Safety in numbers? An investigation of anti-predator behaviour in a social fish

**Aderinsola Odetunde**, **Constance O'Connor**, **Adam Reddon**, **Sigal Balshine** McMaster University

Group living is associated with both benefits, such as more efficient defence of a shared territory, as well as costs, such as increased competition for food and mates. Therefore, the degree to which individuals are expected to prefer to group and preferred group size will depend on the ecological conditions. For example, previous studies have shown that many fish species form larger groups when exposed to predators, but tend to disperse when exposed to food odours. In the current study, we investigated how group size preference changed in the presence of olfactory and visual cues of predation, using a full-factorial design, in a cooperatively breeding cichlid fish, *Neolamprologus pulcher*. We presented focal *N. pulcher* with the choice between joining a small or large group, when exposed to different combinations of cues of predation. We found that these social fish had a baseline preference for the larger group when not exposed to predation cues. However, this preference disappeared when the focal fish were exposed to cues of predation. This somewhat counter-intuitive result suggests that *N. pulcher* do not use a simple ‘safety in number’ grouping response as an anti-predator behaviour. Thus, more complex factors, such as the superior ability to maintain or defend a territory or offspring in a group, are likely important factors in driving the evolution of group living in this highly social fish.