**THE POTENCY OF SEA FISHERY IN WEST SUMATERA PROVINCE**

**Melti Roza Adry1, Dewi Zaini Putri2, Novya Zulva Riani3, Joan Marta4**

1 Universitas Negeri Padang, Padang and Indonesia, 🖂 (e-mail) meltirozaadry@gmail.com

2 Universitas Negeri Padang, Padang and Indonesia, 🖂 (e-mail) putridewizaini@gmail.com

3 Universitas Negeri Padang, Padang and Indonesia, 🖂 (e-mail) novyazr@gmail.com

4 Universitas Negeri Padang, Padang and Indonesia, 🖂 (e-mail) jomarta01@gmail.com

**Abstract**

West Sumatera is one of the Province in Indonesia that has potential of marine resources both public and marine waters. However, this potential has not been optimally managed so as not to contribute significantly to the welfare of the people and economic growth of West Sumatra Province. This analysis is aimed to produce a policy or strategy of marine fishery-based regional development in West Sumatera Province.

The results of the study found that the leading commodities of marine fishery of West Sumatra Province were (1). The species of small pelagic fish are Tetengkek, Daun bambu/Talang-talang, Cendro, Teri, Bentong, Selar hijau, Selar kuning dan Kembung, (2). The species of big Pelagic Fish are Cucut Selendang (BSH), Tongkol krai (FRI), Cucut Koboi (OCS), Tenggiri papan (GUT), Cucut botol (PSK), Setuhuk hitam (BLM), Ikan Layaran (SFA) dan Cucut tikus/ Cucut monyet (THR)(3). The species of emersal fish are fish of Senuk, Peperek, LayurBiji nangka, Nomei / Lomei Fish, Kapas-kapas, Jenaha, gaji Fish and Kuwe, (4). The species of karang fish are kerapu balong, Kerapu karang, Ekor kuning/ Pisang-pisang dan Ikan napoleon.

**Keywords**:Fishery, RCA, Fisherman

**How to Cite:** Melti Roza Adry, Dewi Zaini Putri. (2017). The Potency Of Sea Fishery In West Sumatera Province. In Luna(Eds.), The 1st Padang International Conferences on Education, Economics, Business, and Accounting(pp. XX–XX). Padang: Economics Faculty, UniversitasNegeri Padang Publishing. DOI: [https://doi.org/XX.XXXXX/XXXXX](https://doi.org/10.24036/XXXXX)

**Introduction**

West Sumatra is one of the provinces located on the west coast of Sumatra which has abundant marine and fisheries potential as one of the supporting sectors of economic growth in West Sumatra. Development of Marine and Fisheries sectors is an integral part of West Sumatera Regional Development, which is geographically very significant because that marine areas is part of exclusive economic zone ( ZEE ) around 51,060.23 km2 and public waters (four large lakes, rivers, ponds, and reservoirs) around 62,400 km2 exceeding the area from the mainland of West Sumatra Province. This fact and also the potential contained such as fish resources and environmental services (marine tourism, resorts, sports maritime and others), it is projected that marine and fisheries to be one of the main determinants factors of the economy of West Sumatra in the future.

Marine and Fishery Sector in West Sumatera economy has a big role for the economy such as source of employment, source of animal protein derived from fish and the last is the source of foreign exchange. It has 185 small islands with the length 375 km extending from Pasaman Barat to Pesisir Selatan, the length will be greater if it include beaches in the Mentawai Islands so it has considerable potential for fisheries development.

This is supported by the production of marine fisheries that are only found in seven districts of the City that is located along the coast. The seven districts of the City are Kepulauan Mentawai Distric, Pesisir Selatan Distric, Padang Pariaman Distric, Agam Distric, Pasaman Barat Distric, Padang City and Pariaman City. Marine fisheries production in West Sumatra Province in 2011 - 2014 showed a positive trend but decline in 2015. it decreased from 214,734 tons to 206,399 tons or decreased by 3.88 percent from the previous period. the decrease of production is due to the decrease of capture fishery production in Mentawai Island around 51.07 percent and in Padang Pariaman around 33.32 percent in 2015. In addition, the decrease of marine fishery production is also highly determined by the means used by fishermen in the process of fishing. Central Bureau of Statistics records that the majority of fishermen in West Sumatera use boats with outboard motor as a means of fishing in the sea.

