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A rolling electrical crowder was designed and tested in a laboratory to deter large predator fish (greater than 300 mm FL) from taking up residency in the Tracy Fish Collection Facility while minimizing impacts to smaller fish. The crowder consisted of an electrical sequencer, electrofisher unit, and series of electrodes. The electrical crowder moved fish through avoidance rather than taxis, so injury was minimized. Small flume tests showed that most striped bass (285–590 mm FL) avoided the electrical crowder, swimming quickly out of the field. Juvenile Chinook salmon and rainbow trout (88–108 mm FL) displayed twitch or slight movement when exposed to the field. Lighting conditions affected behavioral response. Nineteen of 20 fish crowded through a 15.2-cm-wide (6-in-wide) bypass on the first pass when the bypass was light. When the bypass was dark, only 3 of 20 fish crowded on the first pass, although an additional 14 fish were driven through after multiple attempts at crowding. In large laboratory flume tests where electrode spacing (2.4m) was set to approximate a real world application, 300 volts was needed to maintain a field strength similar to that of the small flume. Although only 60 percent of adult striped bass were crowded, no fish experienced taxis. To minimize harm to fish, the crowder can be operated at the lowest possible settings on an intermittent basis with the goal of reducing predator populations over time.