OECD Sustainable Ocean Economy Database Documentation

The ocean is a shared global resource. Ocean-related industries in many countries have expanded with insufficient consideration for the environment, risking the natural resources and the essential marine ecosystem services on which economies and people’s well-being depend.

The OECD Sustainable Ocean Economy Database synthesizes available ocean-related datasets and indicators from across the Organisation to improve their discoverability and comparability. The database brings together relevant indicators from the Environment Directorate (ENV), the Trade and Agriculture Directorate (TAD), the Centre for Entrepreneurship, SMEs, Regions and Cities (CFE), the International Transport Forum (ITF), the International Energy Agency (IEA), and others.

Contents

- Natural Capital
  - Threatened marine species
  - Coastal land cover change

- Environmental and resource productivity
  - CO2 emissions from international maritime bunkers

- Economic opportunities
  - Ocean renewable energy RD&D budgets
  - Technology development related to ocean sustainability (invention)

- Policy responses
  - Taxes, fees and charges, tradable permit systems, subsidies, deposit refund schemes, etc. directed at ocean sustainability
  - Revenue from environmentally related taxes in the ocean economy
  - Ocean-related fossil fuel support
  - Marine and coastal protected area designation

- Socio-economic context
  - Marine landings
  - Aquaculture production
  - Employment in fishing
  - Fishing fleet
  - Trade in fisheries products
  - Marine freight
  - Tourism receipts and expenditure
  - Coastal population
Threatened marine species

Natural Capital > Biodiversity and ecosystems: Wildlife resources > Threatened marine species

Source

OECD Environment database - Threatened species


Accessed November 2020

Related publications


Series

- Threatened marine fish species (last available year), number
- Threatened marine fish species (last available year), as share of known species, %

Concept and classification

The data on the state of threatened species build on country replies to the Annual Quality Assurance (AQA) of OECD environmental reference series. These data are harmonised through the work of the OECD Working Party on Environmental Information (WPEI). Some were updated or revised on the basis of comments from national delegates and in the framework of the OECD Environmental Performance Reviews.

Species assessed as Critically Endangered (CR), Endangered (EN), or Vulnerable (VU) are referred to as "threatened" species. Reporting the proportion of threatened species on The IUCN Red List is complicated by the fact that not all species groups have been fully evaluated, and also by the fact that some species have so little information available that they can only be assessed as Data Deficient (DD). For many of the incompletely evaluated groups, assessment efforts have focused on species that are likely to be threatened; therefore any percentage of threatened species reported for these groups would be heavily biased (i.e., the % threatened species would likely be an overestimate).

Interpretation

The year dimension used is the reference year of the OECD AQA and not of the observations (which is not collected).

The number of species known does not always accurately reflect the number of species in existence and varying definitions can limit comparability across countries.

This section last updated

November 2020
Coastal land cover change

Natural capital > Biodiversity and ecosystems > Coastal zone resources and ecosystems: Coastal land cover change

Source

OECD Environment database - Land Resources.


The coastal breakdowns presented here are forthcoming in the above dataset. Results presented here use more recent underlying built-up data than in the above dataset.

Built-up statistics are calculated from: Florczyk et al. (2019) 30m resolution multitemporal built-up grid (GHSBUILTLDSTMGTGLOBE2018A385730V20)

Related publications


Series

- Built-up area, all land, sqkm
- Built-up area, all land, as share of all land, %
- Built-up area within 10km of coast, sqkm
- Built-up area within 10km of coast as share of land within 10km of the coast, %
- Built-up area within 1km of coast, sqkm
- Built-up area within 1km of coast as share of land within 1km of the coast, %

Concept and classification

Activities on land can harm marine and coastal ecosystems. Harm arises via organic (nutrients like nitrogen and phosphorous), inorganic (e.g. industrial chemicals, biocides) and debris (e.g. plastic litter) water pollution; changes in sediment discharges (e.g. through damming rivers); and land cover and land use changes leading to disturbance or destruction of habitats important to marine biodiversity. As well as harming biodiversity, the consequences cost countries billions of dollars each year, (e.g. via tourism losses from coastal eutrophication) (OECD 2017).