The decline in marine fisheries production leads to a lack of West Sumatra's ability to meet the high market demand for fresh marine fish. Increased demand for fresh and processed fish from neighboring provinces, sub-regional neighbors and other markets becomes a problem when quality qualifications and desired supply commitments can not be fulfilled in West Sumatra. FAO data show that the need for fish consumption is increasing every year. Eventhough the consumption of fish in the world per capita can reach 19.6 kg in 2021. Thus means that coastal areas in West Sumatra Province has potential in the development of marine fishery commodities.

Another strategic issue of fisheries and marine is the high poverty rate of fishery communities in West Sumatra. This is evident from the high level of poverty in coastal areas. Mentawai Islands District is the coastal region with the highest poverty level compared to other regions in West Sumatra Province. Of the seven districts of the city located in the coastal areas, five of them have poverty levels above the average of West Sumatra Province. In addition, seen from the field of business, most of them work in agriculture sector including fishery sub-sector. Increasing the living standard of cultivators, fishermen and processors / marketing of fishery products conducted in an integrated and sustainable manner both at the provincial and municipal level as well as related institutions are expected to reduce poverty problems in the area.

Besides Capture Fisheries, West Sumatera also has potential for the development of Aquaculture Fisheries, both freshwater, brackish and marine fisheries. This is supported by the existence of four lakes, ponds, reservoirs, and rivers. Besides, the potential of brackish and marine cultivation extends from Pasaman Barat to Pesisir Selatan Regency. The above potentials have not been utilized optimally so that there has not been a significant impact with the level of community welfare.

On the other hand, the economic growth shows a negative trend in the last four years but the growth rate of fishery sub-sector and percentage distribution of Fishery Sub-sector to total GDRP of West Sumatera shows positive trend, as shown in table 2. This indicates that fishery sub-sector has potential to be developed as one of the regional economic development strategies in West Sumatra and able to increase economic growth of West Sumatra. Although the distribution of the fishery sub-sector still contributes quite small but it can be developed as one of the determinant factors to decrease poverty in the coastal areas in West Sumatra.

So, Based on these previous conditions it is important to empower coastal communities in West Sumatra Province so as to reduce poverty and of course there is a need for a systematic and comprehensive program based on scientific studies in efforts to alleviate poverty and empower coastal communities. So that it will improve prosperity of society and economic growth of West Sumatera Province.

**Methodology**

**Determination of Commodity - Leading Commodity Sub Sector of Sea Fishery**

Determining the leading commodities of Sub Sector of Sea Fishery of West Sumatera Province either from the type of species, productivity and selling value desired by the market. In addition, mapping of marine zones based on marine fisheries in West Sumatera Province is expected to be established by various local brands as leading products that have competitive and comparative advantages compared to other regions. For that purpose, an analysis using time series data is available at the Central Bureau of Statistics and Fisheries and Marine Service of West Sumatra Province.

To determine commodities that have a comparative advantage is used Revealed Comparative Advantage (RCA) Analysis. RCA analysis is a quantitative analysis that compared the quantity of certain product in a region with other region using secondary data

$$RCA=\frac{^{X\_{i}^{A}}/\_{X^{A}}}{^{X\_{i}^{w}}/\_{X^{w}}}$$

where: $X\_{i}^{A}is the value of commodity production i Province A$,

$$X\_{}^{A}is the total production value of all commodities i in ProvinceA$$

$$X\_{i}^{w}is the value of commodity production i in country W$$

$$X\_{}^{w} is the total production value of all commodities i in country W$$

1. If RCA> 1 then the Province has a comparative advantage in producing I, higher than any other province in the country W
2. If RCA <1 then the Province has no comparative advantage in producing I, higher than any other province in W Country
3. If RCA = 1 then the province has a comparative advantage in producing i, the same as other provinces in W country

After obtaining the leading commodity per region then further mapping by using cluster analysis.

