

## THE COST OF IGNORANCE AND NON-COMPLIANCE

Recreational angling is essentially an open fishery, meaning that anyone can participate provided they obtain the necessary licenses. The open nature of the fishery makes it impossible to try and regulate catch rates through effort controls (i.e the limitation on how many anglers can fish). Instead recreational fishery management relies on the use of marine protected areas, seasonal closures for certain species and limitations on the number and sizes of fish that can be kept per day. However, the adequate functioning of these regulations is reliant on the degree of compliance amongst the anglers which in turn depends to a large extent on the motives for fishing and the knowledge base amongst the anglers regarding the regulations. In other words if an angler does not know the regulations they by default cannot abide by the regulations. Two important questions to answer would therefore be a) what proportion of recreational and subsistence anglers know the current fishery regulations and b) what proportion of these anglers then abide by them.

To answer these and other questions an ongoing recreational and subsistence fishery monitoring programme was initiated on the Knysna estuary in 2008. Basically this involved (and still does) spending a great deal of time out on the estuary interviewing as many anglers as possible on a set number of days per month. The survey questionnaire was designed to capture various aspects of the fishery including: 1) angler demographics and associated socio-economics, 2) angler attitudes and knowledge towards management regulations and 3) Catch and effort data along with the associated bait usage. Basically what we needed to find out was how many people were fishing, why were they fishing, how long did they fish for, what fish were caught (species, numbers and sizes), what bait and how much bait did they use and finally what were the anglers perceptions and knowledge regarding fishery management and the associated regulations. From this we would then have a clear picture of the recreational and subsistence fishery operating on the Knysna Estuary.

So what are some of the results and what sort of picture are we getting? Well to begin with the vast majority of anglers interviewed over the year survey period agreed with the need for the current fishery regulations (Figure 1). Both closed seasons and marine protected areas received the greatest support (84%) followed by size limits (83%) whilst bag limits received the least support (78%). Within estuarine systems closed seasons only apply to shad and it is likely that the lack of species affected would artificially inflate its support. However, in contrast to the anglers agreement with current regulations, knowledge of size and bag limits for target and caught species was very low (Figure 2), with only 32% and 38% knowing the relevant size and bag limits! This is a pretty dismal result as effectively we are saying that before we even look at voluntary angler compliance, between 62 and 68% of the anglers by default cannot comply! Sadly this is not a unique situation to Knysna and studies conducted on the Sundays River Estuary and Keurbooms Estuary show similar results with a total of only 14 and 25% of anglers knowing the regulations respectively.

### Anglers In Agreement With Current Regulations

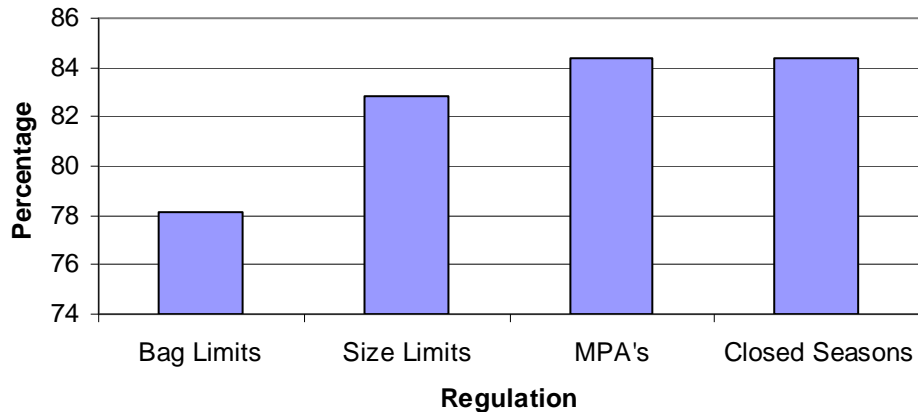


Figure 1: Proportion of interviewed anglers in agreement with the current fishery regulations.

### Proportion of Anglers with Correct Knowledge of Regulations

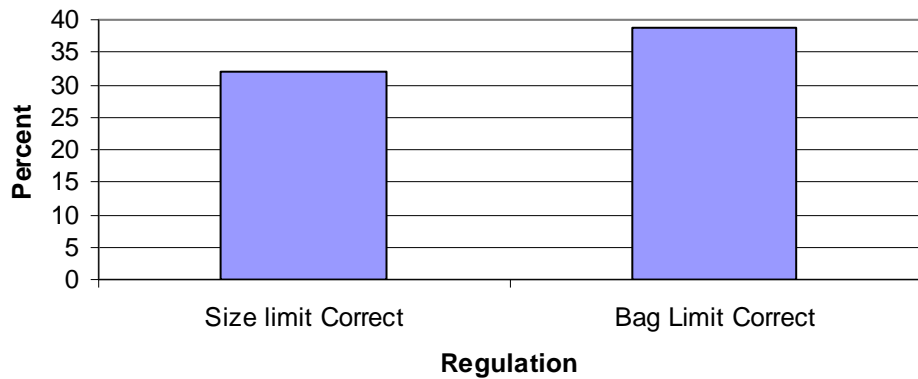


Figure 2: Proportion of interviewed anglers who correctly knew the size and bag limit for their target species.

The picture continues to darken when we then look at the size structure of all fish caught and kept. Of all the fish caught, kept and seen during the survey period a large proportion were below the legal size limit. In fact 74% of cape stumpnose, 4% of spotted grunter and 89% of white steenbras that we measured were undersized. Again this rather bleak situation is not unique to Knysna and in the previously mentioned study on the Sundays estuary 47% of the total retained catch was below the legal size limit (35% of cape stumpnose, 63% of kob and 100% of white steenbras), whilst on the Keurbooms 77% of cape stumpnose, 51% of grunter and 100% of white steenbras were undersized!

The next question that then begs to be answered is how effective can our fishery management be if we have such a low knowledge base combined with a high rate of non-compliance, and how can we go about changing this situation? My personal point of view is that it's quite clear that the functioning of these regulations is being totally undermined by non-compliance both voluntary and through ignorance. Before the fingers start to point, it's important to understand that these results cover the entire spectrum of anglers. Instead of always categorizing anglers as recreational, commercial or subsistence it seems as if we could also use the categories of a) a knowledgeable ethical angler (one who knows, understands and respects the regulations), b) the ignorant angler (those that don't know what the regulations are or in some instances are unaware of any regulation) and c) the unethical angler (those that will break the regulations no matter what they know). It is my belief that the second group of anglers needs to be actively targeted with information dissemination and educational drives whilst the last group needs to be dealt with by law enforcement.

Although much is already being done to educate anglers and promote a change in outlook and behaviour it's clear we need to do more and when I say we I mean everyone involved in fishing from tackle shops to fishing clubs to local angling forums, conservation bodies and the general public. For at the moment ignorance and non-compliance is widespread thereby limiting the effectiveness of our fishery regulations and placing extra strain on our fish stocks. In short the cost is high, too high and the picture is rather bleak.



An anglers catch of sized spotted grunter (Knysna Estuary).