Abstract: Daniel Pauly

This presentation, which reviews some broad trends in the history of fishing, argues that sustainability, however defined, rarely if ever occurred as a result of an explicit policy, but as result of our inability to access a major part of exploited stocks. With the development of industrial fishing, and the resulting invasion of the refuges previously provided by distance, depth and ice cover, our interactions with fisheries resources have induce massive depletion of biomass, especially in the large fishes at the top of marine food webs. These broad trends can be documented here through maps of change in tropic levels, which displays characteristic declines, first in the near shore waters of industrialized countries of the Northern Hemisphere, then spread offshore and to the Southern Hemisphere (‘fishing down marine food webs’). This geographical extension of fisheries met its natural limit in the late 1980s, when the catches from newly accessed stocks ceased to compensate for the collapsed in areas accessed earlier, hence leading to a gradual decline of global landing.

These trends affect developing countries stronger than the developed world, which have been able to meet the shortfall by increasing imports from developing countries. However, they have led, along with the rapid growth of farming of carnivorous fish, which consumes other fish suited for human consumption, to serious food security issues. Also, ‘fishing down marine food web’ leads to a modification of ecosystems, usually in a predictable sequence, which will be described in some details. This gives urgency to the implementation of the remedies traditionally proposed to alleviate over fishing (reduction of overcapacity, enforcement of conservative quotas, etc.), and to the implementation of non-conventional approaches, notably the re-establishment of the refuges (i.e., marine protected areas), which made possible the apparent sustainability of pre-industrial fisheries.