



Indo-Sri Lanka Fishing Conflict in the Palk Bay and its Implications for Fisheries

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The Palk Bay constitutes exceptionally rich fishing grounds for the fishers of India and Sri Lanka. In the recent past, dispute between Indian and Sri Lankan fishers has emerged in exploiting fisheries resources, posing serious threats to the livelihoods of thousands of fishery dependents in the two countries. Present study comprehensively explores all aspects of Indo-Sri Lanka fishing conflict, reviewing articles published during 1995-2018. Twenty-five articles that addressed the Palk Bay fishing conflict were obtained, using a systematic search strategy. The present study unfolds that fishers were engaged in fishing activities in Palk Bay, using different craft and gear combinations over many decades. Conspicuously, several factors are influential for the emergence and escalation of Indo-Sri Lanka fishing conflict, including; (1) establishment of International Maritime Boundary Line (IMBL); (2) introduction of mechanized trawls by Indian fishers in 1960s with the expansion of the export market demand for shrimp; (3) imposition of fishing ban by Sri Lankan government during civil war during 1983-2009; (4) recommencement of distant water fisheries in the Palk Bay by Sri Lankan fishers with the conclusion of civil war in 2009, and (5) damage to fishing crafts and gears of artisanal fishers. Moreover, the study elucidates that Indo-Sri Lanka fishing conflict has a detrimental impact on the fisheries industry, livelihoods of the fishers, economy and political stability of India and Sri Lanka. Furthermore, the fishing conflict has caused many negative impacts including depletion of fishery resources, increase in enforcement cost, reduction of foreign exchange earnings, arresting fishers, presence of illegal trading and smuggling of arms and ammunition. Several measures have been taken by Indian and Sri Lankan Governments to resolve the fishing conflict. Albeit, they have yet to come to a common agreement to find an amicable long-lasting solution, vital for moving forward the industry in a sustainable manner.

(Key words: Conflict resolution, Fisher livelihoods, Fishing disputes, Palk Bay fishery, Transboundary fishing, Trawling)

Modern humanity has exploited marine resources since they emerged as a species. The oceans and seas provide a vital source of animal protein for humans and are the major contributor to global food security (Macusi *et al.*, 2011). The economic-based intense use of fisheries resources is causing overexploitation of fish stocks (Stobutzki *et al.*, 2006), and increased fishing pressure on fish stocks strongly suggest that fisheries resources need to be managed more effectively.

Fisheries management controls the human harvesting action through more or less complex management schemes. A number of traditional/customary and modern management methods have been developed and employed at different scales and places to overcome the detrimental consequences of sharing resources (Berkes, 1985; Deepananda *et al.*, 2016). Area-based fisheries management, a type of right-

based management is a most important development in this regard (Beddington *et al.*, 2007), and the effectiveness of this management strategy in eliminating overexploitation of fisheries resources has been proven in many parts of the globe (FAO, 2014; Deepananda *et al.*, 2015). Socially constructed spatial boundaries are indispensable in managing the fisheries resources within the designated area. Boundaries are enacted by the performance of multiple actors including both state and non-state agents (Songa *et al.*, 2017) and, mismatches amongst those multiple actors have been identified as a governability challenge, posing threat to fish stock and wellbeing of fishers. In order to efficiently manage fisheries resources within the area, the actors should accept and obey the set rules and regulations; customary, national or international. Trans-boundary fishing causes serious problems when fishers of two states move across

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the boundaries, as in the case of sea cucumber fishery between Indonesia and Australia (Prescott *et al.*, 2013) and trawling in the Palk Bay between India and Sri Lanka (Stephen *et al.*, 2013).

The Palk Bay, including the Point Pedro Banks, the Prawn Bank and the Pearl Bank, known to be rich in biodiversity due to the result of the inflow of nutrients during the monsoon current (Soosai, 2011) is a narrow strip of water that separates the southern India from northern Sri Lanka. Thus, the area constitutes exceptionally rich fishing grounds for Indian and Sri Lankan fishers (Sivasubramaniam, 1995). Demarcated boundaries of the Palk Bay are on the South by the Pamban Strait, the islands of Rameswaram and Ramasethu, a coral reef commonly called Adams bridge, on the North west by Indian mainland, on the East by the coast of Sri Lanka, and on the North east by the Palk Strait, about 52 km wide, open passage accessing the Bay of Bengal (Ratwatte, 2011). The Palk Bay extends to around 113 km and total spread area is estimated to be 13,892 km², which is equally divided into 6,991 km² each between India and Sri Lanka by the International Maritime Boundary Line (IMBL) (Fig. 1). The maximum depth recorded in the Palk Bay is 15 m with an average of 9 m and width of the Palk

Bay between India and Sri Lanka varies between 64 and 137 km (Kasim, 2015).