**Results and Discussion**

**Potential of West Sumatera Fishery**

West Sumatera Province (West Sumatra) is geographically located at 1oLU-3oLS and 98oBT-102oBT. West Sumatera Province is bordered by North Sumatera Province in the north, with Jambi and Bengkulu in the south, Indian Ocean in the east, and with Riau Province in the west. Administratively, the province of West Sumatra consists of 19 districts / cities.

|  |  |
| --- | --- |
|  |  |

Figure 1. West Sumatera Fishery Production Figure 2. Sea Fishery Production in West Sumatra 2004 – 2015which is sold to TPI

West Sumatera Province has an area of ± 186,500 km2 of sea waters with long coastline 2,420,357 km and has 375 large and small islands. In 2016, the production of capture fisheries in West Sumatera Province reaches 303,105 tons or equivalent to Rp 3,519,767,197,000. The largest contribution was obtained from Pasaman barat regency which reached 102,441 tons, Pesisir selatan regency reach around 34,570 tons, Padang Pariaman Regency whose production reached 26,677 tons. While in other districts, the production amount is still below 21.000 ton / year.

Meanwhile, in 2015 seen from the contribution of fisheries, Pasaman barat Regency is the region with the highest fishery production in West Sumatra with a contribution of 52 percent, followed by Pesisir Selatan Regency of 18.89 percent and the lowest is Mentawai Islands District of 1.12 percent.

Figure 3. Contribution of City District Fisheries to West Sumatera Fishery Production 2015

Capture fisheries production from marine waters landed in West Sumatra Province largely consists of groups of pelagic fish, group of demersal fish, and non-fish groups (Crustacea and mollusca). Fish production is economically important in the pelagic fish group dominated by 5 species of fish, namely: cobs of cassava, skipjack, albakora, madidihang and large eye tuna. As for the demersal fish group, fish production that is economically valuable, important is dominated by fish species: lencam, red snapper, coral grouper, grouper balong and cucut. For the production of non-fish groups with significant economic value, they are dominated by: shrimp shrimp, white shrimps and tiger prawn.

**Leading Commodity Sub Sector of Sea Fishery of West Sumatera Province**

In general, the share of West Sumatra fishery production to Indonesia in 2015 is around 3.60 percent. From the species of small Pelagic fish, three biggest share to national is Tetengkek, daun bambu / Talang-Talang, and Cendro respectively 31,55 percent, 12,01 percent and 1,107 percent. However, from the RCA value, the species of small Pelagic fish which is including the leading commodity of West Sumatera Province in sequence are Tetengkek, daun bambu/ Talang-Talang, Cendro, Teri, Bentong, Green Selar, yellow Selar and Kembung because the RCA value greater than 1.

**Table 1.**

**Production (ton) and Share (percent) Small Pelagic Fish National and
West Sumatra Province**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Type of Fish | National | Share | Sumbar | Share | Share Sumbar to National | RCA |
| Small Pelagic Fish |  **2 015 002** | **100.00** |  **72 652** | **100.00** | **3.61** |  |
| Tetengkek |  48 150 | 2.39 |  15 193 | 20.91 | 31.55 | 8.75 |
| Daun bambu/Talang-talang  |  16 201 | 0.80 |  1 946 | 2.68 | 12.01 | 3.33 |
| Cendro |  15 037 | 0.75 |  1 665 | 2.29 | 11.07 | 3.07 |
| Teri  |  206 636 | 10.25 |  19 560 | 26.92 | 9.47 | 2.63 |
| Bentong  |  16 536 | 0.82 |  1 181 | 1.63 | 7.14 | 1.98 |
| Selar hijau |  33 288 | 1.65 |  2 035 | 2.80 | 6.11 | 1.70 |
| Selar kuning |  93 176 | 4.62 |  5 442 | 7.49 | 5.84 | 1.62 |
| Kembung  |  325 774 | 16.17 |  15 483 | 21.31 | 4.75 | 1.32 |

While, If we see from species of big pelagic fish, three biggest share to the National is Cucut Selendang (BSH), Tongkol krai (FRI), Cucut Koboi (OCS). And cucut selendang has the most share, with a share of more than 50 percent of national fish production of cucut. but, when we see from the value of RCA> 1, then the species of big pelagic fish that has the comparative advantage in sequence is Cucut Selendang (BSH), Kkut Krai (FRI), Cucut Koboi (OCS), Tenggiri Board (GUT), Cucut botol (PSK) , Black shrimp (BLM), Fish Screen (SFA) and Cucut rat / Cucut monyet (THR).

