significantly. Thus, landowners attempt to salvage as many of their damaged trees as soon as possible. A quick influx of low-cost timber enters the market and initially favors the lumber mills as timber prices decrease. However, once the salvage supplies are exhausted, competition results in price increases for the remaining resource.

This sequence reflects what occurred following hurricane Hugo, which struck South Carolina and Virginia in 1989. Hugo served as a major case study for analyzing the forest industry's recovery from a natural disaster. There, 37% of all damaged timber was reclaimed through salvage operations. The effects from the storm were expected to be long-lasting as reported by a survey of primary wood manufacturers in South Carolina. Specifically, timber prices were predicted to rise, and facilities felt their procurement areas would have to increase to survive.



This project was supported by the Wood Utilization Research Center.

METHODS

Following hurricane Katrina, information was lacking regarding Mississippi's lumber manufacturers and their respective wood supplies. Therefore, it was perceived that a survey of the state's mills could provide information on the condition of the industry pre- and post-Katrina to identify the major issues that confronted facilities.

A Mississippi mill directory was used to compile a list of candidates. A survey was mailed to 67 mill contacts at both hardwood and softwood mills in Mississippi. Contacts were provided in the directories; job titles included mill manager, production manager, procurement manager, and forester.

Lumber production before and after Katrina was compared to investigate the effect of the storm. Objectives also included studying mills type, location, and land ownership within the affected area. Respondents were divided into hardwood mills and softwood mills; those mills that owned timber versus those that did not; and geographic zones based on the U.S. Forest Service's areas of timber damage—heavy, moderate, light, and scattered light (Figure 1).

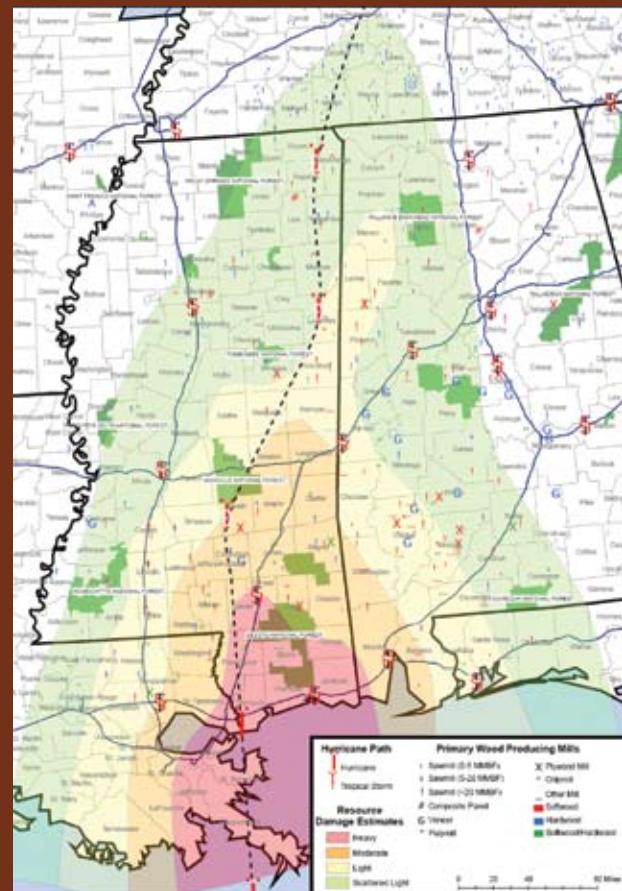


Figure 1. Timber damage zones (USFS Southern Research Station 2005)

RESULTS

Total response rate for the survey was 48% with 32 returned responses. The respondents employed nearly 2,500 people with the average facility employing 95 workers. Manufacturing capacity exceeded 6 million board feet (bf) of pine and hardwood lumber per day. Fifteen hardwood mills and 17 pine mills responded.

Productivity

Daily capacity for manufacturers averaged 228,000 board feet. Before Katrina struck, mills produced an average of 203,000 board feet per day at a production efficiency (production rate divided by mill capacity) of 87%. Sixteen mills reported downtime. The maximum Katrina related downtime was 14 days with 10 mills reporting losses of seven days or less. Those mills reported a loss of no more than 15% of its daily production. All other facilities reported no loss in productivity. After Katrina, production efficiency dropped by an average of 3% to 84%. This production change decreased mean daily output to 197,000 board feet per day per mill, a loss of approximately 6,000 board feet per day per mill.

A test of pre- and post-Katrina daily production found the loss to be statistically significant. Both hardwood and pine mills showed significant losses in production; pine mills lost 11,500 board feet per day and hardwood mills lost 1,570 board feet per day. Significant drops were experienced by both timber owning mills and mills that do not own timber; timber owners' productivity dropped 9,200 board feet per day while non-owners lost 2,500 board feet per day. Surprisingly, production losses were only moderate in each of the state's timber damage zones. The moderately damaged area lost 2,000 board feet per day, the lightly damaged area lost 2,550 board feet per day, and the scattered lightly damaged area lost 1000 board feet per day. No mills are located within the heavily damaged zone adjacent to the gulf coast. While an already stressed wood supply system was stretched even thinner in the aftermath of the storm, the industry was able to successfully move damaged timber to keep local mills operating.

