

False Alarm: Is Fishing Rezoning Necessary in Malaysia?

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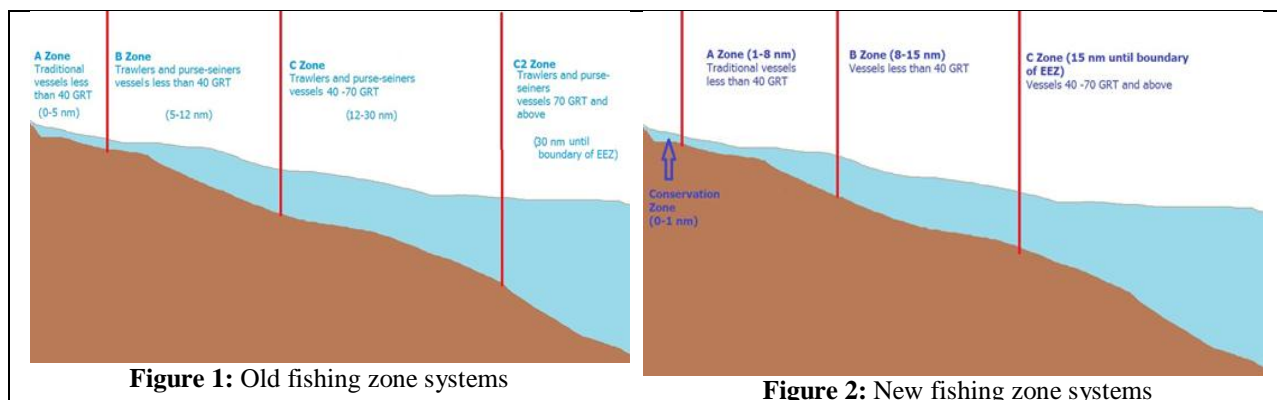
Abstract : In 1982, under the New Licensing Policy, the Department of Fisheries (DOF) had implemented the four-zone Marine Protected Areas (MPA) denoted as A zone (0-5 nm), B zone (5-12 nm), C zone (12-30 nm) and D zone (beyond 30 nm). At first glance, the decision by the DOF to introduce new zoning system justifies the need to enhance the protection of coastal areas not only in curbing the encroachment of trawlers but also to provide safe haven for fish juveniles as the areas are known to be the breeding and nursery grounds for most fishes. However, the move is not without cost; the creation of no-fishing zone or designated as “conservation zone” (0-1 nm) prohibits any fishing activity including by those fishermen using sampan. This paper studied fishing data as published by DOF and made an assessment on the success of the old zoning regime by comparing other fisheries in the region. It is demonstrated that there is no immediate need for the implementation of the new zoning regime and the suggestion is for the authority to maintain the current management regime. The old zoning regime still hold and effective for many years to come.

Keywords - Marine Protected Area, fishing zones, new zoning regime

I. Introduction

It is well known around this region that overcapacity in fishing had occurred [1] resulting overfishing [2] and for that reason, stringent measures were applied such as a moratorium on the issuance of new fishing licenses since 1983 [3]. In Malaysia, the official view held by the fisheries managers is that fisheries resources in the inshore waters (0-12 nm) have been biologically overfished [4]. The concept of marine protected areas or in short MPA [5] had long been exerted to curb the persistent encroachment activities of the trawlers into the zones made exclusive for artisanal fishermen. In 1981, under the New Licensing Policy [6], fishing zoning system was introduced comprising of four zones; that is, A zone (0-5 nm), B zone (5-12 nm), C zone (12-30 nm) and C2 zone (beyond 30 nm). Area between 0 nm to 5 nm was designated as breeding and nursery zone that prohibited trawlers to operate [7]. The purpose of zoning is to protect the coastal habitats from being destroyed by the trawlers and consequently avoiding conflicts between traditional fishermen and the trawlers. Trawlers were allowed to operate in zones more than 5 nautical miles from the shoreline depending on its tonnages (Fig. 1). However, lately, the authority had admitted that the need to introduce more stringent measures should be in place as the old regime seemed futile. Fig. 2 illustrates the new zoning regime which apparently is schematically devised forcing trawlers of less than 40 GRT, 3 nm away from the previous limit and allowing more space for traditional fishermen of between 1 – 8 nm. A narrow area between 0 – 1 nm is provided for conservation purposes where no fishing activity is allowed. As a result, the C zone for trawlers above 40 GRT will begin from 15 nm until the boundary of Exclusive Economic Zone (EEZ) which means the previous C2 zone had been dissolved. The zone between 0 – 1 nm or formally known as ‘conservation zone’ imposes total prohibition on fishing including traditional methods. However, the zone will promote aquaculture activities such as cockle and cage culture farming. An interesting feature in this new zone is the allocation for the community-based fisheries management (CBFM) to be initiated by the fishermen living adjacent to the coastal sea. This may be considered as government’s commitment in the enhancement of fishermen role in managing the coastal areas [8].

