

When is a Plan Not a Plan?

A Response to DFO's Cod Rebuilding Plan

By Barry Darby and Helen Forsey

For years there have been calls for DFO to develop a "Rebuilding Plan" for our Northern Cod stocks. Leaving aside the larger question of whether it is even possible for humans to "rebuild" wild stocks, we want to look at what the Department finally came up with just before Christmas to supposedly satisfy those calls.

The federal "Rebuilding Plan" as presented by DFO begins with four overviews – a biological synopsis, an overview of cod fishery, stock status and projections, and socio-economic and cultural importance. These four sections occupy over half of the document. It then briefly lists "Management Issues", with one paragraph each on natural mortality, fishing mortality, the recreational food fishery and incidental catch – almost entirely without supporting numbers. The three-paragraph section that follows, "Objectives," names one short-term and one long-term objective, expressed in general terms and without timelines, which it states are impossible to set. The seventh section, "Management Measures", finally gives some idea of their actual intentions, which we will assess below. The document closes with brief notes on access and allocation, shared stewardship, compliance and evaluation.

The Oxford Dictionary defines a plan as "a detailed proposal for doing or achieving something." Presumably those pressing DFO to come up with a plan for rebuilding the cod stocks were looking for an actual proposal detailing what the Department intended to *do*. What they got instead was a 6000-word justification for continuing the same policies that have been failing spectacularly for decades, decorated with some ill-defined targets and some new bells and whistles in the form of graphs and quadratic equations.

Surely a rebuilding plan has to include actions, not just desired outcomes. Although one might question the idea of humans "rebuilding" a natural growth process in a wild environment, we can take actions that will encourage such processes by removing obstacles and helping create better conditions for that growth to occur.

I have a garden, for which I make plans each winter. Right now I am pondering what to do about my carrots, which failed to grow well last year. The actions I plan to take to help rebuild my carrot crop will include vigorous weeding to reduce competition and discourage pests. Fishery action equivalent: allow fish harvesters and others to hunt seals, and for a longer period (and see if demand follows supply.) I will feed and water my carrots so that they get all the nourishment they need. Fishery action equivalent: reduce the effort on the caplin stock so that more can spawn and more food is available for the cod. Finally, I will drastically thin my carrots when they are small to allow the remaining ones to grow. Fishery action equivalent for 2J3KL; use passive, selective gear (handlines, long lines, cod pots and traps) to harvest 40-80 kt of cod annually rather than the current 10-12 kt, so as to catch a greater proportion of smaller and middle-sized fish and leave the larger, more productive fish to thrive and reproduce.

The Cod Rebuilding Plan has been rightly criticized for being "vague" and lacking detail, and for having been produced and sprung on us without proper consultation. But it's not just vague and arbitrary; some of its elements defy common sense. As Jim Baird pointed out on the *Broadcast*, if seals are harvesting 30-some percent more cod than we are, then why does the plan focus on reducing our harvest while ignoring the seals? And if our caplin fishery is taking 20,000 tonnes of food out of cods' mouths while cod are starving, why are we not planning to suspend the commercial caplin harvest to help the cod stocks recover? Shouldn't a rebuilding plan be sensible?

Moreover, as a scientific document, the so-called Plan is sorely lacking in scientific rigour. For one thing, it regularly omits or obscures clear quantitative facts, even facts that are readily available. The Plan's biological synopsis, for example, states that "Evidence suggests that predation pressure is not a major driver of 2J3KL cod population dynamics, but rather that population has been primarily driven by food availability (especially capelin), and by fishery removals." No actual numbers are given; words are used instead, and the words are deceptive. DFO's own recent stock assessments show natural mortality (M) as being ten to twenty times as high as fishing mortality (F). Clumping fishery removals and scarce food availability together in this way as primary drivers of cod populations is thus misleading at best.

That is only one example of the places in the document where numbers would make (or break) the argument. The fishery overview section does cite numerous quantitative facts regarding harvest rules, landings, TACs, recreational and indigenous fisheries, but gives zero figures on the context – the size of the stock during the periods discussed. Numbers would likewise have been useful to compare predation with food availability factors, to

back up the brief discussion of natural mortality in the "management issues" section, and to at least set a framework for the plan's targets and timelines. In this context I am tempted to agree with nineteenth-century British scientist Lord Kelvin's assertion that when you cannot express something like this in numbers, it is not science.

The section on "management measures," gets rather short shrift, comprising only 15% of the document and coming near the end. However, it is the only one that deals with action of any kind. The first and most detailed measure listed – and the key to implementing the entire "plan" – is the "Harvest Decision Rule (HDR)", designed to "provide structure around the inter-annual landings change" for the stock. Translation: Keep removals as low as possible.

The HDR involves a complex theoretical calculation, based on equally theoretical "reference points", arbitrary percentages and the postulated relationships between them. It is presented in a graph showing a gentle S-shaped curve, with points along it from which fishery managers can derive the answer to the question: What will be the Total Allowable Catch for the year?

In DFO's current system, where quotas are the basis for all harvest management decisions, the TAC is the central and indispensable figure from which all the corresponding quota allocations are derived. Setting the annual TAC is a perennial problem, requiring knowledge of the stock biomass and a choice as to how much of it should be harvested. The estimated size of the 2J3KL cod stock for the last four years has varied between 300 and 500 kt., and there is no consensus on an appropriate harvest percentage. Historically in Newfoundland, Norway and Iceland, annual catch rates have ranged successfully between 10 to 40%. Given this variability, coupled with uncertainty around predation, climate, food supply (capelin) and other factors, it is clearly impossible to obtain any reasonably reliable number for a TAC. We could call it an unknown known.

The creation of a complex mathematical process that will spit out an answer when supplied with hypothetical numbers will not make the answer any more known. But that is what the HDR is supposed to do. It represents a variation on the old theme of Maximum Sustainable Yields and related attempts by DFO over the years to predict the unpredictable and use it as the basis for their entire harvest policy. And it is no more viable than the efforts that preceded it.

Also under "management measures", however, is the one hopeful part of the document – a list of several effort-related restrictions around gear types, bycatch, and marine conservation areas, as well as monitoring. The restrictions cited are relatively modest and most have already been in place for some time. But in addressing the "who, how when and where" of harvesting, they point towards the kind of change that could actually lead to a rebuilding of our cod stocks.

In conclusion, DFO's Christmas cod rebuilding plan leaves much to be desired. Paraphrasing Lord Kelvin again, it may represent the beginning of knowledge, but the knowledge is of a meagre and unsatisfactory kind. What we need instead is a science-based action plan that would shift the focus of harvest management from imposing TACs and quotas to regulating fishing effort. Let's push for that.

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