These indicators help illustrate pressures arising from urbanisation in coastal areas. As well harming biodiversity by directly destroying or degrading habitats, urbanisation and corresponding population increases in coastal regions can lead to increased discharges of wastewater to coastal regions and diffuse pollution from highway and other built infrastructure runoff; increased marine activity (commercial and recreational marine traffic and use); and increased local resource extraction. The importance of these effects depends on the local context; but are often significant.

Interpretation
Built-up area is calculated using the JRC Global Human Settlement Layers, which map the extent and change over time of built-up areas. “Built-up” is defined as the presence of buildings (roofed structures). This definition largely excludes other parts of urban environments and the human footprint such as paved surfaces (roads, parking lots), commercial and industrial sites (ports, landfills, quarries, runways) and urban green spaces (parks, gardens). Consequently, such built-up area may be different from other urban area data that use alternative definitions. Like all earth-observation derived estimates, these results come with caveats such as scale dependence, limitations associated with classification of continuous phenomena into discrete classes, and uneven geographical and temporal accuracy; in the coastal context, results are particularly sensitive to the coastline definition (the land-water boundary used). Coastal areas are defined as either a 10km or 1km (inland and marine) buffer around countries’ coastlines using the static baseline of the FAO GAUL dataset.

The OECD aggregate average is not representative of many OECD countries because of the characteristics of very large, scarcely populated member countries like Canada and Australia.

The denominator is total land area for that region, excluding inland water.

References


This section last updated

Nov 2020 (there was a mistake in calculation that modestly affected most values April 2020-Nov 2020)
CO2 emissions from international maritime bunkers

Environmental and resource productivity > Carbon and energy: CO2 productivity > CO2 emissions from international maritime bunkers

Source

These data are taken from the International Energy Agency's World Energy Balances and Statistics: CO2 emissions from fuel combustion database.


Accessed November 2020

Related publications

- https://www.iea.org/reports/co2-emissions-from-fuel-combustion-overview

Series

- International marine bunker CO2 emissions, thousand tonnes
- International marine bunker CO2 emissions as share of total CO2 emissions from fuel combustion, %

Concept and classification

- For the denominator, the sum of aviation and marine bunkers and total CO2 emissions from fuel combustion are used (in the case of the World aggregate only, total CO2 emissions from fuel combustion already includes the bunkers emissions so this is used as provided in the IEA data)

- Memo: International marine bunkers (MARBUNK)
  - International marine bunkers contains emissions from fuels burned by ships of all flags that are engaged in international navigation. The international navigation may take place at sea, on inland lakes and waterways, and in coastal waters. Consumption by ships engaged in domestic navigation is excluded. The domestic/international split is determined on the basis of port of departure and port of arrival, and not by the flag or nationality of the ship. Consumption by fishing vessels and by military forces is also excluded. Emissions from international marine bunkers should be excluded from the national totals. This corresponds to IPCC Source/Sink Category 1 A 3 d i.

- CO2 from fuel combustion
  - CO2 fuel combustion presents total CO2 emissions from fuel combustion. This includes CO2 emissions from fuel combustion in IPCC Source/Sink Category 1 A Fuel Combustion Activities and those which may be reallocated to IPCC Source/Sink Category 2 Industrial Processes and Product Use under the 2006 GLs. $\text{CO2FCOMB} = \text{MAINPROD} + \text{AUTOPROD} + \text{OTHEN} + \text{TOTIND} + \text{TOTTRANS} + \text{RESIDENT+COMMPUB} + \text{AGRICULT} + \text{FISHING} + \text{ONONSPEC}$.

Full documentation

Interpretation

Sustainable Ocean Economy Database documentation. Contact env.stat@oecd.org. 25 Nov 2020
Aggregate values are taken directly from the underlying IEA data. Please see the documentation linked above for more information about coverage.

This section last updated

November 2020
Ocean renewable energy R&D budgets

Economic opportunities > Technology and innovation: Research and development (R&D) > Ocean renewable energy R&D budgets

Source

The IEA Energy Technology RD&D (research, development and demonstration) budget database collects budgetary data on research, development and demonstration of various energy technologies in IEA member countries. Energy RD&D covers basic and applied research, experimental development, and demonstration related to the production, storage, transportation, distribution and rational use of all forms of energy.

