# Fish Passage Operations at Jim Woodruff Lock and Dam

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Engineering With Nature: Designing Navigation Infrastructure for Greater Environmental Sustainability

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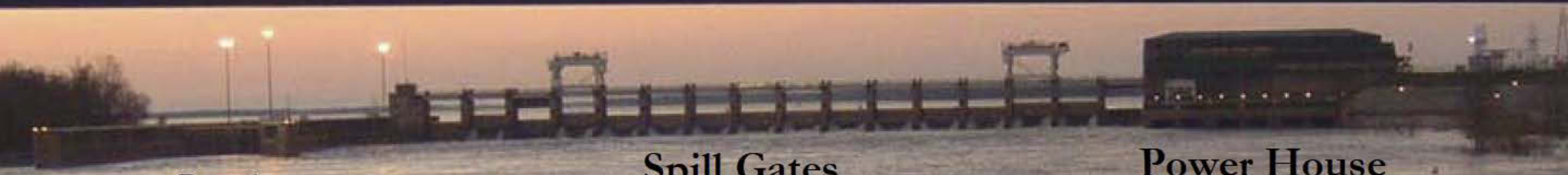
# Jim Woodruff Lock and Dam



# Alabama Shad (*Alosa alabamae*)

# Fishing

# Tracking

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# FISH ON THE MOVE

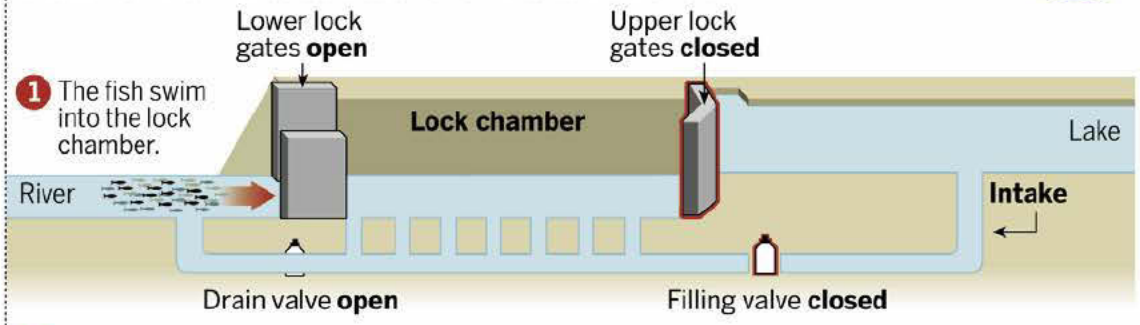
Georgia, Alabama and Florida worked together to reopen more than 200 river miles for the Alabama shad and Gulf striped bass. They had been blocked from migrating upstream for more than 50 years by the Jim Woodruff Lock and Dam at Lake Seminole.

