1. The use of video camera systems in ecological studies of fishes continues to gain

traction as a viable, non-extractive method of measuring fish lengths and estimating fish

abundances. We developed and implemented a rotating stereo-video camera tool,

which maximizes sampling effort compared to stationary camera tools.

2. Our focus was on the development of methodological approaches to quantify fish

density using rotating camera systems. We first developed a modification of the metric

MaxN, which typically is a conservative count of the minimum number of fishes

observed on a given camera survey. We redefine MaxN to be the maximum number of

fish observed in any given rotation of the camera system. When precautions are taken

to avoid double counting, this method for MaxN may reduce between-sample variability

and more accurately reflect true abundance than that obtained from a fixed camera.

3. Because stereo-video allows fishes to be mapped in three-dimensional space, precise

estimates of distance-from-camera can be obtained for each fish. By using the 95%

percentile of the observed distance from camera to establish species-specific areas

surveyed, we avoid either underestimating species which can only be identified near the

cameras or unnecessarily excluding individuals of species identifiable to greater

distances; both of which can be caused by using a single distance for all species.

Accounting for this range of detectability is critical to accurately estimate fish

abundances.