Data is collected from central or federal government budgets, as well as budgets of state-owned companies.

Shown here are data for the following ocean-related renewable energy sectors:

- Offshore wind RD&D activities which focus on the performance and the reliability of these technologies.
- Ocean energy, including technologies that harness the physical properties of the ocean to generate electricity from tidal energy, wave energy, and salinity gradient power. RD&D activities for this sector includes the design and development of equipment and turbine technology, as well as the research on the effect on marine life of ocean energy.

http://wds.iea.org/WDS/TableViewer/tableView.aspx

"Detailed Country RD&D Budgets" - Accessed November 2020

Related publications

- IEA Energy Technology RD&D Budgets https://www.iea.org/reports/energy-technology-rdd-budgets-2020

Series

- Offshore wind technology (excl. low wind speed) RD&D, million USD 2018 PPP
- All ocean energy (excl. offshore wind) RD&D, million USD 2018 PPP
- Tidal energy RD&D, million USD 2018 PPP
- Wave energy RD&D, million USD 2018 PPP
- Salinity gradient power RD&D, million USD 2018 PPP
- Other ocean energy RD&D, million USD 2018 PPP
- Unallocated ocean energy RD&D, million USD 2018 PPP
- All ocean and offshore energy (offshore wind + ocean energy) RD&D, million USD 2018 PPP
- All ocean and offshore energy (offshore wind + ocean energy) RD&D, share of total energy RD&D budget, %
- Total energy RD&D, million USD 2018 PPP

Concept and classification

The database classification can be seen in full at http://wds.iea.org/wds/pdf/RDD_Documentation.pdf

Sustainable Ocean Economy Database documentation. Contact env.stat@oecd.org. 25 Nov 2020
Interpretation

- The OECD aggregate includes 30 of 37 OECD countries (excludes CHL, COL, ISL, ISR, LTU, LVA, SVN). The aggregate is a simple sum of OECD countries without any backward or forward filling or interpolation of missing data points and does not include the EU28 budget elements.

- Note that there are many data points that are missing, or have been estimated by the IEA at 0. This can lead to choppy year-to-year totals (which are not necessarily anomalous - budgets can change dramatically).

- Generic wind technology RD&D is not shown however some of that spending will be relevant to offshore wind.

This section last updated

November 2020
Technology development (invention)

Economic opportunities > Technology and innovation: Patents of relevance to ocean sustainability > Technology development (invention)

Source

OECD Patents in environment-related technologies


The ocean-specific additions that are included here are forthcoming in the source dataset

Related publications


Series

- Ocean-related high value env inventions as share of total high value inventions, %
- Desalination inventions, number
- Ocean-related env inventions, number
- Ocean-related env inventions as share of total inventions, %
- Ocean-related high value env inventions, number
- Ocean renewable energy inventions, number
- Ocean pollution abatement inventions, number
- Climate change mitigation inventions in maritime transport, number
- Climate change mitigation inventions in maritime fishing and aquaculture, number
- Coastal adaptation inventions, number

Concept and classification

Innovation is a key driver of productivity and economic growth. It can help achieve environmental objectives at lower costs, and lead to new business opportunities and markets. It is widely acknowledged that far-reaching innovation will be needed to address climate change and other major environmental challenges.

The innovation indicators based on patent data presented here relate to technology development. That is, the number of inventions (simple patent families) developed by a country's inventors, independent of the jurisdictions where a patent application has been registered (i.e. all known patent families worldwide are considered). Patents in ocean-related ENVTECH technologies represent only a small portion of overall patenting activity. Therefore, prior to data retrieval from a patent database, a search strategy shown below is developed to identify the relevant patent documents using common patent classification systems.
"High value" patents are higher-value inventions for which patent protection has been sought in two or more jurisdictions. For more information see the family size discussion in the related publications and source dataset.