Beginning June 2014, fishermen in some states in Malaysia were required to comply with the new zoning systems as formulated by the Department of Fisheries Malaysia [9] that instigated the elimination of the previously 30 years old fishing zoning regulations. This new fishing regimes had agitated some segments of fishing community especially the trawlers to voice out their disagreement [10] (see photo 1). Apparently the change is perceived as an effort by the authority to further outcast them from the coastal fishing zones and on the other hand giving too much privilege to the artisanal fishermen. Although the new zoning systems are designed mainly to protect breeding [11] and nursery ground [12] and the biodiversity [13] of the fish resources, the trawlers are not happy the fact that they are being pushed away from the coastal areas that had been regarded as lucrative fishing grounds. According to Mr. Toh Sang Chai, the chairman of Kedah Boat Owners Association, most boats of category B (trawlers less than 40 GRT) are small and unable to operate further away from the coast [10].



The new zoning systems however are applied only to states such as Perak, Selangor, Penang, Perlis and Kedah while other states retained the old regimes. According to the Director General of Fisheries, the aim of the rezoning of fishing grounds is to reduce the number of trawlers and their encroachment activities in the traditional fishing areas and penalties for non-compliance are also increased as deterrence to other trawlers, which include monetary fines, forfeiture of fishing gears and one-year license suspension [9]. Although harsher penalties are imposed upon non-compliers, artisanal fishermen in Selangor held a demonstration in support of the new zoning areas; an evidence of a conflict among user groups (see Photo 2).



Photo1: Trawlers of Kuala Kedah protesting the new zoning regulations (Sinar Harian 2 June 2014).



Photo 2: Artisanal fishermen of Selangor supporting the new fishing zones (Selangor Kini, 13 Nov 2013)

The decision by the authority to enact a new zoning regime apparently follows Kelleher [14] that MPA should be based on the notion that there are threats to habitats and species in the seas and evidence shows that some are in decline. However, to this date, there are no scientific documents or publication made public to support such decision which draws interest of this study to explore the justification of the new zoning regime in relation to the current status of fisheries resources especially in the coastal areas. This has led to the question of whether the new zoning system is necessary at all.

II. Materials And Methods

The scope of the study covers waters of the west coast of Peninsular Malaysia for obvious reason that the new zoning regime only applicable to the west coast states comprising Perak, Selangor, Penang, Kedah and Perlis. This study used previous data before the implementation of the new regime and the 30 nm –limit is adopted for better representation of the resources within the coastal waters with special attention to trawlers of less than 70 GRT.

Fish landings over time alone are not good indicator of the rate of exploitation of fisheries of a particular area [15] although it can provide first-hand estimation about the fish stock abundance. Catch-per-unit effort (cpue), on the other hand, is an index for estimating fish abundance [16][17] that approximately tells us the capability of an effort (e.g. vessels, hours, man-power, sonar equipment, days of fishing etc.) to produce certain catch amount. Moreover, trash fish landed may indicate encroachment rate occurring within coastal areas

as most trash fish are landed by trawlers [18]. For this reason, these two indicators are used to assess the state of the fisheries over time.

Data presented can be misleading either accidental or intentional. For example, the 18.6% trash fish landed as provided by the 2012 Annual Fisheries Statistics report [19] does not provide an accurate reflection of the rate of coastal fish exploitation since it is calculated from the denominator which is the total fish landings that include other segments of fishing grounds and gears, including deep sea's landings. It is suggested then, that, in order to illustrate the accurate situation of coastal fish exploitation, the data elimination process is to be carried out leaving only fish landed by trawlers in the coastal areas. This process includes finding the total fish and trash fish landed in the coastal areas by trawlers of less than 70 GRT.

