Fish Passage Operations at Jim Woodruff Lock and Dam

Brian Zettle

Biologist

Mobile District

Engineering With Nature: Designing Navigation Infrastructure for Greater Environmental Sustainability

September 2011

US Army Corps of Engineers

BUILDING STRONG®

BUILDING STRONG®

Jim Woodruff Lock and Dam

Lock

Spill Gates

Power House

Alabama Shad (*Alosa alabamae*)

Fishing

Tracking

FISH ON THE MOVE

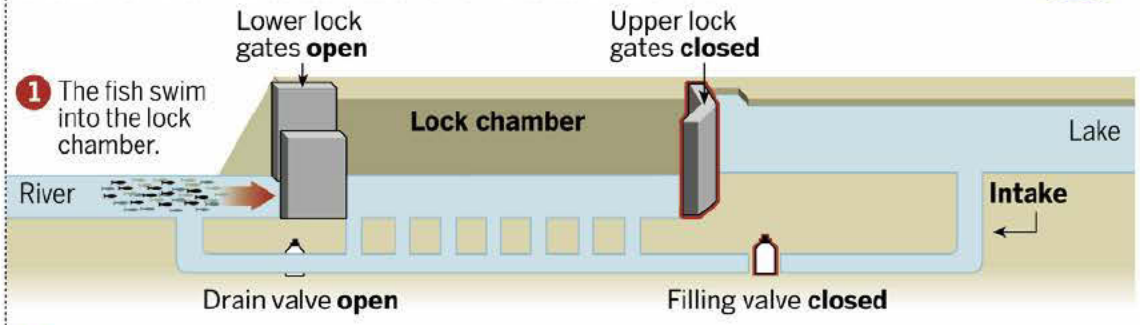
Georgia, Alabama and Florida worked together to reopen more than 200 river miles for the Alabama shad and Gulf striped bass. They had been blocked from migrating upstream for more than 50 years by the Jim Woodruff Lock and Dam at Lake Seminole.

Alabama shad

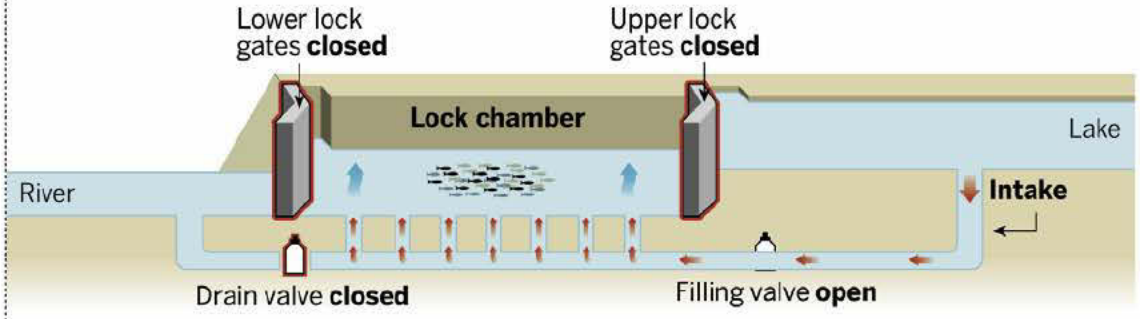
Waterways reopened to fish migration

How it works

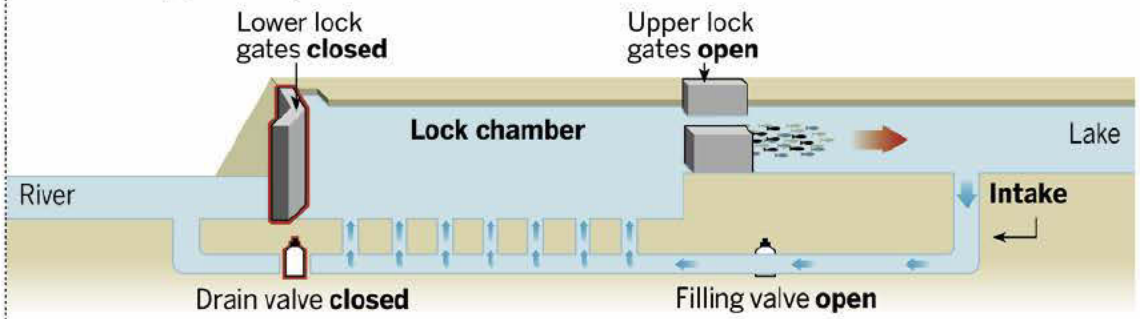
Fish move upstream into the lake and other rivers using a lock – a watertight basin that can let water in or out to raise or lower water to another level.



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.