# Search strategy for ocean ENVTECH

## 1. OCEAN RENEWABLE ENERGY GENERATION

<table>
<thead>
<tr>
<th>Topic</th>
<th>CPC or IPC codes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1a. Offshore wind energy</strong></td>
<td></td>
</tr>
<tr>
<td>Offshore towers for wind energy generation</td>
<td>02E 10/727</td>
</tr>
<tr>
<td>Masts or towers for wind motors specially adapted for offshore installation</td>
<td>F03D 13/25</td>
</tr>
<tr>
<td>Offshore structures for wind turbine</td>
<td>E02B 2017/0091</td>
</tr>
<tr>
<td>Floating structures for converting wind energy into electric energy</td>
<td>B63B 2035/446</td>
</tr>
<tr>
<td><strong>1b. Offshore solar energy</strong></td>
<td></td>
</tr>
<tr>
<td>Floating structures for converting solar energy into electric energy</td>
<td>B63B 2035/4453</td>
</tr>
<tr>
<td><strong>1c. Tide, wave, current and other marine energy</strong></td>
<td></td>
</tr>
<tr>
<td>Tide or wave power plants</td>
<td>E02B 9/08</td>
</tr>
<tr>
<td>Power stations or aggregates using wave or tide energy</td>
<td>F03B 13/12-268</td>
</tr>
<tr>
<td>Floating structures for converting water energy into electric energy, e.g. from tidal flows, waves or currents</td>
<td>B63B 2035/4466</td>
</tr>
<tr>
<td>Tidal stream or damless hydropower, e.g. sea flood and ebb, river, stream</td>
<td>Y02E 10/28</td>
</tr>
<tr>
<td>Energy from the sea: Oscillating water column [OWC], Ocean thermal energy conversion [OTEC], Salinity gradient, Wave energy or tidal swell, e.g. Pelamis-type</td>
<td>Y02E 10/30-38, F03G 7/05</td>
</tr>
</tbody>
</table>

## 2. OCEAN POLLUTION ABATEMENT

<table>
<thead>
<tr>
<th>Topic</th>
<th>CPC or IPC codes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2a. Ballast water treatment</strong></td>
<td></td>
</tr>
<tr>
<td>Treatment of wastewater originating from marine vessels, ships and boats, e.g. bilge water or ballast water</td>
<td>C02F 2103/008</td>
</tr>
<tr>
<td>Arrangements of installations for treating ballast water, waste water, sewage, sludge, or refuse, or for preventing environmental pollution from vessels</td>
<td>B63J 4/00-006</td>
</tr>
<tr>
<td>Conduits for emptying or ballasting; Self-bailing equipment; Scuppers</td>
<td>B63B13</td>
</tr>
<tr>
<td><strong>2b. Oil spill (and other floating debris) prevention and cleanup</strong></td>
<td></td>
</tr>
<tr>
<td>Arrangements for minimizing pollution by accidents of cargo tanks (e.g. oil leakage)</td>
<td>B63B 25/082</td>
</tr>
<tr>
<td>Arrangements for minimizing pollution by accidents associated with tanks for fuel or the like not forming bunkers</td>
<td>B63B 17/0036</td>
</tr>
</tbody>
</table>
## 2. OCEAN POLLUTION ABATEMENT

<table>
<thead>
<tr>
<th>Description</th>
<th>CPC or IPC codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arrangement of ship-based loading or unloading equipment for transfer at sea between ships or between</td>
<td>B63B 27/34</td>
</tr>
<tr>
<td>ships and off-shore structures using pipe-lines</td>
<td></td>
</tr>
<tr>
<td>Vessels or like floating structures adapted for collecting pollution from open water</td>
<td>B63B 35/32</td>
</tr>
<tr>
<td>Materials for absorbing liquids to remove pollution, e.g. oil, gasoline, fat</td>
<td>C09K 3/32</td>
</tr>
<tr>
<td>Collecting oil or the like from a submerged leakage</td>
<td>E21B 43/0122</td>
</tr>
<tr>
<td>Devices for cleaning or keeping clear the surface of open water from oil or like floating materials</td>
<td>E02B 15/04-108</td>
</tr>
<tr>
<td>by separating or removing these materials</td>
<td></td>
</tr>
<tr>
<td>Water pollution control technologies for keeping clear the surface of open water from oil spills</td>
<td>Y02A 20/204</td>
</tr>
</tbody>
</table>