Prior to the independence of Sri Lanka in 1948, Sri Lankan and Indian fishers fished in harmony in the Palk Bay, sharing culture, language and fishing technology. As a consequence, frequent migrations by fishers between India and Sri Lanka through the Palk Bay took place and even intermarriages have been recorded, strengthening the relationship between fishers of two states, who belonged to the same ethnic group and spoke a common language. However, with the conclusion of the Sri Lankan civil war, the dispute between fishers of India and Sri Lanka reached its peak in 2013 (Scholtens and Bavinck, 2018), posing serious threats to livelihoods of thousands of fisheries dependents. The Palk Bay fishing conflict is critical for India and Sri Lanka, as it is a key topic amongst south Indian politicians who are in a position to challenge the policy decision of the central government of India. Of the studies, some scholars have unfolded the reasons for the Indo-Sri Lanka fishing conflict and others have highlighted their own views that could be influential for the fishing conflict. Nevertheless, a comprehensive study that exposes all aspects of Indo-Sri Lanka fishing conflict is rather scanty. This warrants a comprehensive

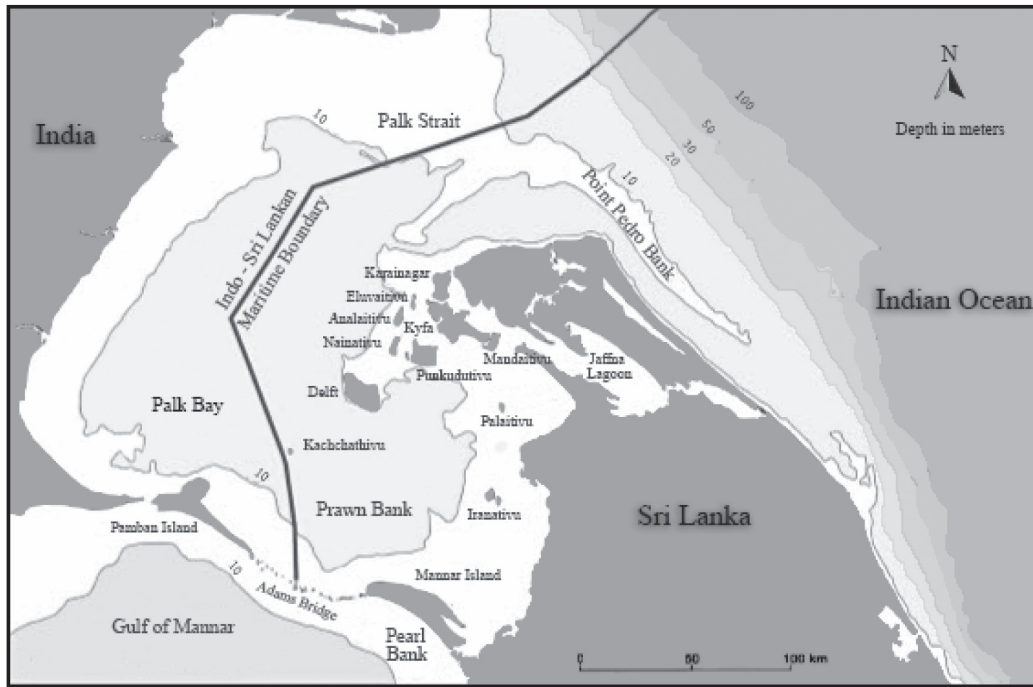


Fig. 1. Map of the Palk Bay area, showing the International Maritime Boundary Line (IMBL) between southern India and northern Sri Lanka

review of studies, done so far on this issue, due to: (1) conflicting situation has been seriously increasing in recent past and there is evidence that this increase has caused many negative impacts for Indian and Sri Lankan fishers and their dependents and also for sustainable utilization of fisheries resources in the Palk Bay region; (2) conflicts have increased the risk of violence, and violation of several rules and regulations formulated by two states, as well as international obligations applicable to fisheries of two states; (3) conflicts have become an important topic in the political agenda of India and Sri Lanka, and a long lasting bilateral agreement is a must for the conclusion of the Palk Bay fishing conflict. The present article reviews the important studies carried out so far on the Palk Bay fishing conflict to elucidate the causes and current status of the Palk Bay fishing conflict and their implications to the fisheries sector for the interested parties.