**Table 2.**

**Production (ton) and Share (percent) National Big Pelagic Fish and
West Sumatra Province**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Type of Fish | National | Share | Sumbar | Share | Share Sumbar to National | RCA |
| Big Pelagic Fish | 1 476 872 | 100.00 | 58 136 | 100.00 | 3.94 |  |
| Cucut Selendang  | 715 | 0.05 | 374 | 0.64 | 52.30 | 13.29 |
| Tongkol krai | 205 051 | 13.88 | 26 820 | 46.13 | 13.08 | 3.32 |
| Cucut Koboi | 213 | 0.01 | 23 | 0.04 | 10.80 | 2.74 |
| Tenggiri papan | 17 737 | 1.20 | 1 768 | 3.04 | 9.97 | 2.53 |
| Cucut botol | 4 048 | 0.27 | 294 | 0.51 | 7.26 | 1.85 |
| Setuhuk hitam | 8 377 | 0.57 | 592 | 1.02 | 7.07 | 1.80 |
| Ikan Layaran | 9 793 | 0.66 | 564 | 0.97 | 5.76 | 1.46 |
| Cucut tikus/ Cucut monyet | 2 019 | 0.14 | 92 | 0.16 | 4.56 | 1.16 |

In the species of demersal fish , the fish of senuk, peperek and layur are the fishes that contribute the three largest to the national fishery production. Viewed from the value of RCA, fish Senuk, Peperek, Layur, biji nangka, Nomei / Lomei, kapas-kapas, Jenaha, gaji fish and Kuwe are demersal fish species that have comparative advantages in West Sumatra Province.

Table 3.
Production (ton) and Share (percent) of National Great and Damersal Fish
West Sumatra Province.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Type of Fish | National | Share | Sumbar | Share | Share Sumbar to National | RCA |
| Damersal Fish | **1 534 404** | **100.00** | **56 380** | **100.00** | **3.67** |  |
| Senuk | 953 | 0.06 | 422 | 0.75 | 44.28 | 12.05 |
| Peperek | 86 238 | 5.62 | 20 537 | 36.43 | 23.81 | 6.48 |
| Layur | 69 188 | 4.51 | 12 531 | 22.23 | 18.11 | 4.93 |
| Biji nangka | 37 902 | 2.47 | 3 765 | 6.68 | 9.93 | 2.70 |
| Ikan nomei/Lomei | 3 813 | 0.25 | 332 | 0.59 | 8.71 | 2.37 |
| Kapas-kapas | 24 176 | 1.58 | 1 745 | 3.10 | 7.22 | 1.96 |
| Jenaha | 5 622 | 0.37 | 367 | 0.65 | 6.53 | 1.78 |
| Ikan gaji | 3 163 | 0.21 | 154 | 0.27 | 4.87 | 1.33 |
| Kuwe | 116 152 | 7.57 | 5 006 | 8.88 | 4.31 | 1.17 |

Furthermore, from the species of reef fish , kerapu balong, kerapu karang and yellowtail / banana tail are the fish with the highest production share to the national production. However, the type of fish that has a comparative advantage are kerapu balong, kerapu karang, yellowtail / banana tail and napoleon fish.

**Table 4.
Production (ton) and Share (percent) of National Coral Fish and
West Sumatra Province.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Type of Fish | National | Share | Sumbar | Share | Share Sumbar to National | RCA |
| Coral Fish | **289 892** | **100.00** | **4 389** | **100.00** | **1.51** |  |
| Kerapu balong | 9 943 | 3.43 | 435 | 9.91 | 4.37 | 2.89 |
| Kerapu karang | 68 251 | 23.54 | 1 746 | 39.78 | 2.56 | 1.69 |
| Ekor kuning/ Pisang-pisang | 79 484 | 27.42 | 1 457 | 33.20 | 1.83 | 1.21 |
| Ikan napoleon | 1 322 | 0.46 | 24 | 0.55 | 1.82 | 1.20 |

Thus, we can conclude that fish species with RCA value> 1 indicate that West Sumatera Province has a comparative advantage in producing I higher than other provinces in Indonesia. Therefore, capture fisheries for these fish species need to be developed and have the potential to develop in the future.