**Alabama shad**

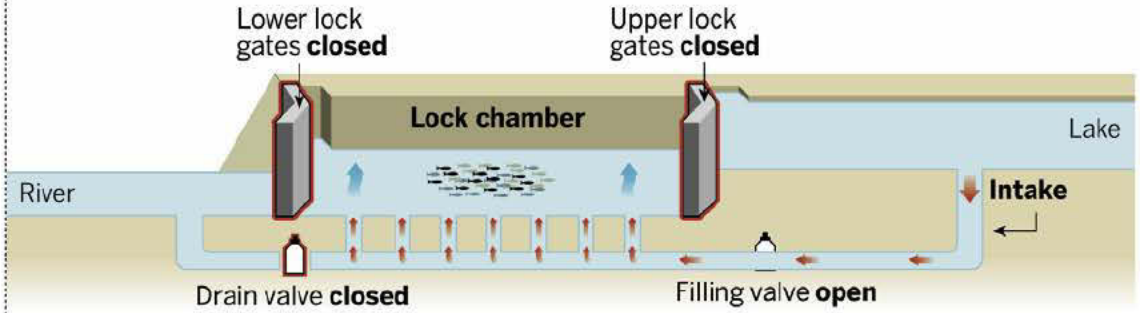
Waterways reopened to fish migration

## How it works

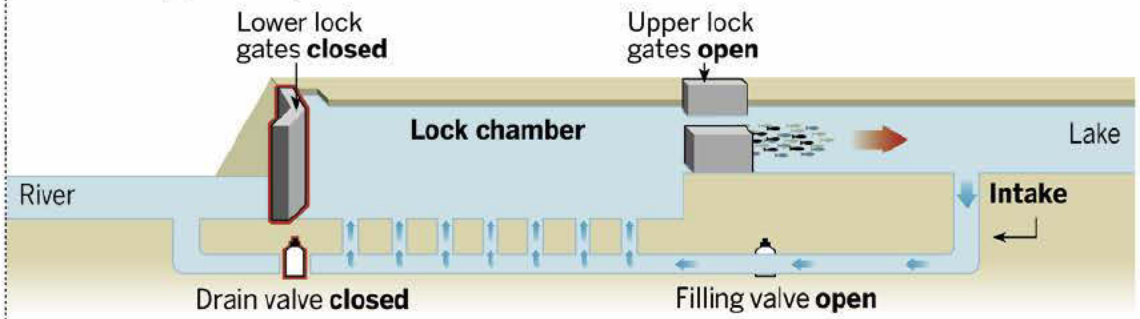
Fish move upstream into the lake and other rivers using a lock – a watertight basin that can let water in or out to raise or lower water to another level.




2 Both sets of gates are closed. The drain valve is closed and the filling valve is opened. This allows water from the lake to fill the lock chamber.




3 Once the chamber fills to lake level, the upper gates are opened to allow the fish to swim into the lake and upper river systems.




4 The most common way for fish to return downstream to the Apalachicola River is through the gates or turbine chambers of the dam. But they can also use the lock chamber if a boat is going downstream.

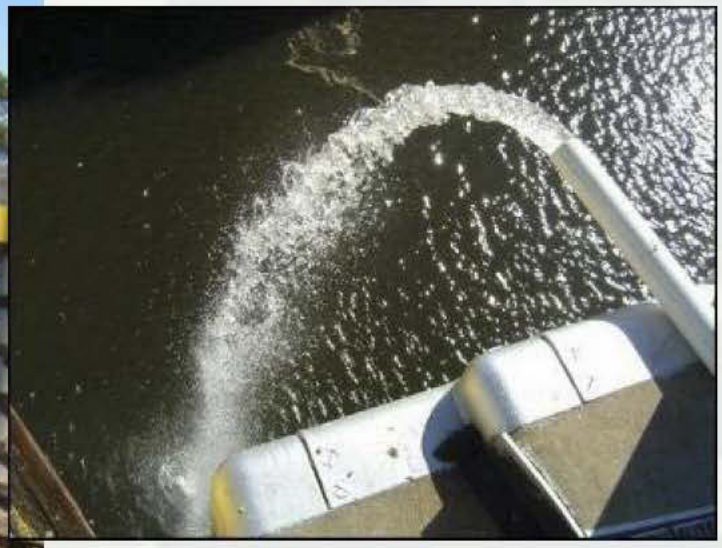
Note: Representative drawing, not to scale

