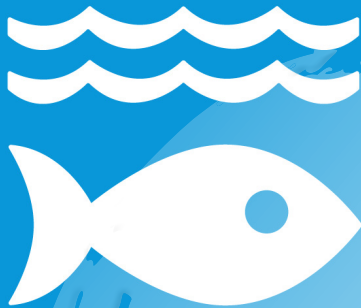


# Statistical Yearbook for Asia and the Pacific **2015**

**14** LIFE BELOW  
WATER





## Sustainable Development Goal 14

# Conserve and sustainably use the oceans, seas and marine resources for sustainable development

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Increased recognition of the role of oceans and seas is vital for the achievement of Sustainable Development Goal 14. Marine ecosystems and the resources they contain provide a broad range of inputs essential for the livelihood of communities across the region. These inputs include various types of ecosystem services that are not easily quantified or measurable in economic terms, such as natural protection against extreme natural events, habitats for marine animals, and natural attractions benefiting tourism and recreational activities.

The small island developing States are particularly vulnerable to changes in marine environments and risks to the sustainability of such activities as fishing and tourism.

The coral reef ecosystems in Asia and the Pacific are an example of crucial sources of a great many natural benefits on which humans depend. The biologist E.O. Wilson referred to coral reefs as the “rainforests of the sea”. Just as terrestrial rainforests serve as the lungs of the planet owing to their role in absorbing carbon dioxide and producing oxygen, upon which all animals depend for survival, coral reefs are essential habitats for marine biodiversity and valuable ecosystems on Earth. They are valuable for their fisheries resources, coastal protection

function, source of medical advances and tourism, among other goods and services. Yet, coral reefs are being increasingly endangered by a number of threats from overexploitation, warming oceans and acidification. Coral bleaching and other forms of damage to coral reefs in the Pacific and Indian oceans are major threats to the sustainability of coastal communities across the region.

The statistics presented in this chapter are focused only on two specific topics relevant to welfare benefits from oceans for coastal area communities, namely the economics of the fisheries sector and some general statistics related to protection of the relevant ecosystems.

### 14.1 Ocean fishing

While large shares of ocean fish and other marine-based products brought to market are “farmed”, wild ocean fishing is still a hugely important productive activity for many Asia-Pacific economies. Statistics compiled by the Secretariat of the Pacific Community<sup>1</sup> on the value of catches of ocean fish in national waters show that ocean fishing is the most highly valued economic activity for many of the small island developing States in the Pacific sub-region. Owing to the nature of fish as a wild food source, it is tremendously difficult to

make conclusive analyses of the sustainability of ocean fishing. However, there is a general consensus<sup>2</sup> among marine life experts that ocean fisheries have been experiencing major declines that put the industry, as well as the overall condition of ocean ecosystems, at risk.

In addition to ocean fishing being a major source of income, a recent study<sup>3</sup> shows that ocean fishing can also provide health benefits for the Pacific communities where tuna and other fish and marine animals are consumed helping people transition to healthier high-protein diets. Currently, Pacific island communities have some of the world's highest rates of obesity and diabetes as a result of unhealthy diets that are rich in sugar, salt and fat.

### Tuna catches in the territorial waters of countries in Asia and the Pacific have more than doubled, from 612,000 tons to 1.6 million tons, between 1997 and 2015

The volumes of tuna catches in Asia and the Pacific that are sustainable are not known. As is the case with many other species targeted by commercial fishing vessels, tuna can habituate over vast ranges of international waters as well as the territorial waters of individual countries. This aspect is one of many reasons why it is challenging to assess the sustainability of ocean fisheries. It is clear, however, that the volume of catches of important wild species cannot continue to increase indefinitely.

Figure 1 presents data for some countries and territories in the Pacific subregion on the value of catches in national waters for just one of the major commercial species: tuna. In the most recent five-year period, the value of the tuna catches in the territorial waters of Kiribati and Tuvalu was about three to four times the value of the total gross production of these States. The value of tuna fish caught in a country's territorial waters can be greater than the size of its total domestic economy if the majority of the fish are caught by foreign fishing vessels. For example, the total value of tuna catches by

Kiribati and Tuvalu fleets is equal to only about one quarter of the value of the total tuna fishing in those waters. Tuna fishing by foreign vessels may contribute to the Kiribati and Tuvalu economies in other ways, however, such as through trade, licensing fees and employment opportunities.