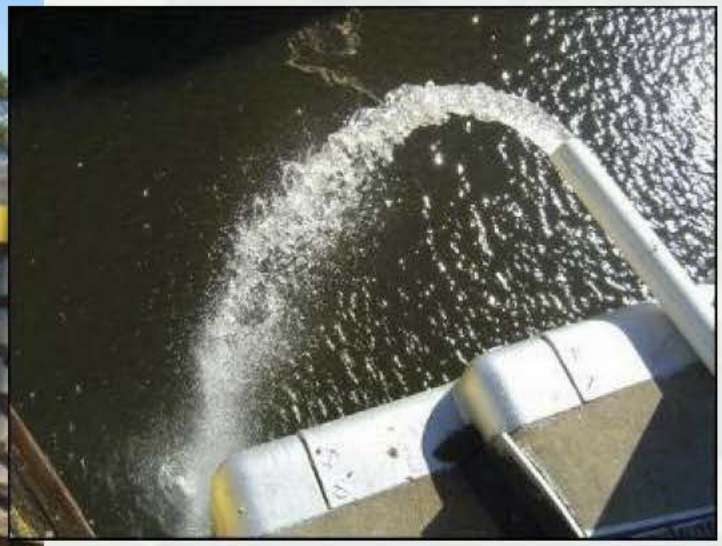
Note: Representative drawing, not to scale

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

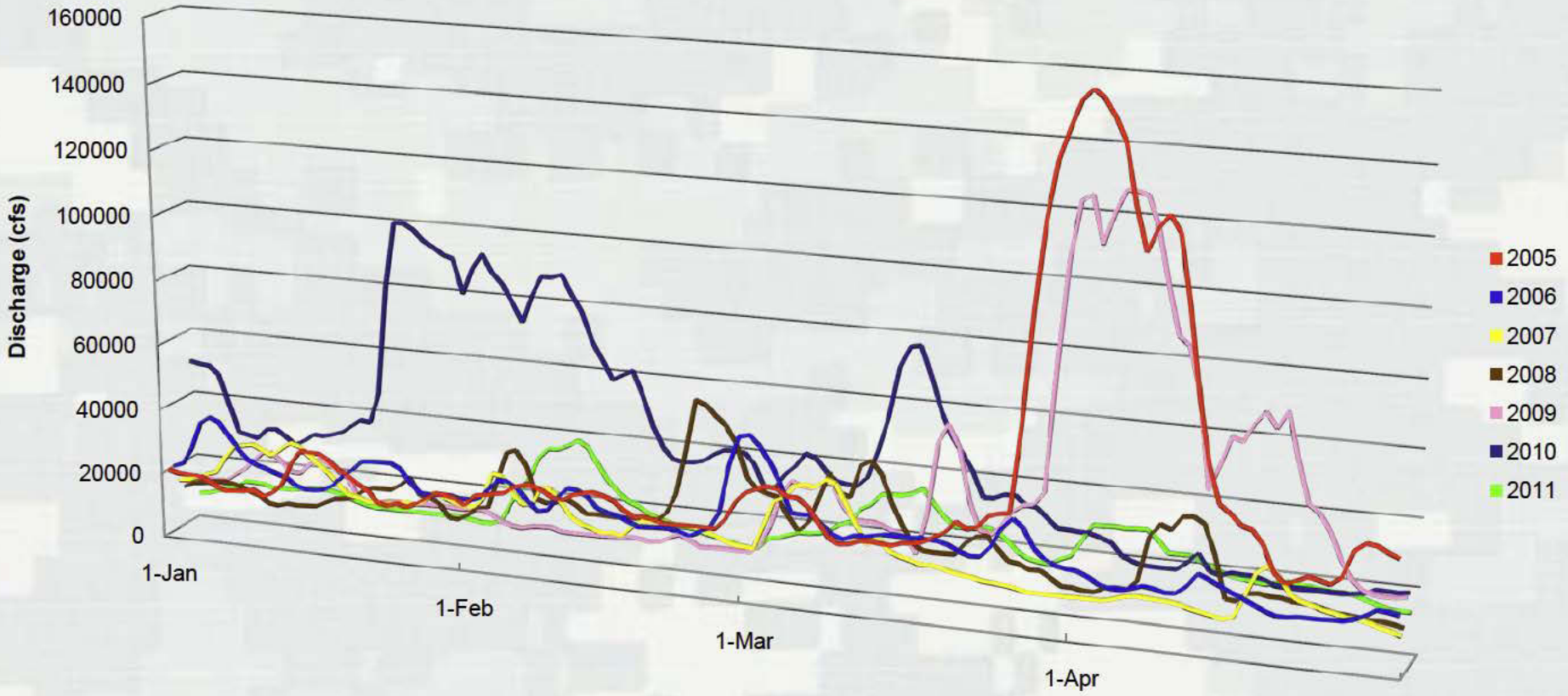
Graphic by ELIZABETH LANDT / The Atlanta Journal-Constitution


