



WWF

FACTSHEET

2014

Smart Fishing Initiative

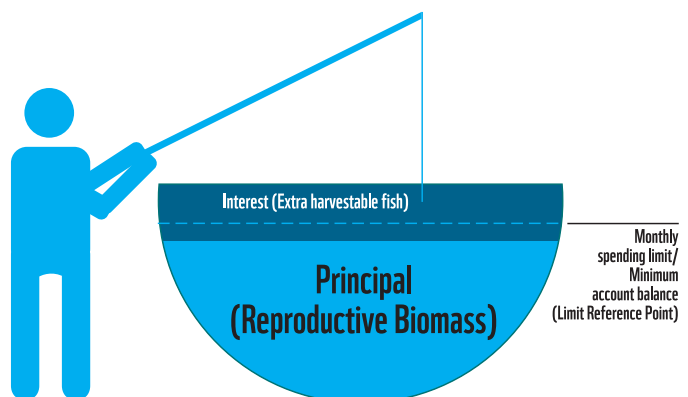
LIMIT REFERENCE POINTS: DON'T GO THERE!

Reference Points: Single Serving or Packaged Deal?

A Reference Point is a benchmark value that helps managers decide how the fishery is performing and is often based on an indicator such as fish stock size or the level of fishing effort. Fisheries scientists conduct a fish stock assessment to provide estimates of fish stock size and fishing mortality over time. Reference Points serve as a standard to compare those estimates based on our understanding of the biological characteristics of the targeted species. Reference points can mark a limit, which represents a level that managers aim to avoid, or a target, which managers strive to achieve and maintain to best meet the objectives of the fishery (such as stock sustainability or harvest stability). Biological reference points represent specific quantitative indicators of variables such as fishing mortality rate, yield, or stock biomass by which the current state of the fishery and objectives for that fishery can be judged.

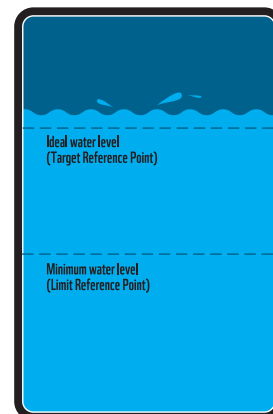
Example 1: Bank on a Harvest

Stated in the most basic financial terms, a sustainable fishery is one where fishers harvest only the interest (extra harvestable fish in the population) generated on principal (biomass of fish needed to reproduce itself). Just like with any interest bearing account, if you withdraw all the interest and start withdrawing on the principal in your account, the related interest will decline proportionally along with your principal. A prudent investor also considers variations in the stock market and economy (uncertainty) that may affect the principal, and, therefore, the amount of interest that is generated by a given account. Thus, a rational investor would place a limit on the withdrawal of their interest that would foreseeably prevent them from “digging into their principal.” A monthly spending limit or minimum account balance would be analogous to a limit reference point for a bank account that would prevent overspending (and, analogously, overfishing) over a fixed period.



Example 2: Keep the Well from Going Dry

Consider also a water tank for a small city or village. When the tank is full, there is plenty of water to go around as regular rainfall replenishes the tank, which is like a healthy fish stock. In this case, the rainfall might be considered the recruitment into the water resource, replenishing the water lost through use in the community (fishing mortality) and natural leaks and evaporation (natural mortality). However, there is a lot of uncertainty regarding recruitment into the water tank through rainfall. The weather, like productivity in the oceans, is uncertain, especially considering climate change! So to ensure that the water tank does not drop too low, a good city manager or mayor will monitor the tank level and try to maintain it at a level that ensures everyone always has adequate water for their needs. This level would represent the target reference point. The manager would also make sure that the tank never reaches a point that, at minimum, the basic needs of the community (such as drinking and cooking) are not met. This would represent a limit reference point similar to that necessary to meet the biological/ecological needs of a fishery. These limit reference points might be interpreted by the manager as a rate of daily water use, like a fishing mortality based reference point, or an absolute minimum physical level that the tank would be allowed to reach, like a stock biomass based reference point.



LIMIT REFERENCE POINT - SIMILAR TO A RED LIGHT. WHEN YOU APPROACH IT, YOU STOP. IT IS A FISH STOCK SIZE OR LEVEL OF FISHING EFFORT THAT MANAGERS DO NOT WANT TO REACH OR EXCEED. IT TYPICALLY CONSIDERS ONLY THE BIOLOGICAL STATE OF THE STOCK.

Can Limit Reference Points be set independently of other reference points or management tools?

Absolutely, yes! A Limit Reference Point is based on factors that may be assessed completely independently of other reference points or management measures. Limit Reference Points form the “foundation” or “floor” of the management system as a benchmark that managers and fishermen do not want to go below. Additionally, because LRPs are scientifically established thresholds or limits, they may be set independently of other management considerations (such as target reference points aimed at achieving fishery objectives). Furthermore, because a Limit Reference Point is derived exclusively from the best available scientific information on the biological state of the stock, it does not require managers to consider complex social and economic factors necessary for calculating Target Reference Points (TRPs).

WARNING: LRPs alone do not ensure the sustainability of a fish stock! An F-based LRP is like a speed limit sign while a B-based LRP is like a stop sign, but both are only effective if a police officer is awake and aware enough to use the radar gun to catch the speeder and their vision to catch the person running the stop sign! Even though LRPs represent a good first step, managers still must have the appropriate TRPs, Harvest Control Rules (HCRs) and Harvest Strategy (HS) in place to ensure a sustainable fishery! We will describe these additional management measures in future materials.

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