The seven countries in the Asia-Pacific region recording the largest catches (in current United States dollars) of tuna fish are shown in figure 2. Only a very small portion, of these catches are made within the national territories of those countries, between 17 per cent and 53 per cent for the selected countries, which means that the majority of tuna fishing in Asia and the Pacific is taking place in the territorial waters of foreign countries or in international waters.

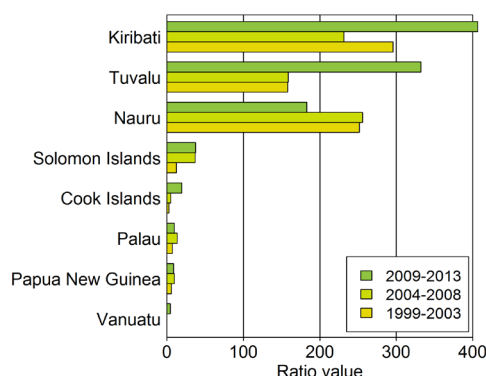


Figure 1

Ratio of value of tuna catches in national waters to domestic GDP

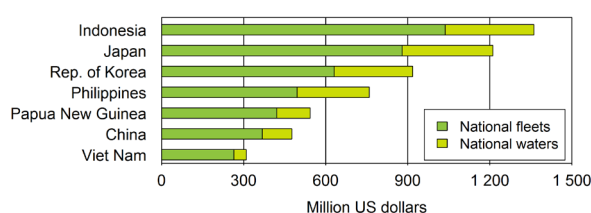


Figure 2

Value of tuna catches, by national fleet and national waters, 2013

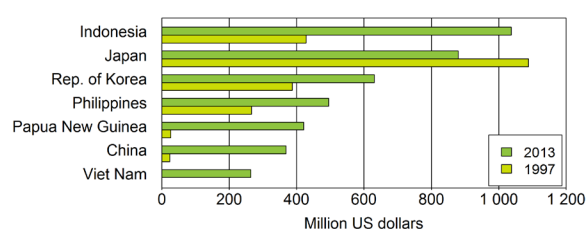


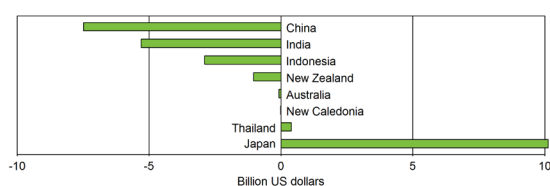
Figure 3

Value of tuna catches by national fleet of selected countries, 1997 and 2013

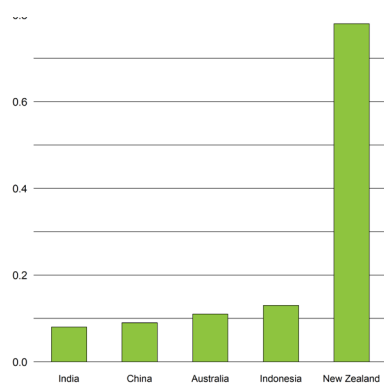
### The value of fish caught in the territorial waters of some small island developing States is worth up to three times their GDP

The value of catches for the large ocean water fishing vessels and their importance to the national or proximate economies can be highly variable from year to year. The one constant trend over the past 8 years, during which the Oceanic Fisheries Program of the Secretariat of the Pacific Community have collected data,<sup>4</sup> has been the growth in volume of fish catches. The tuna fishing industry is an important example. According to SPC catch data, tuna catches in Asia and the Pacific grew by an average rate of approximately 120,000 tons per year during the past 8 years.

