

Trends of large pelagic fishery in Goa

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Abstract

The large pelagic fish catch in Goa over the decade varied from 3,095 t in 2011 to 13,247 t in 2013. Their percentage contribution to the total large pelagic fish landings of the country ranged from 1.4 in 2016 & 2018 to 7.0 in 2013. Purse seine is the major gear targeting large pelagic fishes such as tunas, seerfishes, barracudas and queenfishes. Fishery trends, crafts and gears involved in exploitation, seasonal pattern of landings, species composition, onboard handling and preservation of large pelagic fishes landed in Goa are described.

Key words: Large pelagic fishes, Goa, Seerfish, Tunas, Barracudas, Queenfishes

Fishery trends

The large pelagics fish catch estimated in Goa over the decade revealed that the quantity of landings varied from 3,095 t in 2011 to 13,247 t in 2013 (Fig.1). Purse seine was the major gear and its contribution was always more than 90% except in 2007 (79.7%). The other gears operated were the gillnets, trawls and shore seines. The comparison of the average landing of the resources between 2007-2012 (phase I) and 2013 to 2019 (phase II) indicated purse seine landings marginally increased from 93.6% in phase I to 98.0%

in phase II (Fig.2). Landings by gillnets reduced to 0.5% in phase II from 4.4% recorded during phase I while trawl and other indigenous gears did not exhibit much variation between the two phases. Contribution by the major fishing gears tapping seerfish, tunas, barracudas, queenfish, fullbeaks, cobia and dolphinfish resources and the specieswise monthly landing trends were studied (Tables 1 & 2).

The major landing centres are Cutbona, Vasco Da Gama, Talpona, Mahlim, Baina-Bimber, Pale and Colva along Goa where large numbers of purse seiners, few multiday

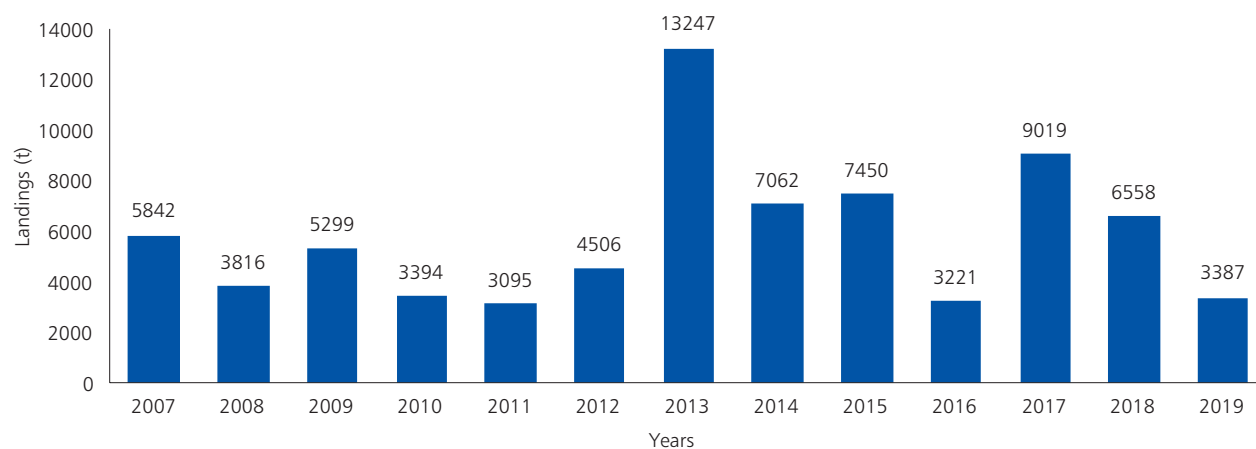


Fig. 1. Trend of Large pelagic fish landings in Goa during 2007 -2019 period

Table 1. Landings (%) of large pelagic fishes from different gears during 2007-19