MATERIALS AND METHODS

A systematic search strategy, aiming at identifying studies on the Palk Bay fishing conflict was employed for this review. Search strategy was decided by the authors. Articles were obtained from the Google search, Science direct, Scopus and Current content. The following keywords were used for databases: (“Sri Lankan fishers” and “Indian fishers” and “impact on fishers” and “Palk Bay” and “fishing conflict”). In addition, a search of grey literature reports and articles of authors’ own libraries that potentially fitted to the present scope were also considered. Due to limited studies on this specific topic, articles were not excluded or weighted in synthesis based on quality. However, articles and reports published between 1995- 2018 were only considered. In total 35 titles were retrieved, and two authors (KHMLA &NA) screened the articles and abstracts, based on the relevance to the topic. Consequently, 10 titles were excluded and 25 articles that potentially addressed the Palk Bay fishing conflict were selected for this review. Period for this rapid review was approximately two months. Furthermore, seven articles, which were suggested to be included in this synthesis by three expert reviewers, were also reviewed to incorporate their findings into the final version of the article. Any summarized evidences that refer to the study scope have been highlighted in the review.

RESULTS AND DISCUSSION

Fishers and fishing methods

Indian fishers from three districts, bordering the Palk Bay; Ramanathapuram, Thanjavur and Pudukottai and Sri Lankan fishers from three districts; Jaffna, Mannar and Kilinochchi were engaged in fishing activities in the Palk Bay (CMFRI, 2010; MFARD, 2011; Scholtens *et al.*, 2012). Statistics indicated that 54,500 Indian fishers and 44,970 Sri Lankan fishers were actively engaged in the Palk Bay fisheries in 2010 and 2011, respectively (Table 1).

The Palk Bay marine environment, consisting of beneficial nutrient content and muddy bedrock due to water discharge from Vaigai and Cauvery Rivers is a good breeding ground for finfish and shellfish species, notably for shrimps. Thus, the area is abundant in tuna and shrimps that have high market value, especially in export trade. Stephen *et al.* (2013) have reported that commercially important 44 species of finfish, crustaceans and mollusks were available in the Palk Bay. But, the actual number of species is supposed to be much higher than the reported ones.

Traditional fishing methods, such as shore seine, gillnets, hooks and line, boat seine used in fishing crafts like “Catamarans” and “Vallams” were mainly used by fishers, before the introduction of Fiberglass Reinforced Plastic boats with outboard engines (OFRP) and mechanized fishing using trawlers in 1960’s (Hettiarachchi, 2007; Amarasinghe, 2011). Along with this technological development, fishing power in the Palk Bay increased dramatically. Consequently, total fishing vessels operated in 2001 by Indian and Sri Lankan fishers in the Palk Bay were 12,727 and 5,135, respectively, and of those 8,907 were motorized vessels belonged to Indians while the respective figures

Table 1. Active fishers engaged in the Palk Bay fisheries from each district of India and Sri Lanka

Country	District, bordering the Palk Bay	Number of active fishers
India (CMFRI, 2010)	Ramanathapuram	38,892
	Thanjavur	7,938
	Pudukottai	7,670
Sri Lanka (MFARD, 2011)	Jaffna	22,720
	Mannar	18,530
	Kilinochchi	3,720

for those belonged to Sri Lankans were 2,185. Of the total fishing vessels operating in the Palk Bay, 71% belonged to Indian fishers, and the rest (29%) belonged to Sri Lankan fishers. Six major trawling centres namely, Rameswaram, Mandapam, Jagathapattinam, Kottaipattinam, Mallipattinam and Sethubavachatiram and four minor trawling centres, namely Soliyakudi, Lanjiadi, Pamban and Thondiare located in the Indian side of the Palk Bay. Indian trawling fleet varied in size from 32 to 60 feet equipped with engine power ranging from 70 to 200 hp (Scholtens, 2016a). Though, bottom trawling is illegal in Sri Lanka (Scholtens, 2016b), fishers of Jaffna and Mannar districts operate three types of bottom trawl nets, traditionally named *Iraalmadi* (aiming at catching shrimps), *Meenmadi* (aiming at catching finfishes) and *Attaimadi* (aiming at catching sea cucumbers). Annual fish production by Indian fishers in the Palk Bay in 2014 was 119,000 MT and the mechanized sector contributed to 63% of the total fish production (Department of Economics and Statistics, Government of Tamil Nadu, 2015), while the fish production of the northern province of Sri Lanka was 166, 959 MT, which was 16% of the total fish production of the country (MFARD, 2015).