## 3. CLIMATE CHANGE MITIGATION IN MARITIME TRANSPORT

<table>
<thead>
<tr>
<th>Subsection</th>
<th>CPC or IPC codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>3a. Improved vessel design</td>
<td>-</td>
</tr>
<tr>
<td>Measures concerning design or construction of watercraft hulls:</td>
<td>Y02T 70/10-146</td>
</tr>
<tr>
<td>Improving hydrodynamics of hull: reducing surface friction (air lubrication,</td>
<td></td>
</tr>
<tr>
<td>air cavity systems; hull coatings, e.g. biomimicry), lower wave resistance</td>
<td></td>
</tr>
<tr>
<td>(bow shape), improving wake pattern (reducing the interaction between hull</td>
<td></td>
</tr>
<tr>
<td>and propeller), Construction of hull: materials (e.g. ultra light steels,</td>
<td></td>
</tr>
<tr>
<td>composites); energy efficient measures related to fabrication or assembly</td>
<td></td>
</tr>
<tr>
<td>of hull</td>
<td></td>
</tr>
<tr>
<td>3b. Fuel-efficient propulsion or fuel substitution: Measures to reduce GHG</td>
<td>Y02T 70/50-59</td>
</tr>
<tr>
<td>emissions related to the propulsion system,</td>
<td></td>
</tr>
<tr>
<td>Propulsion power plant: Less carbon-intensive fuels (e.g. natural gas,</td>
<td></td>
</tr>
<tr>
<td>biofuels); Non-conventional fuels (e.g. nuclear); Renewable or hybrid</td>
<td></td>
</tr>
<tr>
<td>electric solutions (e.g. solar, wind); Other measures to increase</td>
<td></td>
</tr>
<tr>
<td>efficiency of the power plant: Engine monitoring and control; Waste</td>
<td></td>
</tr>
<tr>
<td>heat recovery; Reducing auxiliary power, Propeller: Improved propeller</td>
<td></td>
</tr>
<tr>
<td>design; Recovery of rotational energy; Wake equalizing arrangements, Jets,</td>
<td></td>
</tr>
<tr>
<td>Propulsion by direct use of wind: Energy-efficient technologies involving</td>
<td></td>
</tr>
<tr>
<td>sails; Kites, Other propulsion concepts for reducing GHG emissions, e.g.</td>
<td></td>
</tr>
<tr>
<td>wave-powered</td>
<td></td>
</tr>
<tr>
<td>Fuel cells as on-board power source in waterborne transportation</td>
<td>Y02T 90/38</td>
</tr>
<tr>
<td>Hydrogen as fuel in waterborne transportation</td>
<td>Y02T 90/46</td>
</tr>
<tr>
<td>3c. Improved vessel operation, maintenance and dismantling</td>
<td>-</td>
</tr>
<tr>
<td>Measures at the maintenance or repair stage specially aiming at GHG</td>
<td>Y02T 70/30-36, Y02T</td>
</tr>
<tr>
<td>emissions reduction, Surface or tank cleaning and treatment operations,</td>
<td>70/70-747, Y02T 70/</td>
</tr>
<tr>
<td>Improved operation of fossil fuel transfer, e.g. ship-to-ship oil or gas</td>
<td>80, Y02T 70/90</td>
</tr>
<tr>
<td>transfer, Handling waste, and Technologies for a more efficient</td>
<td></td>
</tr>
<tr>
<td>operation of the waterborne vessel not otherwise provided for: Related to</td>
<td></td>
</tr>
<tr>
<td>heating, ventilation, air conditioning, or refrigeration systems,</td>
<td></td>
</tr>
<tr>
<td>Integrating maritime voyage control: Speed reduction; Weather routing;</td>
<td></td>
</tr>
<tr>
<td>Course optimization, Measures concerning recycling, retrofitting or</td>
<td></td>
</tr>
<tr>
<td>dismantling of waterborne vessels, Port equipment or systems reducing</td>
<td></td>
</tr>
<tr>
<td>GHG emissions</td>
<td></td>
</tr>
</tbody>
</table>
4. CLIMATE CHANGE MITIGATION & ADAPTATION IN FISHING, AQUACULTURE AND AQUAFARMING