LIFE RING
MERCURY

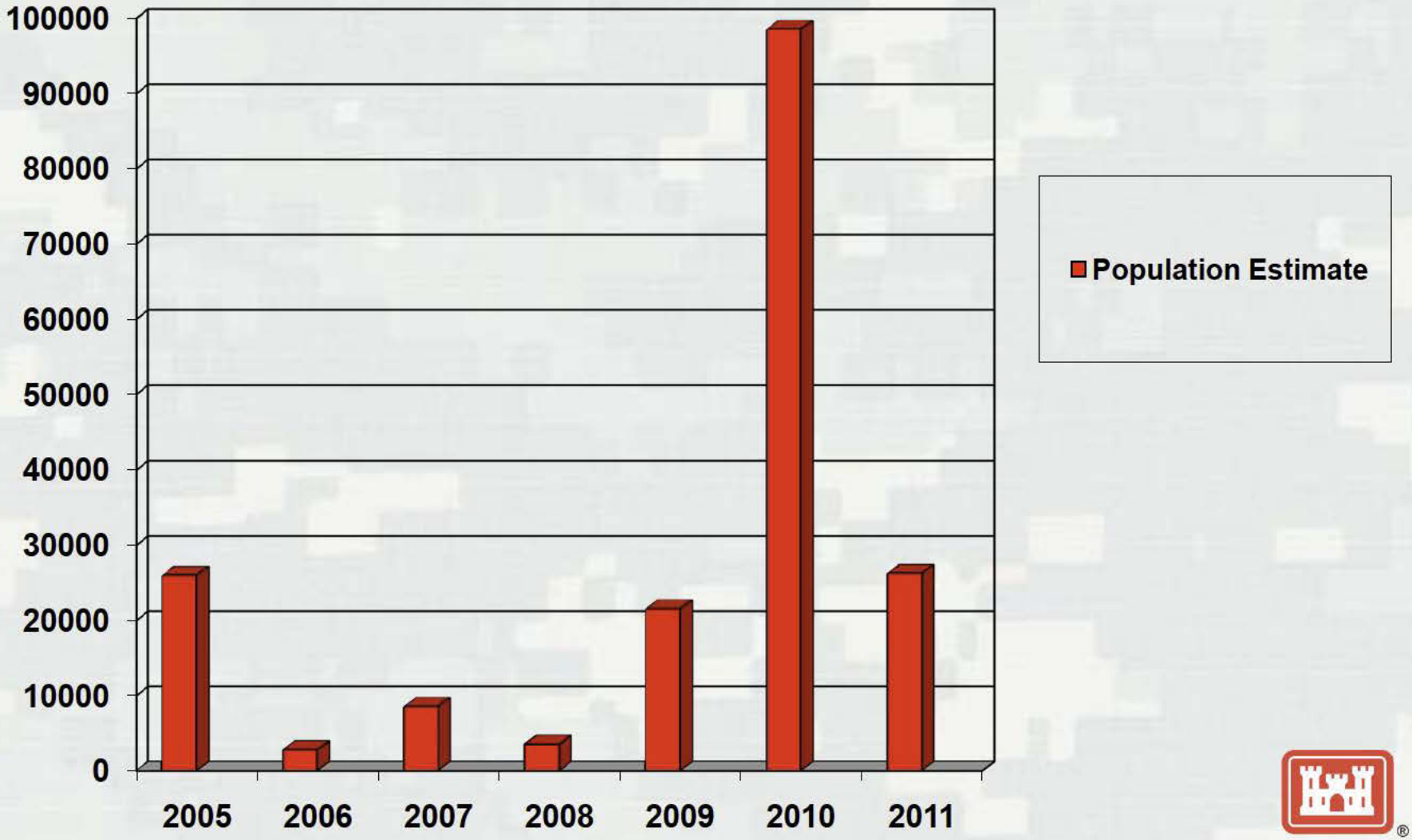
Attraction Flow



Spring Flow 2005-2011



Adult Spawning Population Estimates



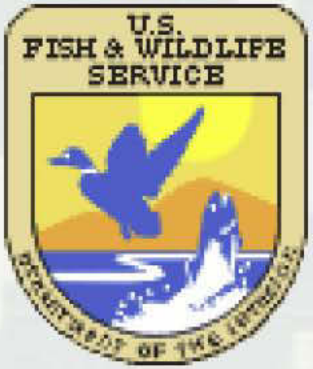
Year	Passage Efficiency	Passage Success	Attraction Effectiveness
2005	64%	N/A*	N/A**
2006	50%	25%	50%
2007	65%	41%	63%
2008	Data not yet analyzed	Data not yet analyzed	N/A**
2009	N/A***	N/A***	N/A***
2010	61%	45%	74%
2011	Data not yet analyzed	Data not yet analyzed	Data not yet analyzed

*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




Questions???
© Steve Herrington