Gears	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Seerfish													
Purse seine	46.8	0.0	95.0	42.0	64.0	91.0	44.0	83.2	83.0	45.0	16.8	84.8	87.0
Gillnet	10.5	44.5	4.5	3.3	30.2	5.8	20.1	5.2	11.8	53.2	75	5.5	0.9
Others	42.7	55.5	0.5	54.7	5.8	3.2	35.9	11.6	5.2	1.8	8.3	9.7	12.1
Tunas													
Purse seine	89.8	96.3	99.2	98.9	100.0	99.8	100.0	99.8	100.0	100.0	100.0	84.8	100
Gillnet	10.0	3.6	0.0	1.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	5.5	0
Trawl	0.2	0.0	0.7	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	3.6	0
Others	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.1	0.0
Barracudas													
Purse seine	94.3	99.4	98.3	41.3	98.0	97.5	99.4	98.9	93.9	100.0	96.7	99.6	100
Gillnet	1.8	0.6	0.0	58.7	1.1	0.9	0.5	0.0	0.0	0.0	0.3	0.4	0
Trawl	3.9	0.0	1.7	0.0	0.9	1.6	0.1	1.1	6.1	0.0	3.0	0	0
Queenfish													
Purse seine	100	100	99.2	100.0	100.0	99.98	99.5	98.4	99.6	100	100	100	99.5
Others	0	0	0.8	0	0	0.02	0.5	0.6	0.4	0	0	0	0.5
Fullbeaks													
Purse seine	98.2	30.7	99.9	48.6	92.1	99.2	97.7	68.9	100.0	93.3	93.0	99.3	99.4
Gillnet	0.0	37.9	0.0	51.4	0.0	0.5	1.7	9.5	0.0	0.0	6.3	0.0	0.0
Trawl	0.0	0.0	0.0	0.0	6.3	0.2	0.3	21.7	0.0	6.7	0.7	0.0	0.0
Others	1.8	31.5	0.1	0.0	1.5	0.1	0.3	0.0	0.0	0.0	0.0	0.7	0.6
Cobia													
Purse seine	43.9	100	92.1	0	96.9	0	100	100	0	0	100	0	100
Trawl	0.0	0	7.9	0	0.0	100	0.0	0	0	0	0	0	0
Gillnet	56.1	0	0.0	0	3.1	0	0.0	0	0	0	0	0	0
Dolphinfish													
Purse seine	73.2	100	0	0	0	0	0	85.8	100	0	97.7	100	100
Trawl	17.4	0	0	0	0	0	0	0	0	0	2.3	0	0
Gillnet	9.4	0	0	0	0	0	0	14.2	0	0	0	0	0

Table 2. Mean monthly landings (%) of Large pelagic fishes (2013-19)

LPF	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Seerfish	2.7	6.5	3.3	1.2	1.5	0.0	0.1	13.9	29.1	17.2	3.8	20.7
Tuna	4.6	3.6	1.8	2.2	6.6	0.0	0.0	27.3	31.5	7.1	5.6	9.7
Barracuda	15.9	18.2	9.7	1.7	11.3	0.0	0.0	0	17.2	4.5	15.4	6.1
Queenfish	1.3	6.1	10.6	2.9	10.3	0.0	0.0	6.8	29.1	3.2	12.6	17.1
Fullbeaks	3.0	45.6	5.2	1.5	0.0	0.0	0.0	1.1	34.8	2.1	1.5	5.2
Dolphinfish	6.9	47.6	0.8	0.8	7.7	0.0	0.0	0	31.4	2.6	1.1	1.1
All LPF	3.7	3.6	2.5	1.8	6.3	0.0	0.0	26.8	34.3	6.5	4.2	10.3

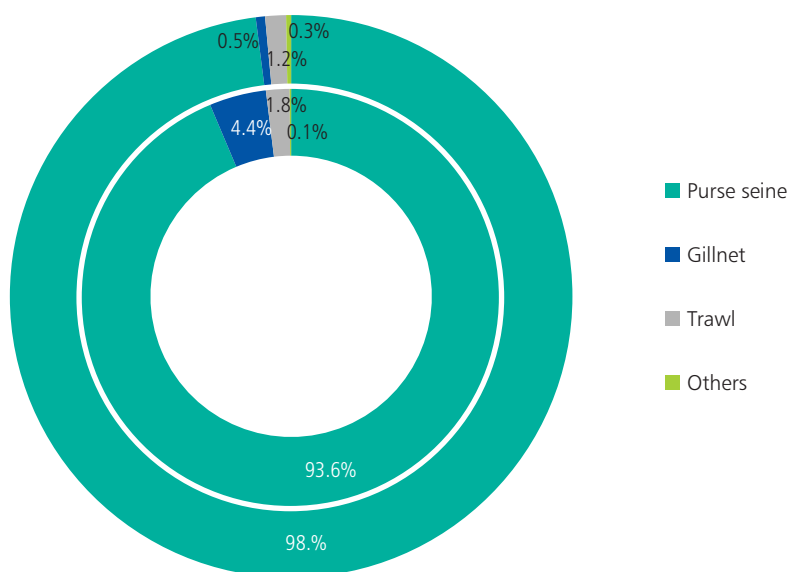


Fig.2. LPF landings by different gears during 2007-2012 (Phase-I, Inner circle) and 2013-2019 (Phase-II, Outer circle) in Goa

Table 3. Landing centres, types of boats operated and landings of large pelagic fishes

Landing centre	Boats operated	LP species
Cutbona	Purse seines, Trawl, Gillnet, Shore seines	Seerfish : <i>Scomberomorus commerson</i> and <i>S. guttatus</i>
Vasco Da Gama		Tunas : <i>Euthynnus affinis</i> , <i>Auxis thazard</i> , <i>A. rochei</i> and <i>Thunnus albacares</i>
Talpona		Barracudas : <i>Sphyræna obtusata</i> , <i>S. putnamae</i> , <i>S. jello</i> and <i>S. barracuda</i> ,
Mahlim		Queenfish : <i>Scomberoides tol</i> , <i>S. tala</i> and <i>S. commersonianus</i>
Baina-Bimber		Fullbeaks : <i>Ablennes hians</i> , <i>Strongylura strongylura</i> and <i>Tylosurus crocodilus</i>
Pale and		Cobia : <i>Rachycentron canadum</i>
Colva		Dolphinfish : <i>Coryphaena hippurus</i>
Harmal Mandremvado	Gillnet, Trawl and Shore seines	Seerfish : <i>Scomberomorus commerson</i> , <i>S. guttatus</i>
Baga		Tuna : <i>Euthynnus affinis</i> , <i>Auxis thazard</i> , <i>A. rochei</i>
Carandalem		Barracuda : <i>Sphyræna obtusata</i> , <i>S. putnamae</i>
Dona Paula		Cobia : <i>Rachycentron canadum</i>
Siridona Cansaulim Utroda		Dolphinfish : <i>Coryphaena hippurus</i>