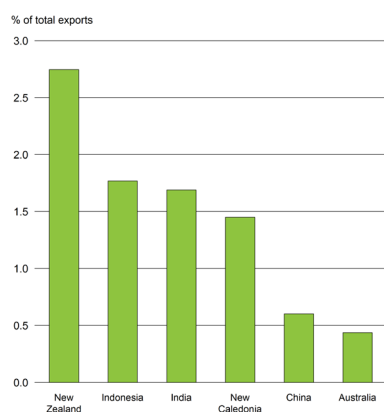
**Figure 4**  
Fish net  
importers and  
exporters, 2014



**Figure 5**  
Share of fish  
exports in GDP for  
selected countries  
in Asia and the  
Pacific, 2014



**Figure 6**  
Share of fish  
exports in total  
exports for top-  
ranking countries  
in Asia and the  
Pacific, 2014



The order of ranking of countries by value of their tuna fish catches has remained largely stable over time, and the overall value of this industry in some countries has more than trebled since the 1990s. For Viet Nam, the value of the tuna catch of national vessels was zero between 1997 and 2002, but by 2013 the value of tuna caught by Viet Nam's national fleet reached nearly \$300 million in value. For Viet Nam and the other countries concerned there has been clear growth over the last 15 years in the economic value of tuna catches (in United States dollar terms) – despite very large year-to-year fluctuations, sometimes by hundreds of millions of United States dollars.

Another way to look at the economic importance of ocean fishing to national economies is through trade statistics and by comparing net exports of ocean fish and other marine resources to overall GDP and to total exports for all the non-landlocked countries in Asia and the Pacific. For example, some major exporters of fish and marine animals are also net importers due to the high volumes of domestic consumption. Net imports is the difference between imports and exports so net importers will have positive values (e.g. Japan and Thailand), while net exporters (e.g. China and India) will have negative values. Exports of ocean fish can make up significant shares of total exports even for some of the largest or most diversified economies in the region, such as Indonesia (2 per cent) and New Zealand (3 per cent). Figure 4, 5 and 6 present related descriptions of the importance of ocean fishing for Asia and Pacific economies: net import of fish (imports less exports), fish exports share of GDP, and fish exports in total exports.<sup>5</sup>

## 14.2 Healthy marine and coastal ecosystems

To continue benefiting from the economic and other services provided by marine ecosystems, their health, including the shares of protected areas of national territories, will need greater consideration.

### More than 200 threatened fish species inhabit the national waters of India alone

Figure 7 the countries of Asia and the Pacific with the largest numbers of individually threatened fish species in their territorial waters are shown. Threatened species are defined in the Red List database, which is produced by the International Union for Conservation of Nature and Natural Resources (IUCN), and classified as critically endangered, endangered or vulnerable (see chapter 15 for definitions of these categories).

These numbers help to provide a general overview for countries in the region facing the most extensive and diverse challenges for achieving Sustainable Development Goal 14. For example, there are more than 200 threatened fish species in the national waters of India alone. The numbers of threatened species in a country are linked with its climate and size, not necessarily to any particular policy or special threat to biodiversity. (Fig 7)

### Indonesia has the largest area of mangrove forests in the Asia-Pacific region, but those forests decreased in size by one third since 2000

An important approach to managing biodiversity threats facing oceans is to carefully monitor conditions of the special marine environments upon which fish depend for habitat and reproduction, particularly coral reefs and mangrove forests.

Mangrove forests are a crucial yet vulnerable part of healthy and sustainable marine environments, providing a wide range of ecosystem services, including unique habitats for spawning of many species of fish and other marine animals. Management of mangrove forests has varied in the region over the past 25 years. In countries with relatively large areas of mangroves, such as Australia and Indonesia, the areas devoted to mangrove forests have contracted in size. Although Indonesia has

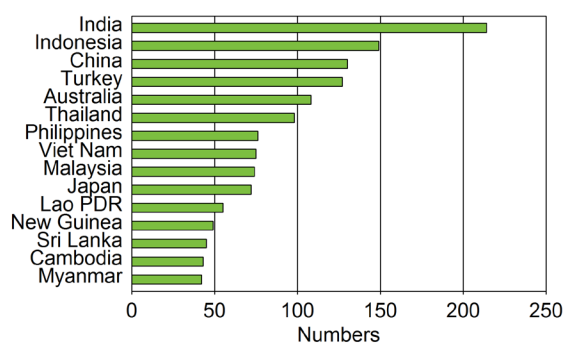
the largest area of mangrove cover in the Asia-Pacific region, that area has decreased in size by one third since 2000. In contrast, there has been substantial growth in the area of mangrove forests in other countries, such as Papua New Guinea, the Philippines and Viet Nam. For the Philippines, the area covered by mangrove forests has more than doubled in size since 1990. For the region as a whole the area of mangrove forests has decreased from 7,569 million hectares in 2000 to 6,791 million hectares in 2015. (Table 1, Fig 8)