Factors influencing Palk Bay fishing conflict

Several factors are responsible with different magnitude for the fishing conflict between Indian and Sri Lankan fishers who depend solely on fisheries resources of the Palk Bay ecosystem. Identified factors and causes, influencing the Indo-Sri Lanka fishing conflict in the Palk Bay are summarized herein after.

Establishment of International Maritime Boundary Line (IMBL) across the Palk Bay as a result of the bilateral agreements between India and Sri Lanka in the years 1974 and 1976 was highlighted as an important factor influencing the Indo-Sri Lanka fishing conflict (Suryanarayan, 2016). Even though the establishment of IMBL between India and Sri Lanka is a bilateral agreement with mutual understanding and goodwill, Suryanarayan and Swaminathan (2009) have documented that IMBL across the Palk Bay provoked the conflict between Indian and Sri Lankan fishers. They have unfolded consequences that the bilateral agreement has placed the Kachchativu Island used for fishery related activities and enjoyed some religious and historical values by Indian fishers for centuries in Sri

Lankan territory, and the Wedge Bank, a rich fishing area used by Sri Lankan fishers for centuries has been placed in Indian territory. Thus, Indian fishers argued that they have lost their traditional fishing rights around the Kachchativu Island and territorial use rights beyond the boundary line (Scholtens and Bavinck, 2014), while Sri Lankan fishers have lost their traditional fishing rights in the Wedge bank. The demand to regain the traditional rights by Indian fishers are continuous, claiming the land ownership of the Kachchativu Island. Thus, transboundary fishing by Indian fishers has continued without respecting the IMBL (Amarasinghe, 2011).

The most significant factor distilled by the present work and responsible for the Palk Bay fishing conflict was the introduction of mechanized trawlers in 1960s by Indian fishers (Scholtens *et al.*, 2012). During the Blue Revolution, India has promoted trawl fishing with the aim of increasing foreign revenue from the sea, especially from shrimp export (Stephen and Menon, 2016). Consequently, the Central Government of India, individual state governments and investors tended to invest heavily in the trawl fishery with the discovery of new markets for the shrimps in USA, Japan and Western Europe (Bavinck, 2001). Indian fishers started fishing, especially the shrimp, in the Palk Bay by bottom trawling that deployed large trawl nets that sweep the ocean floor. Trawlers harvested higher catch per unit effort (CPUE) and earned high revenues, fully exploiting high valued species associated with bottom, especially the shrimps, abundant in the Palk Bay. The growth of trawlers and fishing boats with advanced equipment particularly from Rameswaram as well as the increased net returns on investment depleted the fish stocks in the Indian side of the Palk Bay. The resultant depletion of fishery resources in Indian waters of the Palk Bay by the beginning of 1980s was the key influential factor that pushed the Indian fishers to cross the IMBL for seeking a more secure profitable catch (Suryanarayan, 2016). Low livelihood diversification among Indian fishers further magnified the transboundary fishing in Sri Lankan waters of the Palk Bay, rich in fishery resources that are largely underexploited because of nearly 30 years of civil war (Menon *et al.*, 2016). At the same time, fisheries production in the Indian side was almost tripled during the 30 years of civil war in Sri Lanka (Scholtens, 2016b). Evidently, the Blue Revolution initiated in India in the late 1950s was the major influencing factor for

Indo-Sri Lanka fishing conflict, because Indian fishers accelerated encroaching the fishery resources in Sri Lankan waters of the Palk Bay. With the conclusion of civil war in 2009, approximately 2500 Indian trawl fleets encroached Sri Lankan waters of Palk Bay (Scholtens, 2016b), compared to 700 fleets or so in the 1970s (Stephen *et al.*, 2013). Increased fishing pressure by Indian trawl fishers depleted fishery resources in the Sri Lankan waters of Palk Bay, which resulted in loss of livelihoods of Sri Lankan multiday boat fishers. As a result, encroachment fishery resources in the Indian waters of the Palk Bay by Sri Lanka fishers also took place, leading to conflict between Indian and Sri Lankan fishers.

