

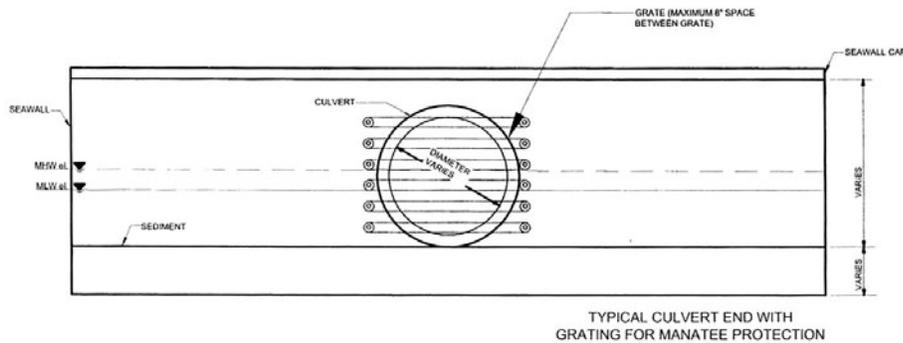


## Grates and Other Manatee Exclusion Devices for Culverts and Pipes

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Numerous manatees have died from starvation or drowning after becoming stranded in culverts and pipes (such as storm water drains, dead-end culverts, etc.). Numerous manatees have been rescued from these structures, which seem to attract manatees due to the flow of fresh water, or the access that pipes or structures provide to other habitat. Because they cannot swim backwards, manatees can become entrapped when entering long or dead-end culverts.

There are various ways to preclude manatees from entering risky culverts and pipes, including grates, pilings, flap gates, and in some circumstances, valves. If a pipe or culvert is greater than 8 inches in diameter, but smaller than 8 feet, it is a possible risk to manatees because there is not enough room to turn around. Bars or pilings should be no more than 8 inches apart in front of the entrance to restrict manatee access. Bars on grates can be diagonal, horizontal or vertical, and grates can be hinged (swinging outwards) if needed so that debris can escape from inside the pipe.



NOTE: Not all culverts and pipes present a risk to manatees, and some provide needed corridors for other wildlife. The decision to allow a culvert to remain accessible to manatees will depend on culvert length, water level, available habitat and other risk factors. These situations can be evaluated on a case-by-case basis by the FWC.