Sources: U.S. Army Corps of Engineers, U.S. Fish & Wildlife Service

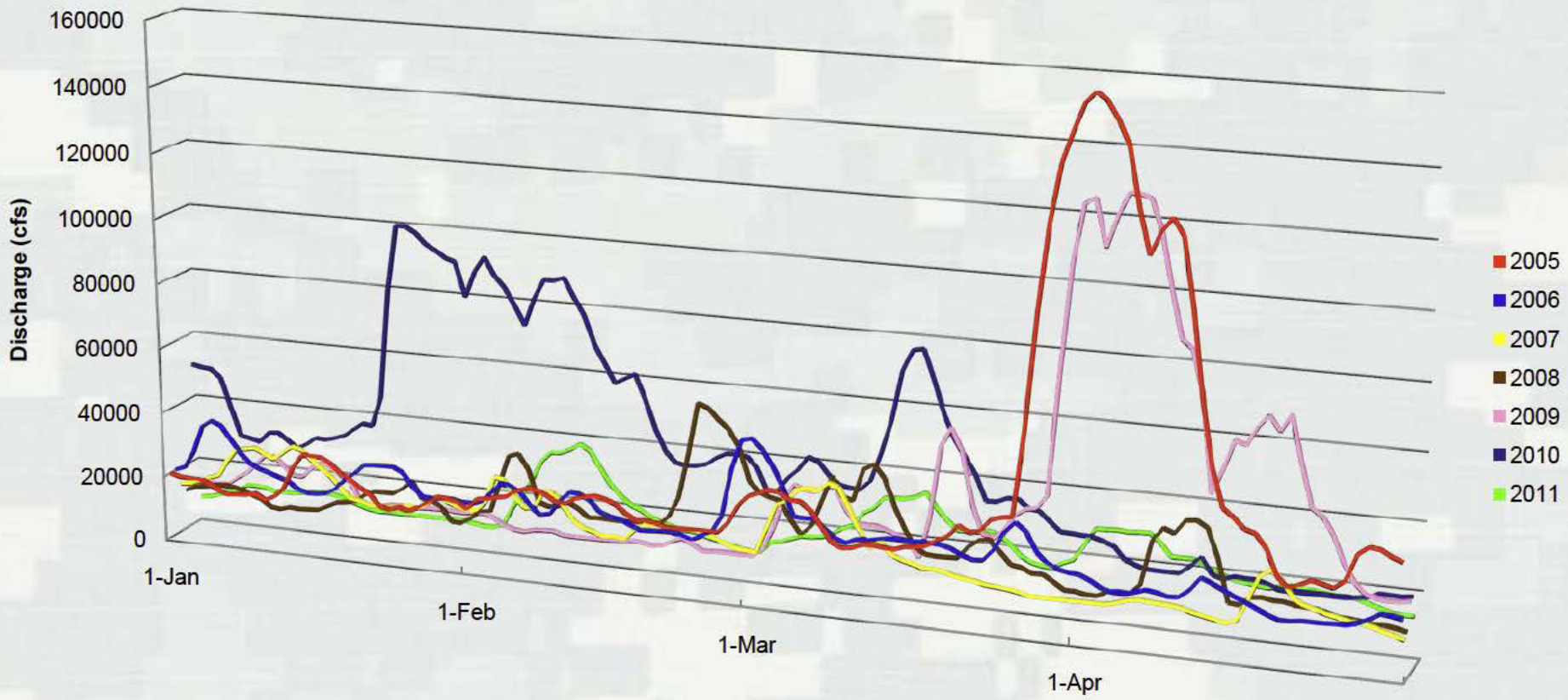
Graphic by ELIZABETH LANDT / The Atlanta Journal-Constitution