Imposing fishing ban by the Sri Lanka Government during the civil war between 1983-2009 has been highlighted as another significant factor influencing the Indo-Sri Lanka fishing conflict (Menon *et al.*, 2016; Scholtens, 2016a). As a security measure, the Government of Sri Lanka banned the fishing activities in Sri Lankan waters of the Palk Bay. In this context, strict regulations were imposed on duration and distances for fishing in the Sri Lankan waters. These restrictions, applicable to the Sri Lankan fishers included: (1) banning of fishing activities beyond 500 m or 750 m from the shore, depending on the area; (2) limiting the fishing hours from 04:00 h to 16:30 h (Vivekanandan, 2003) and (3) banning the use of outboard motors exceeding 10 hp at the first instance (Anon., 2001), and later relaxed the capacity restriction by raising the power limit to 15 hp (Marapana, 2002). During onset of civil war, heavy restrictions imposed by the government crippled the fisheries sector of northern Sri Lanka, while Indian trawl fishery expanded rapidly with the aid of state modernization subsidies (Menon *et al.*, 2016; Scholtens, 2016a). Consequently, Indian fishers continued to venture into the Sri Lankan waters of the Palk Bay, crossing the IMBL and pouching on shrimp resources, abundant in the Sri Lankan waters of the Palk Bay without facing any competition (Vivekanandan, 2003). Fishing activities of the Indian fishers over a period of about three decades in Sri Lankan waters of the Palk Bay have increased the perception of Indian fishers that distant fishing grounds in Sri Lankan waters of the Palk Bay are their fishing grounds. With the conclusion of the civil war in 2009, Sri Lankan fishers recommenced fishing at distant waters of the Sri Lankan

side of the Palk Bay. Presence of Sri Lankan fishers fishing at distant waters of the Palk Bay challenged the monopoly of Indian fishers and escalated the fishing conflicts between fishers of India and Sri Lanka (Hettiarachchi, 2007; Madanayaka, 2015; Scholtens *et al.*, 2012).

Damages to the fishing gears of artisanal fishers by technologically advanced trawlers were also identified as a key factor that provoked the dispute between the fishers of India and Sri Lanka (Hettiarachchi, 2007). Increased ventures due to market expansion with increasing demand for shrimp in USA, Western Europe and Japan, further intensified the fishing effort by Indian and Sri Lankan fishers in gaining higher revenue through the shrimp export trade (Amarasinghe, 2011). Fishers, especially Indians, therefore started harvesting shrimp in large scale, using modern mechanized crafts, which in turn caused a detrimental effect on other fishers. Since the Palk Bay is a relatively shallow and small fishing ground, encroachment of Indian trawlers overlapped the fishing grounds of small-scale fishers of Sri Lanka as well as Sri Lankan trawl fleets to a great extent (Menon *et al.*, 2016). Intensified transboundary fishing by technologically advanced fishing vessels of Indian fishers caused severe damages to fishing gears of the Sri Lankan fishers, in the Sri Lankan waters of the Palk Bay. Trawl nets dragged over the seabed caused extensive damage to fishing gears of artisanal fishers. Also, night fishing by technologically advanced Indian trawlers was considered causing serious damages to Sri Lankan artisanal fishers. Continuous invasion by Indian trawls, resulting in the destruction of fishing nets was a major hindrance to households' livelihood of Sri Lankan fishers (Scholtens, 2016b). The damages to fishing gears, as well as heavy exploitation of shared fishery resources by mechanized trawlers, augmented the fishing conflicts between fishers of two states, especially when Sri Lankan artisanal fishers and Indian trawl fishers encountered.

Implications of Indo-Sri Lanka fishing conflicts

Trawl fishing causes a serious threat to marine resources of the Palk Bay and it would affect detrimentally all fishers of the region in the long run (Ratwatte, 2011). Increased fishing pressure due to a high number of fishing fleets of traditional and mechanized sectors, sharing the limited fishing grounds

have dwindled the fishery resources in the Palk Bay (The Hindu, 2014a; Kasim, 2015). Depletion of the Palk Bay fishery resources was magnified by indiscriminate use of trawls by Indian fishers (Suryanarayan, 2016). Bottom trawling affected the breeding cycle of fish and swept the seafloor, trapping not only target and non-target species, but also immature stages of fish (Amarasinghe, 2011). Madanayaka (2015) has highlighted that damage to the marine environment and fish stock may take thousands of years to replenish and marine resources of the Palk Bay may deplete if measures are not taken appropriately. Thus, implications of the Palk Bay fishing conflict on the livelihood of fishers of south India and northern Sri Lanka are inevitable.