In deciding whether a particular fish stock is in danger of over-exploitation, or facing acute depletion, several fish stocks of countries known to have been collapsed were compared. Fish stock is said to be facing the danger of being collapsed when it shows acute down-ward trend with no sign or indication of recovery. A good example of the collapsed trends will be in the cases of Newfoundland cod stock [20][21][22], Manila Bay and Gulf of Thailand [18] as shown by Fig. 3, Fig. 4 and Fig. 5 respectively.

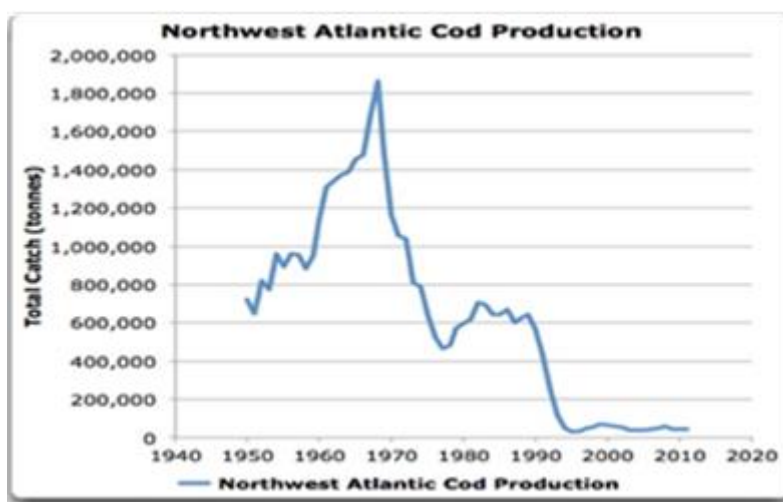


Figure 3: The collapse of Northwest Atlantic Cod fishery

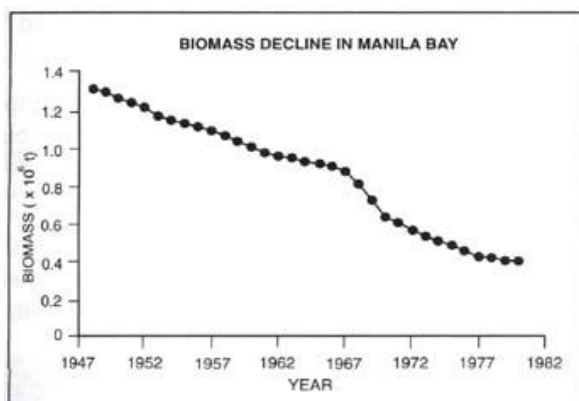


Figure 4: The collapse of Manila Bay fishery

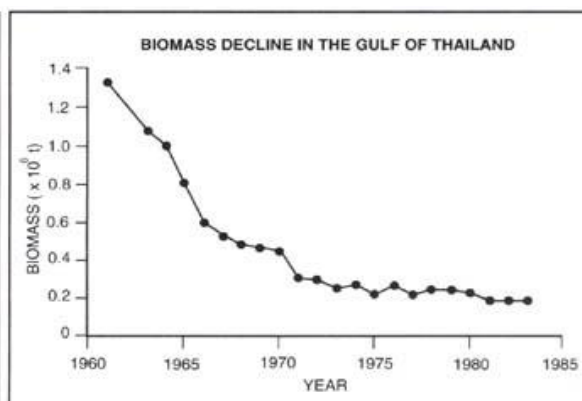


Figure 5: The collapse of Gulf of Thailand fishery

III. Results And Discussion

Statistically, in general, Malaysia's capture fisheries are still in steady state and had not shown an alarming sign although Asian fisheries is declining [23] and collapsing [24]. The 10-year period as shown in Fig.6 illustrates annual landings of marine capture fisheries of Malaysia which demonstrates little fluctuations possibly already in the plateau state. This confirms with FAO that concluded the maximum wild capture fisheries potential from the world's oceans has probably been reached [25]. Moreover, for the 20-year period of the west coast landings, a significant upward trend is observed indicating a sign of sustainable and well-managed fisheries (see Fig. 7). The landings trend clearly does not resemble of the characteristics of collapsed fisheries as proposed by Worm *et al.*[26] that based their evaluation on the premise that a reported catch that is 10% of the historical maximum is a valid criterion for designating a stock as being in a collapsed state.

