

Industry Catchability Questionnaire

Background

Stock assessments of Southeastern fisheries resources conducted through SEDAR rely heavily on evaluating fishery-dependent data sources to detect population abundance signals. A common assumption of these evaluations is that a change in the number of fish in the population will result in a corresponding proportional change in the number of fish caught per unit of fishing effort. For example, if the average catch of gag grouper during a four day trip was twice as high in 2004 as in 2000, one interpretation could be that the number of gag in the population has roughly doubled. However, another possible interpretation is that the ability of the fishery to catch the fish (catchability) has changed.

Assessments incorporating simple linear increases in catchability have been submitted to the last several SEDAR peer reviews, with the reviewers repeatedly noting that changing catchability is a complex issue that transcends any single assessment. As a result, a dedicated workshop to develop objective standards and consistent methods for incorporating catchability changes in SEDAR assessments has been scheduled for November 17-21, 2008 in Atlanta. As part of this effort, constituent representatives from all areas and fisheries within the Southeast region will be asked to contribute their first-hand knowledge of fishing methods to help analysts identify significant changes, determine when such changes occurred, and develop a plausible range for the magnitude of change. Accordingly, it is important for all participants to clearly understand what fishery scientists mean by the term 'catchability'.

Technically, the catchability of a fishery means the fraction of the fish population that is caught by an average unit of effort in that fishery. In practical terms, catchability represents any process that causes the catch rates for a fishery to change for reasons other than a change in effort or a change in overall fish abundance. Changes in catchability may therefore be caused by any factor that changes either the ability to find fish or the ability to land the fish once they are found. Examples of such factors include the amount of time spent traveling to fishing grounds (versus actually fishing), the capability of fish-finding equipment to locate fish, number of hooks per rig, type of bait, other species of fish competing for the baits, certain types of regulations, and of course, the skill of the fisherman. Moreover, since catchability is an average measure, it should reflect the overall ability of a particular fishery to catch fish. For example, suppose we are examining the data from a fishery consisting of 100 fishermen. If one of those fishermen were able to double his catch rates by using a new type of gear (that is double his 'personal catchability'), but the other 99 fishermen in the fishery kept fishing as they did before, then the overall catchability of the fishery would only have increased by about one percent. Similarly, the overall catchability of a fleet could decrease if skilled fishermen retire faster than new fishermen are being trained. The following questions focus on these and other potential agents of change in catchability and are intended only to help fishermen and scientists communicate more effectively during the workshop. It may also be useful for constituents who plan to attend the workshop to circulate this questionnaire beforehand to others who do not plan to attend in order to gain the widest possible perspective.

Industry Catchability Questionnaire

Catchability Questionnaire

1. When did you begin fishing?
2. In which fishery/fisheries do you participate?
3. Please list the size, horsepower, # of rod holders (if present), and hold capacity of all the vessels you have owned, from first to last, with approx. dates of ownership. If any of these factors have changed (such as repowering the vessel or adding more rod-holders), please listed the changes and when they occurred.
4. What methodological or technological advances have improved your ability to catch fish and when did you incorporate them (i.e. electric reels, GPS, bottom machine, loran, radar, outriggers, hydraulic system, 'super braid' lines, changes in baits, hooks, lures, etc., flourocarbon leader, livewell, satellite images, internet, major changes in fishing pattern such as trolling vs. live-baiting)? How much do you think they have helped you land more fish? How have they helped the average fisherman?
5. Have regulatory changes influenced these methodological or technological changes? Have regulations promoted or inhibited improvements in fishing capacity such as those listed above?
6. Have there been methodological or technological changes that have reduced your ability to catch fish (such as turtle excluder devices or bycatch reduction devices)?
7. Has your fishing capability (as measured by your ability to catch what is out there) increased (or decreased) over 10, 20, 30, 50 years ago? Has the capability of the average fishermen in your fishery improved (or decreased) over 10, 20, 30, 50 years ago?
8. In relative terms, how much has your fishing capability increased (or decreased) over time (1%, 2%, etc per year), and how much has it changed for the average fisherman in your fishery.
9. Overall, is fishing today easier or harder for you than it was 10 years ago (or 20 years, or 30 years, etc.)? Is it easier or harder for most fishermen?
10. How has the number of experienced fishermen changed through time and how do you think this has affected the overall catch per trip of the fishery you participate in?
11. How have your catch rates of grouper or snapper been affected by the presence of other sea life?
12. How much do commercial fishers change fishing sites in response to abundance declines or rebounds in a target species(s)? Do commercial fishers change fishing sites in response to changes in abundance of bycatch species? Do you think commercial species been expanding or contracting their spatial range, either offshore or inshore?
13. Do recreational fishers or party-boats fish areas that were previously commercial fishing grounds? Has recreational fishing or party-boats caused a spatial change in commercial fishing grounds? Has the opposite occurred – has commercial fishing caused a change in the areas used by recreational fishers?
14. Has the placement of reef or structure changed your fishing capability, if yes, how so?

Industry Catchability Questionnaire

15. Do you keep a personal log of your catches and the conditions under which they were made (for example, sea state, temperature, competition for the hook from non-targeted species)? Would you be willing to share information from this log under an agreement assuring confidentiality to help qualify factors that may have affected your catch rates?
16. Are there any factors that have affected your ability to catch fish, either positively or negatively, that have not been covered in the above questions?