LIFE RING
MERCURY

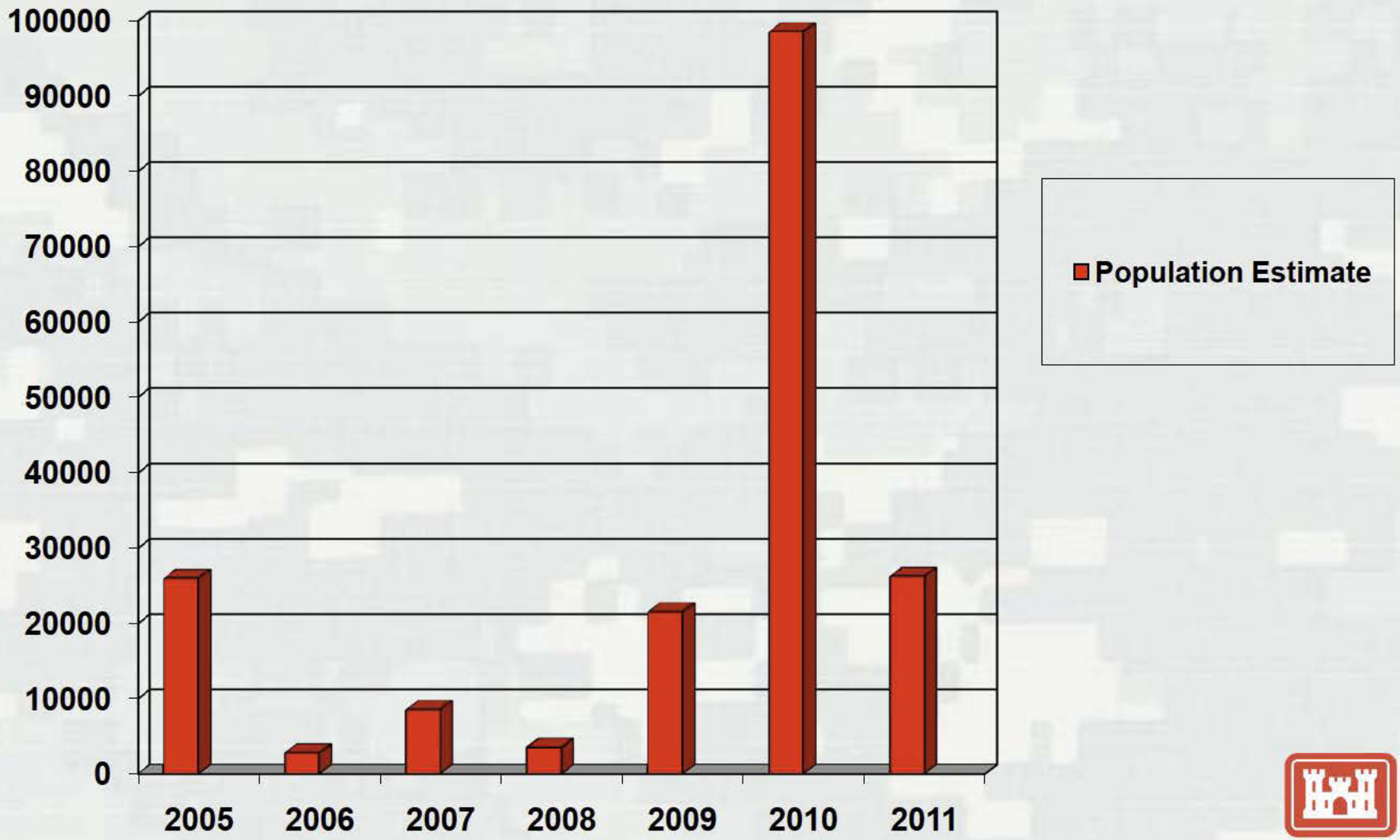
# Attraction Flow



# Spring Flow 2005-2011



# Adult Spawning Population Estimates



| Year | Passage Efficiency | Passage Success | Attraction Effectiveness |
|---|---|---|---|
| 2005 | 64% | N/A* | N/A** |
| 2006 | 50% | 25% | 50% |
| 2007 | 65% | 41% | 63% |
| 2008 | Data not yet analyzed | Data not yet analyzed | N/A** |
| 2009 | N/A*** | N/A*** | N/A*** |
| 2010 | 61% | 45% | 74% |
| 2011 | Data not yet analyzed | Data not yet analyzed | Data not yet analyzed |

*Fish released inside lock **No attraction flow ***No Lockages

# “Key Takeaway Points”

- Locking is an effective, low cost method for moving fish above the Dam
- Attraction flow appears to play an important role in passage efficiency and success
- Two attraction flows may be better than one
- Additional studies are needed and were initiated this spring
- Lock design, target species, and timing constraints must be considered at each project
- Partnerships are crucial to fish passage activities at Corps projects

# Acknowledgements

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US Army Corps of Engineers®

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GEORGIA

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UNITED STATES DEPARTMENT OF COMMERCE

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Questions???
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