CC mitigation technologies in fishing, aquaculture and aquafarming

Y02P 60/60-642

CC adaptation technologies in aquaculture, i.e. culture of aquatic animals: of fish (prevention or treatment of fish diseases; hatching; alternative feeds for fish aquaculture) and shellfish, floating cultivation devices, e.g. rafts or floating fish-farms; artificial fishing banks or reefs; feeding devices

Y02A 40/81-845

CC adaptation technologies in seaweed farming; Management of sea grass beds

Y02A 40/88

5. DESALINATION OF SEA WATER

Water desalination technologies, characterized by the method (e.g. evaporation methods, distillation, reverse-osmosis, freezing, electrodialysis), powered by a renewable energy source (e.g., wind power, solar thermal or photovoltaics, wave energy)

Y02A 20/124-144

Desalination

C02F 1/265

6. CLIMATE CHANGE ADAPTATION IN COASTAL ZONES

Technologies for adaptation to climate change at coastal zones or river basins: Hard structures (polders, dykes, sea walls, jetties), Soft structures (beach nourishment, restoration of wetlands, dunes or coral reefs, sediment management), Flood prevention; flood and storm water management, Coastal monitoring; Flood forecasting

Y02A 10/00-48

Coastal water resources: Saltwater intrusion barriers

Y02A 20/404

Coastal infrastructure: Extreme weather-resilient electric power supply system, Flood-resilient electric equipment, Floating or elevated buildings, Storm-resilient vessels; Active motion-dampening systems for port

Y02A 30/14, Y02A 30/16-19, Y02A 30/21-23, Y02A 30/34-36

Coastal agriculture: Using brackish water for irrigated agriculture, Management of saline soils for agriculture

Y02A 40/241, Y02A 40/40

Coastal settlements: Early warning systems for extreme weather events, Storm shelters or storm cellars, Landslide or mudflow monitoring or protecting systems

Y02A50/10-16

Interpretation

Indicators are based on fractional counts with no smoothing or moving averages applied.

This section last updated

December 2019
Taxes, fees and charges, tradable permit systems, subsidies, deposit refund schemes, etc. directed at ocean sustainability

Policy Responses > Market-based approaches > Taxes, fees and charges, tradable permit systems, subsidies, deposit refund schemes, etc. directed at ocean sustainability

Source

OECD Policy Instruments for the Environment (PINE) database

http://oe.cd/pine

Related publications


Series

- Ocean-related deposit refund schemes, number
- Environmentally motivated ocean subsidies, number
- Ocean-related fees or charges, number
- Ocean-related taxes, number
- Ocean-related policy instruments, number
- Ocean-related tradable permits, number
- Ocean-related voluntary approaches, number
- Ocean-related policy instruments as share of all policy instruments, %

Concept and classification

Taxes, subsidies and other economic instruments provide important market signals that can influence the behaviour of producers and consumers. They can incorporate environmental costs and benefits into the budgets of businesses and households, by increasing (or decreasing) the price of a product or service. As such, they help internalise the use of natural resources or the emission of pollutants into firms’ or households’ decisions. They can be an effective and cost-efficient way to achieve environmental goals, such as fighting air pollution and climate change, or protecting biodiversity.

The OECD Policy Instruments for the Environment (PINE) database, contains quantitative and qualitative information on six types of market-based policy instruments in 109 countries worldwide. All 3500 policy instruments are tagged into 13 environmental domains, which represent the focal issues (environmental externalities) of each instrument, with the ocean domain being the most recent addition.
Tagging method

A search strategy is developed to identify potential ocean-related instruments in the PINE database with the objective to tag only those instruments that directly affect the ocean.

First, a keyword search is conducted through the instrument names, descriptions and tax bases. The aim is to pre-screen all PINE instruments and identify a subset of potential candidates for the ocean domain. Such pre-screening will also facilitate spotting new candidates in future submissions to the database. The table below lists the keywords used including generic ocean terms, keywords related to ocean industries and the ocean economy. Keywords on ocean sustainability are not needed because the database includes, by definition, only sustainability-related policy instruments.