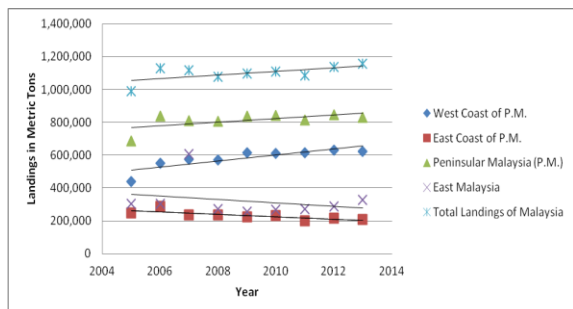


Figure 6: Coastal fish landings of Malaysia from 2005-2013.

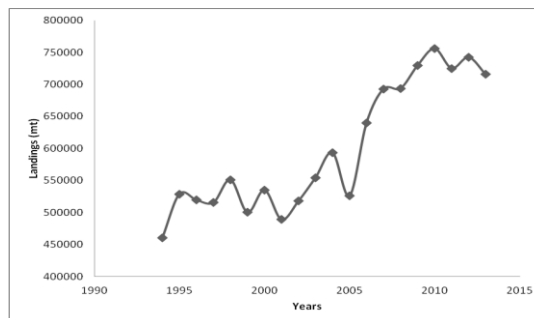


Figure 7: The 20-year trend of fish landings of west coast of Peninsular Malaysia.

If landings alone can be deceiving, then cpue may provide better depiction of the rate of exploitation. According to Alias [27], the fisheries had reached its Maximum Sustainable Yield (MSY) limit at 430,000 mt and again reiterated by Abu Talib [28]. Theoretically, once MSY is attained, a further increase in effort may result in decline of production until such a time that the stock collapses [29][30][31]. However, not in the case of the west coast, as it is observed since 2005 that there is a steady increase in landings which is contradictory to the believe that the resources will be declining once it reaches the over-exploitation stage [32] if other things are held constant, *ceteris paribus*. Again, as mentioned earlier, landings alone may not be a good indicator for the exploitation rate as there may be an increase of effort to land the same amount, thus, the indicator such as cpue is applied. Fig. 8 shows the cpue in term of landings per vessel (mt/vessel) from year 2005 to 2013 for trawlers less than 70 GRT.

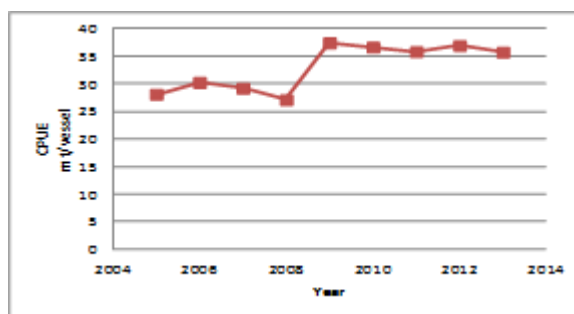


Figure 8: CPUE of the coastal fisheries of west coast Peninsular Malaysia.

Data of landings and number of vessels obtained from the Annual Fisheries Statistics from 2005 to 2013.

Apparently, there are some kinds of improvement of the resources in the west coast even after the over-exploitation stage was passed. In term of annual catch per unit effort (cpue), as in Fig. 8, illustrates the plateau state of the coastal fisheries for the past few years. This could be due to little fluctuation in number of vessels as well as landings which keeps the cpue in the region of 36 -37 mt/vessel between 2009-2013 for the past five (5) years (2009-2013). Clearly, from the published data provided by DOF, it indicates, in general, that fish resources in the coastal areas are not declining but rather holding a steady state of 1.1 -1.2 mil. mt per year. Since the annual total catch is close to MSY or slightly beyond it (in the region of 400,000 mt – 600,000 mt, look Fig. 6), the fishery is in the fully fished stage which has no room for further expansion in catch, and effective management must be in place to sustain their MSY [33]. Another terminology used to describe unchanging cpue is given by Pablo [34], that is, sustainable harvesting. Surely this does not warrant a harsher regime to be imposed in such fishing areas.