Increased enforcement cost for fisheries was a major implication to be considered, mainly due to transboundary fishing by the Indian and Sri Lanka fishers. In order to minimize the incidence of border crossing, Indian Coast Guards (West) and Sri Lanka Navy patrol the area around the IMBL to catch the offenders (Madanayaka, 2015). Continuous transboundary fishing has posed those two parties to intensify the patrolling process, leading to high enforcement costs. On the other hand, some Indian trawl owners invested in larger boats that enabled them to enter and exit quickly from the Sri Lankan waters of the Palk Bay, avoiding the chances of being caught by the Sri Lanka Navy. However, small trawl owners have no such option due to smaller returns from fishery (Menon *et al.*, 2016) and, therefore chances of being caught them by Sri Lanka Navy are higher. Small trawlers have been compelled to continue the cross-border fishing either due to the costs for leaving the fisheries sector are too high or due to their large debts. The net return from the trawl fishery has shown decreasing trend due to increased enforcement costs.

Growth of the trawl fishery causes a negative impact to the artisanal fishers of India and Sri Lanka. Artisanal fishers of India continuously argue about the social injustice they have to face, due to trawl fishing. In order to protect small scale artisanal fishers, the Indian government has imposed some legal restrictions to trawl fishers. These imposed legal restrictions and established IMBL have cumulatively restricted the legal space for fishing, within which Indian trawls could be operated. However, it is argued that these imposed restrictions have also led to continued cross border fishing by Indian fishers in Sri Lankan waters of the Palk Bay

(Madanayaka, 2015). It was reported that approximately 900 boats, both mechanized and non-mechanized, operated from Rameswaram on alternate days (three days per week) were fishing in Sri Lankan waters and, their shrimp catch was 35-56 kg per boat and fish catch was about 120 kg per boat (Hettiarachchi, 2007). Evidently, the damage caused by Indian trawlers to the Sri Lankan artisanal fishers was economically high. When Indian trawlers venture into Sri Lankan waters, Sri Lankan fishers either stay at home or go for near-shore fishing, resulting in a substantial income loss. The resultant loss to the GDP of Sri Lanka was conspicuous, and the annual loss caused by poaching of Indian fishers has been estimated to be about US\$ 730 million worth of income from the fisheries sector (Mayilvaganan, 2016).

Indo-Sri Lanka fishing conflict in the Palk Bay has posed a serious threat to the livelihoods of the fishers and fishery dependents. Some of the Indian fishers, fishing illegally in Sri Lankan waters of the Palk Bay were arrested by the Sri Lanka Navy, causing considerable suffering for their dependents (Vivekanandan, 2003). Moreover, transboundary fishing practices have caused fatal or non-fatal risks to the fishers' lives. It was reported that some fishers have lost their lives due to the clashes between Indian and Sri Lankan fishers at the distant waters of the Palk Bay (Madanayake, 2015). Increased risk has reduced harvest and export revenue of India and Sri Lanka (Mayilvaganan, 2016).

Palk Bay fishing conflicts have also affected the other sensitive sectors. Indian trawls, engaged in cross border fishing were used as a shield by smugglers. Thus, illegal trading of goods and smuggling of arms and ammunition posed significant implications to be considered, especially during the onset of the civil war. The proximity of two countries and closeness of IMBL to shores of southern India and northern Sri Lanka, for example, about 7 km from Dhanuskodi or 12 km from Rameswaram (Kumaraguru *et al.*, 2008) supported the illegal trading of goods. Indian coast guard and Sri Lanka Navy often faced difficulties distinguishing the fishers and smugglers that caused a great deal of resentment (Ratwatte, 2011).