	(Thousands of hectares)				
	1990	1995	2000	2010	2015
Indonesia	3 058	3 062	3 444	2 844	2 244
Australia		1 045	749	980	913
Papua New Guinea	565	540	528	516	650
Bangladesh	460	476	476	504	531
India	426	448	445	428	418
Philippines	154	227	265	311	356
Myanmar	517	486	438	438	299
Viet Nam	73	71	62	262	270
Thailand	174	245	265	244	240
Fiji	87	100	108	137	154
Pakistan	207	158	128	98	95
Cambodia	80	68	62	56	50
Solomon Islands	53	46	42	38	34
Sri Lanka	9	11	12	16	16
<b>Sum for Asia-Pacific countries</b>	<b>6 411</b>	<b>7 512</b>	<b>7 569</b>	<b>7 401</b>	<b>6 791</b>

Source: Food and Agriculture Organization of the United Nations, *Global Forest Resources Assessment 2015: How are the World's Forests Changing?* (Rome, 2015). This publication and others may be downloaded from <http://www.fao.org/forest-resources-assessment/en/>.

**Table 1**

Size of mangrove forests in selected countries in Asia and the Pacific

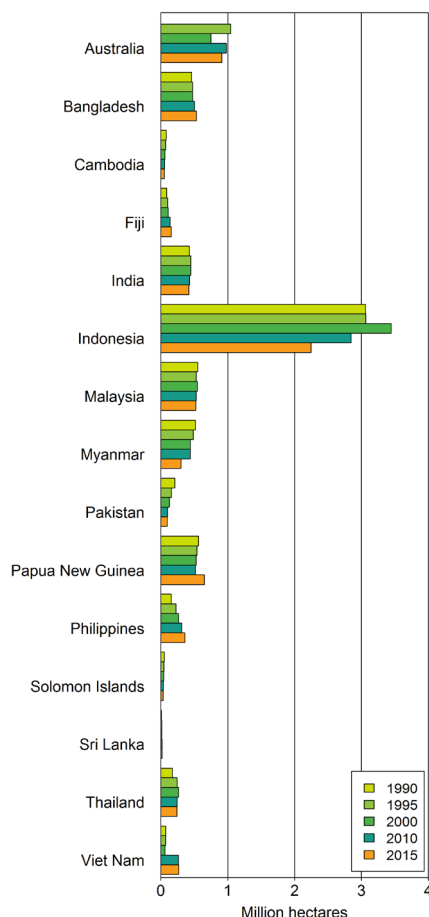


**Figure 7**

Number of threatened fish species, top-ranking countries in Asia and the Pacific, 2014

**Figure 8**

Mangrove forest areas, 1990, 1995, 2000, 2010 and 2015



### The vast majority of Asia-Pacific countries with a coastline protect less than 5 per cent of their territorial waters for biodiversity conservation

The distribution across Asia and the Pacific in shares of marine areas protected for biodiversity conservation compared with areas of territorial waters varies greatly. Only eight member States have shares above the average (6.8 per cent) for coastal countries in the region and less than half the countries have protected areas covering at least 1 per cent of their territorial waters. Australia is a unique case in this regard as it is home to the world's largest coral reef system, a substantial portion of which is managed as a national park. Nevertheless, more than 100 threatened fish species still inhabit the territorial waters of Australia, and there is no apparent correlation between shares of protected marine areas and presence of threatened species.

## 14.3 Data and monitoring issues

### National aggregates for threatened species and marine protected areas present a limited picture of biodiversity protection

The emphasis in this chapter on reviewing commercial fish catches, threatened fish species and protected areas was a practical choice based on the available international data compilations for comparison across countries in Asia and the Pacific. For future monitoring of progress towards attaining Sustainable Development Goal 14 to be more comprehensive, statistics are needed on a much broader range of benefits and challenges related to conservation and sustainable use of oceans, seas and marine resources. Moreover, statistical observations and measures are not sufficient for monitoring sustainability. Other types of information will be needed on the condition of ecosystems and wild ocean fish populations to complete the picture and help policymakers determine where their interventions will have the greatest positive impact. Detailed information will also be necessary to produce projections for future uses of oceans and marine ecosystems.

