

Wild Salmon as Natural Capital

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I am not a fisheries biologist nor am I commercially interested in the sockeye salmon harvest. I am also not a sports fisherman, nor even a particularly avid consumer of salmon of any kind.

My professional background is as an accountant and an economist, and in that capacity, and well as in my capacity as a citizen, I am however, a keen observer of both commercial activity and public policy.

I began my studies in economics just over 37 years ago, in the early 70's. Since the early 90's, I have come to understand ever more clearly, that the disciplinary separation between economics on the one hand and physics, biology and ecology was a major error. I say "was" deliberately, since there is a new paradigm in economics, ecological economics, that has emerged to address this error, and it is my expectation that in due course, the ecological economics paradigm will replace the present mainstream thinking in economics that tends to ignore the limits of physics, biology and ecology. Geographers will no doubt chuckle, since they have always bridged these two worlds. Although not specialists on either side, they avoided the trap into which fell both those economists who saw no limits in nature and those ecologists who preferred to study ecosystems as if the activities of human beings in those systems could be safely ignored !

The most useful insight from ecological economics into a renewable natural resource like wild salmon, is the idea that we should ditch our vision of salmon purely as a given "flow" of anthropocentrically useful biomass to be managed like a flow of industrial output, and think of it instead as a ***natural capital asset***. I recognize that I am using an accounting analogy here, and no analogies are ever perfect. I do think this one is instructive. I expressly say that the salmon resource is usefully thought of as being an asset and not just a flow of resources, and as a natural ***capital asset***, as much as an inventory asset.

In a well-run business, capital assets play a critical role in the production of a flow of income, but are not themselves the flow of income. It might make sense, at times, to engage in net ***investment*** to build up a category of the capital stock and at other times, to ***divest***, to some extent, to free up financial capital for redeployment elsewhere or even to distribute to investors if the enterprise is shutting down. But, when operating on the assumption that we are running a "going concern", and if one is not consciously engaged in divestment to redeploy capital into another category of capital asset, it is imperative to recognize the need to keep the asset in good functioning order.

What does this mean for Sockeye Salmon and the BC economy ? It seems to me to mean that last year's dramatically depleted sockeye run is a warning to us that whether the major cause was higher ocean temperatures, sea lice infection due to open net-cage fish farming, habitat loss in salmon-bearing rivers and creeks or overfishing, generalized aquatic pollution or, as seems more likely, some combination of ***all*** of these factors; we need to do more than what we have done to safeguard it, and we need to do it in a smarter manner. Indeed, we need to do ***whatever is necessary*** to protect this very valuable capital asset.

I suspect it is going to prove that it isn't so much a matter of managing the salmon resource as it is a matter of managing our impact, as human beings, on the natural capital assets that the salmon stocks constitute.

One of the key ideas that ecological economists have brought back into economics generally, is the idea of limited substitutability. Economic theory has always recognized that it is an empirical question to what extent one good or is a substitute for another. There has been a tendency in the mainstream economics of the past 150 years though, to see money as a *perfect substitute* for all goods. As it turns out, this can be a dangerous assumption with natural capital assets. It is not so much that natural capital assets cannot easily be turned into money. Most can. Some perhaps, are in fact not easily turned into money, and those assets are sometimes, paradoxically, protected from destruction by that very attribute, provided of course they are not obstacles in the path of attempts to "get at" other natural capital assets that *are* easily turned into money. But the problem I have in mind is that the reverse conjuring trick, getting money turned back into healthy, fully-functioning natural capital assets, is much harder to pull off than the original conversion - from natural capital asset stocks into money.

To sum up then, I want to stress the idea that it is very useful to think of our wild sockeye salmon "system" (and indeed it is an ecological *system* with its own unique internal dynamics) not so much as a flow, and not purely as an inventory asset, but as a natural *capital* asset, with many of the attributes that accounting analogy implies. Furthermore, if we can accept that, we would do well also, to recognize that all species of wild Pacific Salmon are an asset class with only the poorest of substitutes, namely farmed Atlantic salmon. The problems associated with the latter particularly when they are raised in open net cages – from sea-lice loading, localized seabed pollution, poor physical efficiency in terms of protein required as input in relation to output are well-known - and none of the structural ecosystem service benefits, such as feeding orcas, sea lions, bears, wolves and eagles and transferring nitrogen into coastal forests, are available from farmed salmon. Wild salmon are easily converted into money, but it is likely extremely inefficient if possible at all to try, purely by expenditure of money, to restore a really badly depleted wild salmon run.

So the main implication of this ecological-economic analysis is that it is economically logical and preferable ***to make a rigorously applied and very conservative precautionary principle, the fundamental cornerstone of our regime for protection of salmon habitat (riparian, in-stream and oceanic) and for the management of the fishery.*** There is an excellent literature on the risks to renewable resources treated as open access common property of human beings. It is no longer controversial that access *must* be controlled somehow. Access policies need, obviously, to juggle ecological sustainability needs with economic efficiency and social equity. Personally, I think individual transferable quota (ITQ) systems do this better for wild fisheries than most alternatives. I am aware that ITQ systems have never seemed in the past to be appropriate to the salmon fisheries, but the politics of allocation of catch amongst vested interests are sometimes made, unjustifiably, I think, into fixed constraints on policy innovation. But *ecological sustainability*, if anything, is the real fixed constraint, and it must be considered the *primus inter pares* in the juggling with efficiency and equity. There can be no economic efficiency or social equity in the long run, if the ecological integrity of the natural capital asset system producing the economic benefit is not absolutely guaranteed.