Furthermore, the Palk Bay fishing conflict has escalated into severe political issues in India and Sri Lanka. Tamil Nadu government blamed Government of Sri Lanka that Sri Lanka Navy harassed and killed

innocent Indian fishers and damaged the fishing gears of the Indian fishers, when they were fishing in the Sri Lankan waters of the Palk Bay. In this context, political leaders of south India (Tamil Nadu) influenced the central government of India to tag Sri Lanka as an enemy state that may badly affect the bilateral relations between India and Sri Lanka (Ratwatte, 2011). Stephen *et al.* (2013) have reported that 238 Indian fishers were shot dead by the Sri Lanka Navy and 80 others were missing at the sea. Using those statistics for political advantage, Tamil Nadu politicians are continuously directing allegations against the Sri Lankan government, over the intervention of Sri Lanka Navy in the Palk Bay. As a consequence, Tamil Nadu Government had forced the central government of India to support the United Nations human rights resolution against Sri Lanka and its continued concern on the purported violation of the rights of the Sri Lankan Tamils (Moses, 2011).

Measures for solving the fishing conflicts

Several measures have been taken for controlling fishing activities in the Palk Bay region, aiming at harmony in fishing operations between fishers of India and Sri Lanka. Four types of regulations have been enforced by the state of Tamil Nadu, in guiding fishing activities in the Palk Bay area. Under these, '3 to 4 day rule' was enforced in 1977 and accordingly mechanized crafts were allowed to operate only in 3 days per week, while traditional crafts were allowed the remaining 4 days of the week. In 1983, 'three nautical miles (5 km) rule' was enforced and accordingly mechanized crafts were allowed to fish beyond 5 km from the shoreline. Furthermore, a number of gear restrictions were imposed in 2000. In 2001, the forty-five-day fishing ban regulation through which trawling was banned in the entire east coast of Tamil Nadu from 15th April to 29th May 2001 and the trawlers were not allowed to fish during this 45-day period, which coincided with the breeding season of shrimp (Amarasinghe, 2011). In addition to the imposed regulations, Tamil Nadu Government has declared to offer a 50% incentive to convert trawlers into deep sea vessels (Sathiyamoorthy, 2014), but only a few fishers have adopted this initiative. In order to manage the fishery resources, Sri Lanka has enacted the Maritime Zones Law in 1976 that declared the territorial sea, contiguous zone, exclusive economic zone, pollution prevention zone and historic waters (Wijesinghe, 1977). The maritime laws have

given wide powers to the state to limit and control the crossing of IMBL by the Indian fishers (Suryanarayan and Swaminthan, 2009). With the violation of the IMBL in the year 1984, Sri Lankan government authorities decided to take legal action against the encroachments by Indian fishing vessels and permit Sri Lanka Navy to open fire against the encroaching boats (Hettiarachchi, 2007). In 2010, a full ban on trawling was ordered in Sri Lanka (Scholtens, 2016b).

In addition, several steps have been taken by Indian and Sri Lankan governments to resolve the Indo-Sri Lanka fishing conflict. As the first step, dialogues have been carried out at three levels; (1) at the level of fishers; (2) between fishers and their respective governments, India and Sri Lanka; and (3) at the government level of India and Sri Lanka. With respect to the latter, the first bilateral meeting between India and Sri Lanka was held on 21st April 2005 in New Delhi and two states mutually agreed to establish a bilateral Joint Working Group (JWG) (Amarasinghe, 2011). As a consequence, JWG meetings held in 2008, 2011 and 2012 proposed that Indian fishing vessels would not be venturing into identified sensitive areas (Scholtens, 2015). In addition, several meetings were held between fisher groups of India and Sri Lanka. One important initiation was that a group of fishers from Tamil Nadu visited Sri Lanka in May 2004 to negotiate with Sri Lankan fishers which was called a goodwill mission. In August 2010, the Association for the Release of Innocent Fishermen (ARIF) in Chennai organized another mission between Tamil Nadu and Sri Lankan fishers (Amarasinghe, 2011). The Palk Bay fishing conflict reached a peak in 2013, during which Sri Lanka Navy arrested and imprisoned 730 Indian fishers fishing in Sri Lankan waters of the Palk Bay (Scholtens and Bavinck, 2014). Politicians of the Northern Provincial Council of Sri Lanka in office from 2013 to 2018 were silent on this issue. Considering the livelihoods of battle-scarred northern Sri Lankan fishers, Tamil parties in northern Sri Lanka requested the neighboring India to stop breaching the IMBL (The Straits Times, 2015). On the request of northern Sri Lanka political parties, President of Sri Lanka convened a national level meeting to address the issues of fisheries conflict with India (The Hindu, 2014b). Consequently, there was a first ministerial level negotiation between India and Sri Lanka in 2016 to secure livelihoods of Sri Lankan fishers that were in danger because of Indian

trawlers poaching allegedly in Sri Lankan waters of the Palk Bay. However, issue of poaching reduced to a considerably low level by 2018, due to strict actions taken by Sri Lanka Navy against the intruders under the Fisheries (Regulation of Foreign Fishing Boats) (Amendment) Act No. 1 of 2018 (Anon., 2018).