The Future

While broken trees can be immediately assessed, other negative impacts can take much longer to accurately measure. Twenty-seven of the respondents felt the worst was over with regard to the storm; however, 22 mills also stated that Katrina would have an influence on their facility's future. Mills in the southern part of the state were more pessimistic than mills in the northern part, and 90% of the state mills did not predict an increasing market over a five year period after the storm.

Nine factors were provided that may impact the facilities' future. Respondents were asked to choose which factors, if any, they felt might influence their operations. The top four factors identified were market demand, raw material supply, raw material cost, and foreign competition (Table 1). Respondents were also asked to rank areas of change they were considering in order of importance on a declining scale of 1-8. Raw material procurement was the most essential followed closely by seeking new markets and solidifying existing ones (Table 2). Twelve mills hope to maintain pre-Katrina production levels or expand, while 20 mills stated it would be a challenge to return to pre-storm production.

Factor	% answering "yes"
Market Demand	83
Raw material supply	70
Raw material cost	63
Foreign competition	50
Workforce issues and labor costs	37
Domestic competition	30
Environmental issues	23
Mill technology	17
Emerging new markets	7

Table 1.

Variable	Average Rank
Raw Material Procurement	2.11
Seek New Markets	2.94
Produce Value-Added Products	4.06
Modify/Automate Existing Operations	4.39
Produce Different Products	4.89
Purchase New Equipment	5.24
Ramp Up/Down Production	5.29
Increase Marketing and Advertising	6.24
Emerging new markets	7

Table 2.

Research conducted by
Eric McConnell
Rubin Shmulsky



For more information contact:
George M. Hopper
Director
Forest & Wildlife
Research Center
Box 9680
Mississippi State, MS 39762
662-325-2696
Fax: 662-325-8726
ghopper@cfr.msstate.edu
www.fwrc.msstate.edu

Karen Brasher, editor

Discrimination based upon race, color, religion, sex, national origin, age, disability, or veteran's status is a violation of federal and state law and MSU policy and will not be tolerated. Discrimination based upon sexual orientation or group affiliation is a violation of MSU policy and will not be tolerated.

CONCLUSION

Mills in Mississippi were surveyed to gauge the effect of hurricane Katrina on lumber manufacturing. An industry already in flux due to outside forces was impacted further by volatility in the wood supply, along with structural damage, power outages, and workforce issues. Katrina caused an immediate surplus in available wood as owners of damaged wood tried to realize some value from their stands. Weight limits were eased, idled mills were reopened, and additional wet storage yards were constructed to handle the excess timber.

Raw material availability, affordability, and accessibility are the major concerns as mills move forward with supplies exhausted of low-cost salvaged timber. Decisions being made now will affect the future of production forestry in Mississippi as the industry reevaluates past business models. Landowners have been afforded subsidies for timber losses and cleanup allowances for site prep. A critical next step is deciding whether to make the large front-end investment and long-term commitment that forestry requires. Land sales have continued

to take place and currently there is only one major vertically-integrated forest products company remaining. Companies were able to secure subsidies and funding for future investment but were unable to substantially recover lost revenues. The main issue facing lumber facilities is whether to stay or leave. These mills need to evaluate: 1) what the future market will be; 2) what their place will be in that market; 3) the wood supply of that market necessary so they can compete; and 4) the capital investment needed to actively participate in the increasingly-competitive post-Katrina environment.

The recovery challenges for lumber mills in the state have recently been compounded by national economic issues. The housing market, which drives commodity lumber production, crashed in 2008. Fuel costs have fallen, but volatility in the crude oil market will likely continue to be a concern. Added to that has been a weakening dollar on the international market. Market related shutdowns and closures for some facilities have resulted as housing starts are not predicted to recover until mid-2009 or later.

REFERENCES

- McConnell, T.E., R. Shmulsky. 2009. The effects of hurricane Katrina on the structure, performance, capacity, and future of the lumber industry in the United States gulf states. *Journal of Forest Products Business Research*. In press.
- Mississippi Forestry Commission. 2005. Wood Using Industries Book. www.mfc.state.ms.us/hurricane/hurricane.htm.
- Prestemon, J. P., T.P. Holmes. 2000. Timber price dynamics following a natural catastrophe. *American Journal of Agricultural Economics*. 82:145-160.
- Prestemon, J.P., T.P. Holmes. 2004. Market dynamics and optimal timber salvage after a natural catastrophe. *Forest Science*. 50(4):495-511.
- Syme, J.H., J.R. Saucier. 1992. Impacts of Hugo timber damage on primary wood manufacturers in South Carolina. General Technical Report SE-80. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. 28 pp.
- United States Forest Service. 2005. Potential timber damage due to hurricane Katrina in Mississippi, Alabama, and Louisiana- September 22, 2005. U.S. Department of Agriculture Forest Service, Forest Inventory and Analysis, Southern Research Station. 2 pp. www.srs.fs.usda.gov/katrina/katrina_brief_2005-09-22.pdf.