Table 4. Species composition of large pelagic fishes landed in Goa and their % contribution

Fish species	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Seerfish													
<i>S. commerson</i>	63.6	55.5	99.8	49.4	95.9	99.7	97.0	99.5	94.0	62.3	72.4	81.3	79.8
<i>S. guttatus</i>	36.4	44.5	0.2	50.6	4.1	0.3	3.0	0.5	6.0	37.7	27.6	19.7	20.2
Tuna													
<i>A. rochei</i>	5.3	0	0.2	0	0	0	0.0	3.8	0	34.3	77.2	39.2	5.5
<i>A. thazard</i>	90.0	100	99.8	100	78.6	10.6	1.9	9.0	0	0	4.3	60.6	0.4
<i>E. affinis</i>	4.7	0	0	0	21.4	89.4	98.1	87.2	100	65.3	18.3	0.2	54.3
<i>T. albacares</i>	0	0	0	0	0	0	0	0	0	0.4	0.1	0	0
<i>T. tonggol</i>	0	0	0	0	0	0	0	0	0	0	0	0	39.9



Fig.4. *E. affinis* that emerged as a dominant tuna species post 2010

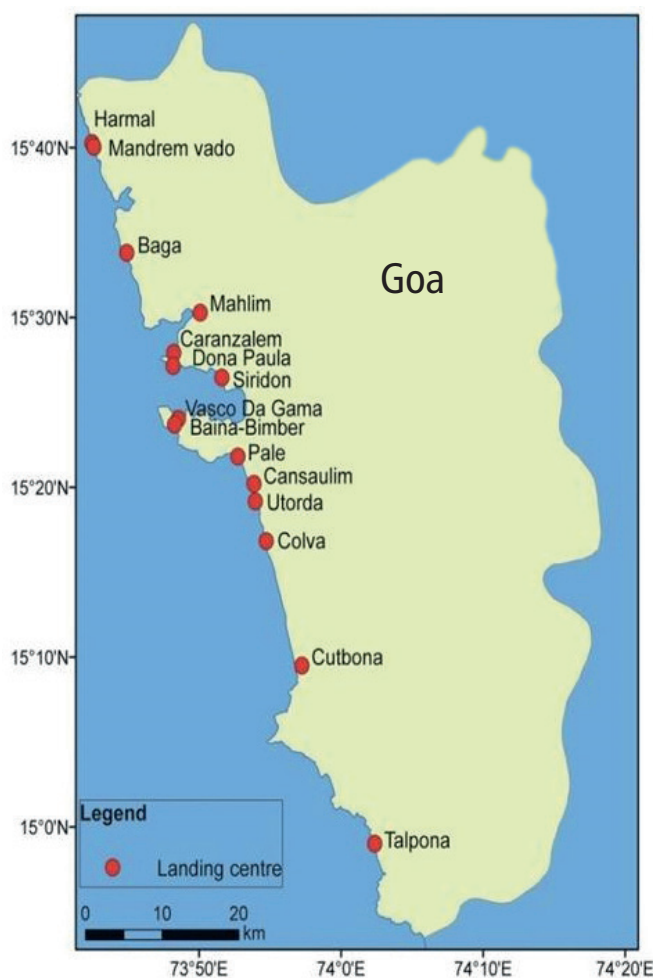


Fig. 3. Major and minor landing centers where Large pelagic fishes are landed along Goa Coast

gillnetters and trawlers land LPF in good quantity. Seerfish, neritic tunas and barracudas were landed in some minor landing centres where outboard gillnets, small trawl boats



Fig.5. Dolphinfinh *Coryphaena hippurus*



Fig.6. Seerfish *Scomberomorus commerson*

and shore seines operate (Table 3 & Fig.3).

Catch trend and species composition indicated among two species of seerfish landed in Goa, *Scomberomorus commerson* was dominant in almost all the years except in 2010. Among the four species of tunas landed, *Auxis thazard* was the dominant species and contributed 90-100% of the total tuna landing during 2007-2010 period. However, during 2011 -2016 period *Euthynnus affinis* emerged as the major species (Table 4 & Figs. 4-6).

The facilities available for onboard handling are minimal in single day fishing crafts while mechanised fishing vessels such as multiday trawlers, purse seiners and gillnetters have fish hold tanks to preserve the fish with ice. However even here, awareness of fishermen on importance of proper on-board handling of fish is poor and training needs are flagged.