Furthermore, several proposals have been made by the scholars as measures to minimize the fishing conflicts between fishers of two states. Vivekanandan (2004) has proposed that provision of free access to South Asian fishers to fish in each other's waters without any litigation, while imposing strict enforcements on transboundary fishing with a humane approach; *i.e.*, set of graded fines as the first-time offence, second time offence, etc. Furthermore, the author proposed to establish separate management regimes for different seas such as the Palk Bay, the Gulf of Mannar, the Bay of Bengal and the Arabian Sea with an authority to issue licenses to a specific numbers of multiday fishing boats. Another suggestion by Suryanarayan and Swaminathan (2009) was to make an agreement between India and Sri Lanka so that licensed Indian fishers could be permitted to fish in specified areas in Sri Lankan waters of the Palk Bay. Mayilvaganan (2016) has proposed that the Governments of India and Sri Lanka should take measures of; (1) educating and sensitizing fishers about the issues of transboundary crossing; (2) facilitating of regular meetings between fishers of India and Sri Lanka; (3) banning of trawling, purse seining and minnow seining; (4) decongesting of Rameswaram fishing trawler; and (5) breaking the nexus between the politicians, businessmen and the fishers. Hettiarachchi (2007) has suggested that the Government of Tamil Nadu should withdraw the trawlers in the Palk Bay and provide alternative economic activities for the fishers engaged in poaching in Sri Lankan waters of the Palk Bay, while the Government of Sri Lanka should increase the fishing effort in Sri Lankan waters of the Palk Bay as a measure to discourage Indian fishers crossing IMBL. The suggestions made by Amarasinghe (2011) were that; (1) Tamil Nadu Government should take immediate measures to reduce its trawl fleets and issue an internationally valid identity card for fishers (at least in the Indo-Sri Lanka waters); (2) discussions should be held between authorities of Sri Lanka and Tamil Nadu to develop standard procedures for establishing a single authority to deal with the arrested fishers, in order to minimize delays in releasing them; and (3) a

joint committee consisting of the state officers and other interested stakeholders, including private actors and NGOs should be appointed to assist families of arrested fishers.

The present synthesis revealed several factors that are influential for the emergence and escalation of Indo-Sri Lanka conflicts; (1) establishment of IMBL across the Palk Bay, (2) encroachment by fishers of both countries, (3) expansion of export market demand for shrimp, (4) damaging the fishing craft and gears of Sri Lanka's artisanal fishers by Indian trawlers, and (5) re-commencement of fishing by northern Sri Lankan fishers after the conclusion of the civil war in Sri Lanka. The present review elucidates that fishing conflict in the Palk Bay region has serious impact on fisheries industry, livelihoods of the fisher communities, and economy of both countries as well as the political stability of the India and Sri Lanka. In order to mitigate the Indo-Sri Lanka fishing conflict, several measures have been adopted by the Governments of India and Sri Lanka. Some regulations have been imposed and bilateral discussions have been held at different levels over the years with a view to solving the problem. In addition, several scholars have made suggestions to seek a long-lasting solution to the issue, and some of which warranted collectively organized mechanism with the equal cooperation and open dialogue between India and Sri Lanka. Indo-Sri Lanka fishing conflict reached its peak in 2013, threatening the livelihoods of Sri Lankan fishers. Consequently, political parties in northern Sri Lanka demanded a long-lasting solution for the issue from the Governments of India and Sri Lanka. After 2016, productive negotiations between two governments have taken place to seek the solution for this sensitive issue. However, issue of poaching came down to a low level by 2018 due to strict actions taken by Sri Lanka Navy against the intruders, under the Fisheries (Regulation of Foreign Fishing Boats) (Amendment) Act No. 1 of 2018. In order to halt Indo-Sri Lanka fishing conflict in the Palk Bay, discussions are being continued at various levels. Albeit it has yet to come to a common agreement for an amicable long-lasting solution for this issue.

CONFLICTS OF INTEREST

The authors declare that they have no conflict of interest. All authors read and approved the manuscript.

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