WWF

FACTSHEET

2014

Smart Fishing Initiative

RISK: DETERMINING ACCEPTABLE LOSS

What is Risk?

Risk may be generally defined as "the probability of something bad happening." Therefore, with respect to decision making in fisheries management, risk is the average loss or forecasted loss of something bad happening. Risk is related to uncertainty because there is inherently more risk associated with uncertain outcomes.

The level of risk that is acceptable to managers is ultimately a policy choice. Managers must define acceptable levels of risk and of short-term yield which can be foregone to reduce these risks. In general, managers should be willing to accept a lower risk tolerance as data and knowledge improve thereby reducing the amount of uncertainty.

Determining Risk in Light of Uncertainty

Clearly, when management decisions are to be based on estimates from fishery assessment models, it is desirable that the level of uncertainty be quantified, and used to calculate the probability that a particular management action will achieve the desired target and/or risk of incurring undesirable events, such as exceeding the Limit Reference Point (LRP).

When a large degree of uncertainty exists, it necessarily requires that the Target Reference Point (TRP) be set more conservatively to ensure that the LRP is not breached. When more information is available to managers, such as operational data and tagging data, it may reduce uncertainty and improve estimates such that the TRP could be placed closer to the LRP.

Likewise, when uncertainty is high, it is reasonable to set a lower percentage of risk of breaching a LRP. A lower probability of risk of breaching an LRP ensures that uncertainty is adequately accounted for. Alternatively, when more information is made available, the probability of risk may reasonably be reduced to a higher percentage.

Assessing Risk

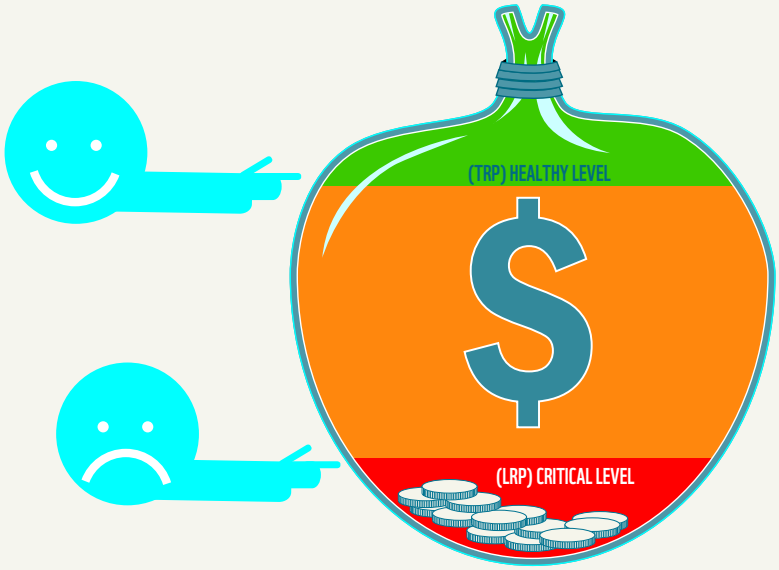
A thorough assessment of risk requires that scientists quantify the degree to which the events are deemed undesirable by managers/stakeholders; that is, the cost or impact of the event. This requires weighing the outcomes against the potential costs and benefits. Increased catches are generally accompanied by reduced biomass in fisheries with associated risks of variability and stock collapse. At the core, the simple risk assessment is, "How much catch can be taken without reducing the stock to the point where it may fluctuate unacceptably, and/or be unable to replenish itself". Other questions of risk may consider various management objectives or combinations of management objectives and, ultimately, more complex social and economic issues.

One of the biggest challenges for managers is determining what is "acceptable risk." For example, some have proposed a definition in which the level of harvesting should be considered safe if it maintains the spawning stock biomass above 20% of the virgin stock level at least 90% of the time. Definitions of acceptable risk will generally be stated in similar terms, but in every case it will be fishery specific and tied to the management objectives.

Categories of Risk

Two general categories of risk can be identified: the risk of not achieving a TRP, and the risk of exceeding an LRP. The costs of not achieving a TRP, by being either too high or too low, are usually defined in terms of the short-term reduction or interruption of the flow of benefits to participants in the fishery and consumers, even though this may result in a net gain in the long term.

The costs of exceeding an LRP are much more serious, ranging from stock decline to collapse, impacts on associated species and ecosystem destabilization, long term loss of earnings, including intergenerational impacts for both fish stocks and fishermen.



Our Smart Fishing Vision and Goals:

Vision: The world's oceans are healthy, well-managed and full of life, providing valuable resources for the welfare of humanity.

2020 Goals: The responsible management and trade of four key fishery populations results in recovering and resilient marine eco-systems, improved livelihoods for coastal communities and strengthened food security for the Planet.

Why we are here
To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

panda.org.fj

For more information

Alfred "Bubba" Cook
WCP Tuna Program Manager
4 Ma'afu Street
Suva, Fiji Islands
acook@wwf.panda.org
Tel: +6799035008

WWF Smart Fishing Initiative
Moenckebergstr. 27
20095 Hamburg
Tel. +49 40 530 200 310
www.panda.org/smartfishing