

## *The surgeonfish (Acanthuridae)*

The family, Acanthuridae, or surgeonfishes are known to spawn in resident aggregations (i.e., in which individuals are drawn from a relatively small, local area and the spawning site can be reached within a few hours or less). Often resident aggregations occur at a specific time of day often over many days, even year-round, and last a few hours or less. Depending on the species, surgeonfishes spawn in aggregations or as pairs, outside of an aggregation. Many species can reproduce in both ways. *Acanthurus guttatus*, the whitespotted surgeonfish, for example, here photographed in American Samoa by Andy Cornish, is known to form large resident aggregations.



*Acanthurus guttatus* (Photo taken by A.Cornish)

A close examination of the spawning aggregations of *Acanthurus nigrofuscus*, the brown surgeonfish, illustrates well the behaviours of this fish while spawning, as well as of other species that may associate closely with large numbers of spawning fish. A video shows a group of adults converging on a regular spawning site in shallow water during afternoon ebb tides. Fish leave their regular feeding areas and may migrate for almost a kilometer, probably returning again and again to the same site to spawn shortly before the full and new moons. Several hundreds to thousands of fish converge daily for extended periods in the year, the males taking on a paler coloration than the females, and mill about in dense groupings. Fish repeatedly rise and fall rapidly in little groups, and occasionally will complete a 'spawning rush' when tiny pelagic eggs and sperm are released. These can be seen as the white clouds in the video. Spawning rushes are rapid, as the fish are exposed to predators when up in the water column, but often the egg/sperm clouds are preyed upon by plankton feeders, like the fusiliers (Caesionidae) you see towards the end of the video.

Note that the timing of each spawning rush is irregular and often many rushes will occur within a short period of time; this is presumably to protect the adults from predators and to swamp the egg-eaters. Each spawning rush is led by a female, followed by several males; this is called 'group-spawning'. Once spawning is over, fish stream away from the aggregation site, back to their feeding areas. Pair-spawning (where just a male and female spawn outside of an aggregation) has also been observed in this species. The fertilized eggs will move away in the plankton, develop into larvae and then settle out of the water, possibly as much as a couple of months later.