These leading commodities, can be used as one of the priority of fish commodity development in West Sumatera Province. With priority development on the leading fish commodity is expected to increase the number of fish obtained, which in turn can increase the income of fishermen and contribution to the economy of West Sumatra Province.

**Conclusion**

The results of the study found that the leading commodities of marine fishery of West Sumatra Province were (1). SPecies of small Pelagis fish are Tetengkek, Daun bambu/Talang-talang, Cendro, Teri, Bentong, Selar hijau, Selar kuning and Kembung, (2). Species of big Pelagis fish are Cucut Selendang (BSH), Tongkol krai (FRI), Cucut Koboi (OCS), Tenggiri papan (GUT), Cucut botol (PSK), Setuhuk hitam (BLM), Ikan Layaran (SFA) and Cucut tikus/ Cucut monyet (THR). (3). Species of demersal fish are Senuk, Peperek, Layur, Biji nangka, nomei/Lomei, Kapas-kapas, Jenaha, gaji and Kuwe, (4). Species of karang fish are Kerapu balong, Kerapu karang, Ekor kuning/ Pisang-pisang and napoleon.

**References**

Arti, Bayu Dini. (2011). *AnalisisStrategi Kebijakan Pemerintah Terkait dengan Perkembangan Industri Kelapa Sawit Nasional (StudiKasus di PTPN IV Medan Sumatera Utara)*. Tesis IPB (Tidakdipublikasikan).

Bank Indonesia. (2007). *PotensiEkonomi Daerah dalam rangka Pengembangan Komoditi Unggulan Usaha Mikro, Kecil dan Menengah (UMKM) di Propinsi Maluku Utara*. Laporan HasilPenelitian.

Bank Indonesia bekerjasamadenganFakultasEkonomi UNP. (2011). *Komoditi/ Produk/ Jenis Usaha Unggulan UMKM di Sumatera Barat.* Bank Indonesia: Padang

BPS Sumbar (2012). *SumbarDalamAngka 2012.* Padang: BPS.

Barro, Robert J*.* (1991). Economic Growth in a Cross Section of Countries*. The Quarterly Journal of Economics, Vol. 106, No. 2 (May, 1991), pp. 407-443*.

\_\_\_\_\_\_\_\_\_\_\_\_\_. (2001). Human Capital and Growth. The American Economic Review, Vol. 91, No. 2, Papers and Proceedings of the Hundred Thirteenth *Annual Meeting of the American Economic Association (May, 2001), pp. 12-17.*

Dumgair, Denny. (2011). StrategiPengembanganEkonomiLokalBerbasisPerikanan Di KabupatenKepulauanAru (Tesis). IPB: Bogor.

Eng, Pierre van der. (2008). The sources of long-term economic growth in Indonesia, 1880-2007*. Working Papers In Economics & Econometrics*. Australian National University. ISBN: 0 86831 499 4. December 2008.

Mankiw, N. Gregory. David Romer David N. Weil. (1992). A Contribution To The Empirics Of Economic Growth. *The Quarterly Journal of Economics*, Vol. 107, No. 2 (May,1992), pp. 407-437.

Romer, Paul M. *The Origins of Endogenous Growth. The Journal of Economic Perspectives*, Vol. 8, No. 1 (Winter, 1994), pp. 3-22.

Saaty. 2008. *Decision Making with the AnalitycHirarki Process. Intj. Service Scincist Vol.1 No 1 Tahun 2008.*

Sudirman. (2007). *Peranan IPTEK dalampembangunansumberdayakelautanSecaraberkelanjutan*. MakalahdisampaikanpadaKongresIlmuPengetahuan Wilayah untukKawasanTimur Indonesia, di Gedung PKP Unhas Makassar padsatanggal 23 - 24 April 2007.