National aggregates provide a limited picture of a highly diverse collection of marine ecosystems and protection policies and enforcement. Moreover, the sustainability of marine ecosystems depends on many factors besides protected areas, including pollution and the impacts of climate change. A similar measurement challenge exists for the terrestrial ecosystems and monitoring of Sustainable Development Goal 15.

For example, no clear relationship exists between national-level indicators of shares of marine protected areas and the number of threatened fish species. There are several possible technical reasons for this lack of correlation, which indicates the challenges of monitoring Sustainable Development Goal 14. Many of the fish species listed in the previously mentioned IUCN Red List



of Threatened Species migrate across the waters of various countries and territories, and nationally aggregated statistics on protected areas do not capture the diversity in the types of conservation areas or in the natural characteristics of the ecosystems. Detailed information on the qualities and special characteristics of marine ecosystems in the region would support more complete oversight of trends related to protection of marine ecosystem biodiversity. (Fig 9)

The indicators described in this chapter were selected based on their coverage of comparable figures from existing international compilations. Statistics on protected areas from the World Database on Protected Areas provide good cross-country coverage. These statistics are collected by the United Nations in the Millennium Development Goals Indicators database, from the World Conservation Monitoring Centre of the United Nations Environment Programme, which

updates the figures on a monthly basis. The availability of data on threatened species depends on submission of studies that meet the criteria for inclusion on the IUCN Red List. Nationally aggregated summaries, by species categories, can be produced for most of the ESCAP member States. However, it should be noted that biodiversity is naturally variant, and certain species are migratory. Other species may only live or breed in certain types of waters. Also, mangrove forests and coral reefs are ecosystems particular to the tropical and subtropical climate zones. Thus, many of the indicators relevant to Sustainable Development Goal 14 are not applicable to many member States, in particular landlocked countries. Statistics on budget allocations for protection of conditions, including biodiversity, of both the marine ecosystems (Goal 14) and terrestrial ecosystems (Goal 15), are currently critically limited for comparable analyses across countries in the region.

