

## **ENHANCED MANATEE POPULATION VIABILITY VIA OCKLAWAHA RIVER AND SPRINGS RESTORATION**

*Gian Basili, Terri Calleson, Scott Calleson*

United States Fish and Wildlife Service, Jacksonville, Florida, USA

Improving access for manatees to natural warm water refugia such as the springs in the Silver and Ocklawaha rivers and the abundant submerged aquatic vegetation (SAV) in the system would be an important positive contribution to creating a sustainable network of regional warm-water habitat necessary for the recovery and persistence of the Florida manatee into the foreseeable future. Historically, manatees relied mostly on natural springs and passive thermal basins to shelter from cold winter temperatures, but in the 20<sup>th</sup> century, human activities including dam construction blocked manatee access to many of these natural warm water refugia and destroyed or significantly diminished others. At the same time, newly developed power plants and industrial complexes discharging heated effluent into manatee accessible waterways created significant new sources of warm water. Manatee responses to these changes varied, but the most significant outcome is that most of the Florida manatee population now seeks refuge during cold weather at industrial sites throughout much of peninsular Florida. As power plants are decommissioned or modernized, the availability of industrial warm water sites is being reduced. The loss of warm water from some or all these sites is an eventual certainty. Providing manatees easier access to natural warm water springs like those in the Ocklawaha and Silver rivers will contribute to their long-term persistence in Florida. With the large-scale loss of foraging habitat in the Indian River Lagoon and to some degree in the Middle and Lower St. Johns River, this system can also provide abundant sources of natural SAV as well as floating and emergent vegetation. The combination of natural warm water sites and SAV in close proximity presents significant advantages for this subspecies and its long-term viability on the East Coast.

PRESENTER BIO: Dr. Basili is the Deputy State Supervisor (Florida) for Ecological Services of the US Fish and Wildlife Service, and he has been working in Florida on landscape-scale conservation and restoration for more than 25 years.