Sizeable composition of trash fish in landings is not a good sign for sustainable capture fisheries. Since most of the trash fish is caught in the coastal areas, the rate of trash fish landings can be regarded as indicator of fishing inefficiency by trawlers [35] which also informed us the rate of disturbance of the coastal habitats. Increasing composition of trash fish is also a sign of overfishing [36]. Therefore, the significant percentage of trash fish caught can be adopted to reflect the success or failure of the management effort in combating the illegal encroachment of the trawlers. Malaysia’s (Peninsular) trash fish landed by trawlers was high, 54% in 2003 compared to 4-38% by countries such as China, India, Philippines, Thailand and Vietnam (see Table 1). However, in Fig.9, the trend of trash fish landing is declining with the average of 41% for the past 5 years (2009 – 2013). This may indicate an improvement in management especially that is related in preventing trawlers’ encroachment.

Table 1: Trash fish landed by Asian countries

Country	Low value/trash fish	% of total catch	Dominant gear	Year of estimation	Source
Bangladesh	71 000	17%	Gill nets (48%) Non-mechanised set bags (42%)	2001-2002	Uddin <i>et al.</i> , 2004
China	5 316 000	38%	Trawl	2001	Han and Xu, 2004
India	271 000	10-20%	Trawl	2003	Jayaraman, 2004
Philippines	78 000	4%	Trawl (41%) Danish seine (22%) Purse seine (12%)	2003	Ramiscal and Chiuco, 2004
Thailand	765 000	31%	Trawl (95%)	1999	Kaewern and Wangvorlak, 2004
Viet Nam	933 183	36%	Trawl	2001	Edwards <i>et al.</i> , 2004
MALAYSIA	144,248	54%	Trawl (0-40 GRT)	2003	Annual Fisheries Statistics 2003

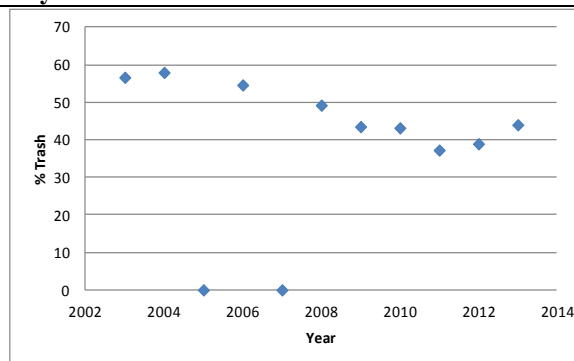


Figure 9: Fig. 2 shows the percentages of trash fish landed between years 2003 to 2013 by trawlers of 0-40 GRT in the West Coast of Peninsular Malaysia (data not available in 2005 and 2007)

IV. Conclusion

In Malaysia, the fisheries management approach as practiced by the DOF revolves around the endeavor of suppressing fishing effort [37]. Zoning of fishing areas was also introduced mainly to curb the encroachment of trawlers into the areas identified as fish breeding and nursery areas although implicitly the intention was to avoid conflict of interest among the fishermen that may lead to more serious consequences such as racial quarrel as majority of trawlers are Chinese whilst artisanal fishermen are Malays [4][38]. For years the zoning system used was thought to have successfully kept well the habitats and racial harmony until in recent years researchers such as Stobutzi [25] and Ahmad [39] were alarmed of the status of fisheries in the coastal waters. This had raised a question whether the zoning system really worked well all these years and thus required reconstruction of the system. Since the zoning system had been in place for a very longtime, it is difficult to ascertain its impact on the current biological and stock status of the fish resources [38]. However, with available fisheries data collected and published by DOF, the assessment can be performed to verify the current status of the fisheries resources.

Based on data provided by the DOF, fish resources in the coastal waters of affected states (Selangor, Perak, Penang, Kedah and Perlis) are not in declining trend but rather maintained its integrity and in fact showing an increasing trend for a long period of time (2005-2013). Most importantly, the cpue trend showing a plateau state of catch rates between 36 mt/vessel -37 mt/vessel indicating a deviance of the collapsed state character. The improvement of fisheries is further supported by the declining of the trash fish landings. The fully fished stage suggests fisheries managers to sustain the current approach of fisheries management as it is proven effective and reliable for many years to come.

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