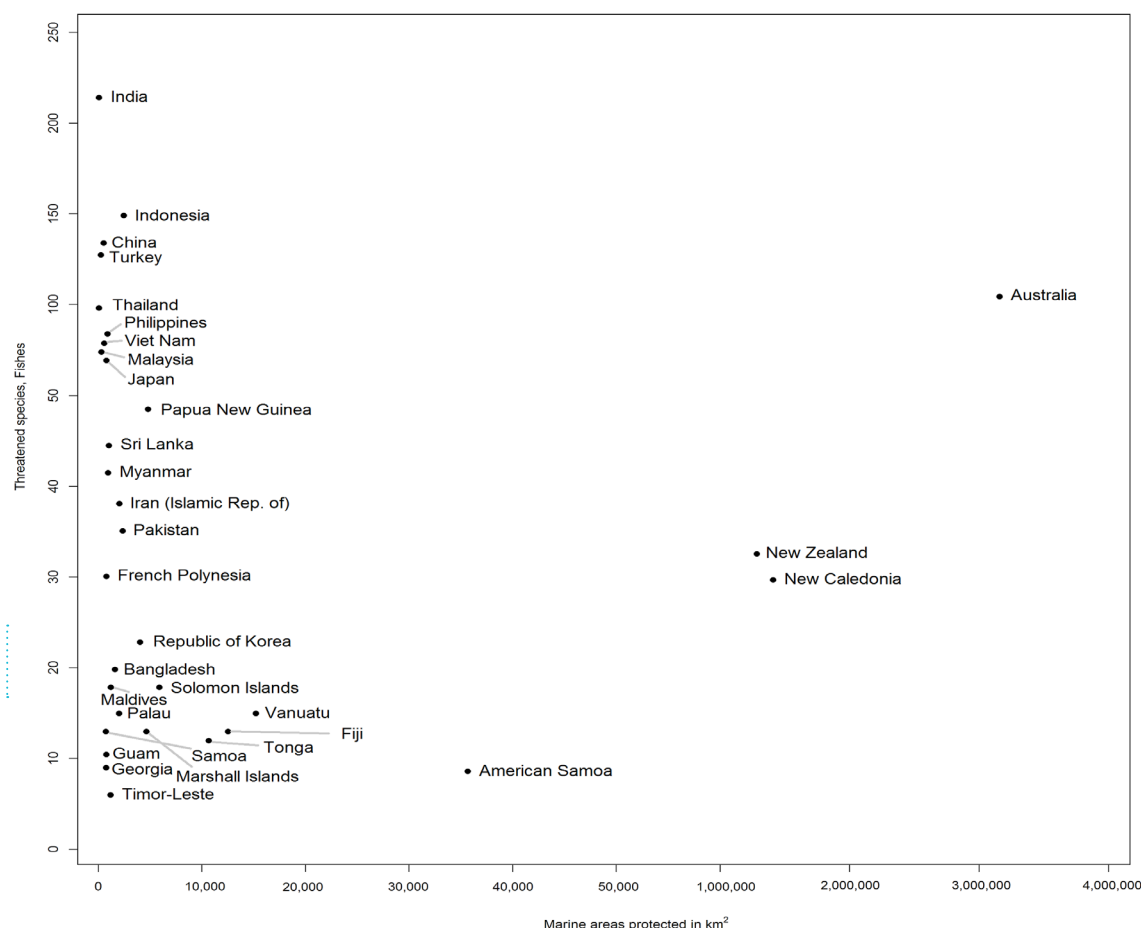


Figure 9

Share of fish exports in total exports for top-ranking countries in Asia and the Pacific, 2014

Statistics for monitoring indicators related to Sustainable Development Goal 14 targets on ocean pollution are being collected by international agencies; however, it is not yet possible to verify the degree of coverage of existing statistics for monitoring those targets for the Asia-Pacific region. Data on fish catches are available for assessing the improvement of sustainability of fishing practices, but the current scientific knowledge on the characteristics of stocks of ocean fish and their habitats is limited for developing complete coverage of indicators for monitoring ocean fishing sustainability.

## Endnotes

- 1 Oceanic Fisheries Program of the Secretariat of the Pacific Community.
- 2 World Wildlife Fund for Nature (WWF), *Living Planet Report 2014: Species and Spaces, People and Places* (Gland, Switzerland, 2014). The publication may be downloaded from a link at [http://www.panda.org/about\\_our\\_earth/all\\_publications/living\\_planet\\_report/](http://www.panda.org/about_our_earth/all_publications/living_planet_report/).
- 3 Johann D. Bell and others, "Diversifying the use of tuna to improve food security and public health in Pacific island countries and territories", *Marine Policy*, vol. 51 (January 2015), pp. 584-591.
- 4 Secretariat of the Pacific Community (SPC), *Report of the Oceanic Fisheries Program (OFP) of the Secretariat of the Pacific Community* (SPC Ocean Fisheries Programme and the Western and Central Pacific Fisheries Commission, July, 2014).
- 5 Imports and exports of fish refer to the HS commodity classification 03: "Fish & crustacean, mollusc & other aquatic invertebrates". Imports and exports data compiled from UN Comtrade-International Trade Statistics Database compiled from UN Comtrade-International Trade Statistics Database. Available from <http://comtrade.un.org/>





1 NO  
POVERTY

2 NO  
HUNGER

3 GOOD  
HEALTH

4 QUALITY  
EDUCATION



5 GENDER  
EQUALITY

6 CLEAN WATER  
AND SANITATION

7 RENEWABLE  
ENERGY

8 GOOD JOBS AND  
ECONOMIC GROWTH



9 INNOVATION AND  
INFRASTRUCTURE

10 REDUCED  
INEQUALITIES

11 SUSTAINABLE CITIES  
AND COMMUNITIES

12 RESPONSIBLE  
CONSUMPTION



13 CLIMATE  
ACTION

14 LIFE BELOW  
WATER

15 LIFE  
ON LAND

16 PEACE AND  
JUSTICE



17 PARTNERSHIPS  
FOR THE GOALS

2 NO  
HUNGER

3 GOOD  
HEALTH

4 QUALITY  
EDUCATION



UNITED NATIONS  
**ESCAP**

Economic and Social Commission for Asia and the Pacific