

Florida Manatees, Warm-Water Refuges, and an Uncertain Future

DAVID W. LAIST

Marine Mammal Commission
Bethesda, Maryland, USA

JOHN E. REYNOLDS, III

Mote Marine Laboratory
Sarasota, Florida, USA

Most Florida manatees depend on localized warm-water refuges in the southern two-thirds of Florida to survive winter; about 60% use outfalls from 10 power plants, whereas 15% use 4 natural warm-water springs. Future availability of these refuges is in doubt; most of these power plants may be retired within the next 20 years and groundwater withdrawals for human use threaten natural springs. This article examines possible effects on manatees from losing major warm-water refuges and alternative management actions. Because of manatee site-fidelity patterns, plant retirements may increase cold-stress-related deaths and significantly decrease manatee abundance. A forward-looking management strategy is urgently needed before decisions are made to retire plants now used by large numbers of manatees. Possible management alternatives include: gradually weaning manatees off plant outfalls, maintaining the flow of springs now used by manatees, enhancing access to suitable warm-water springs now little used or unused by manatees, constructing new non-industry dependent warm-water refuges, and creating new thermal basins to retain warm-water pockets able to support overwintering manatees.

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Address correspondence to David W. Laist, Marine Mammal Commission, 4340 East-West Highway, Room 905, Bethesda, Md 20814, USA. E-mail: dlaist@mmc.gov