Search terms

<table>
<thead>
<tr>
<th>ocean</th>
<th>sea</th>
<th>marine</th>
<th>maritime</th>
<th>offshore</th>
<th>blue</th>
</tr>
</thead>
<tbody>
<tr>
<td>reef</td>
<td>coral</td>
<td>deep-sea</td>
<td>deep-water</td>
<td>sea-bed</td>
<td>benthic</td>
</tr>
<tr>
<td>lagoon</td>
<td>mudflat</td>
<td>tidal</td>
<td>mangrove</td>
<td>coast</td>
<td>coastal wetland</td>
</tr>
<tr>
<td>coastal marsh</td>
<td>salt marsh</td>
<td>salt-water</td>
<td>brackish</td>
<td>fish</td>
<td>aquaculture</td>
</tr>
<tr>
<td>mariculture</td>
<td>cod</td>
<td>tuna</td>
<td>coral</td>
<td>mussels</td>
<td>oysters</td>
</tr>
<tr>
<td>crustacean</td>
<td>mollusc</td>
<td>pelagic</td>
<td>sea-food</td>
<td>aquatic plants</td>
<td>algae</td>
</tr>
<tr>
<td>algal</td>
<td>sea weed</td>
<td>sea grass</td>
<td>ship</td>
<td>shipping</td>
<td>ship-building</td>
</tr>
<tr>
<td>boat</td>
<td>vessel</td>
<td>ferry</td>
<td>floating</td>
<td>naval</td>
<td>port</td>
</tr>
<tr>
<td>sea-port</td>
<td>harbour</td>
<td>harbor</td>
<td>dock</td>
<td>freight</td>
<td>cargo</td>
</tr>
<tr>
<td>ballast</td>
<td>oil spill*</td>
<td>oceanogra*</td>
<td>cruise</td>
<td>dredg*</td>
<td>sea salt</td>
</tr>
<tr>
<td>desalt*</td>
<td>hurricane</td>
<td>cyclone</td>
<td>typhoon</td>
<td>flood</td>
<td>biotechnology</td>
</tr>
<tr>
<td>robotics</td>
<td>wave</td>
<td>underwater vehicle</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Second, the candidate instruments are individually reviewed in order to verify their relevance to the ocean domain. Finally, review strategies are adopted to further refine the tagging on a case-by-case basis:

1. For land-locked countries, no instruments are tagged as ocean-related unless ocean or marine elements are explicitly mentioned. This is particularly important for instruments related to fisheries; for example, all fishing taxes in Switzerland are excluded. On the other hand, some land-locked countries have introduced economic instruments that are directly relevant to ocean; for example, Austria applies a charge on the import of plants and animals, which includes those harvested from the ocean.

2. Policy instruments with indirect impacts on the ocean (e.g. through climate change or land-based waste disposal) are generally excluded unless relevance to the ocean is explicitly stated. Such instruments can be identified using the ‘climate change’ and ‘waste management’ domains in the PINE database.

3. Instruments related to water abstraction are excluded, as they typically refer to freshwater, unless ocean or marine elements are explicitly mentioned.

4. Taxes on ownership of motor vehicles, can include a specific tax rate for vessels or boats. In practice, the relevance for maritime transportation is rather low for such broadly defined instruments. Tagging them could overestimate the role of transport policies in the ocean domain, and subsequently inflate the level of revenue raised from such taxes. Therefore, instruments...
related to general ownership of motor vehicles have been excluded, unless they are defined specifically for water-based transportation.

5. Additional spot checks on the untagged instruments are conducted (using broader keywords such as water, transport, passenger, tourist) in order to ascertain that relevant instrument have not been omitted.

6. This approach is in line with previous efforts to identify environment-related instruments in government statistics [ENV/EPOC/WPEI(2018)7; CTPA/CFA/WP2(2019)7/REV1] and to tag environmental domains in the PINE database (e.g., OECD 2018). The list of keywords is coherent with similar efforts across the OECD to define the ocean economy (OECD 2016) and to identify ocean-related public finance flows (OECD, forthcoming).

7. All PINE instruments are, by definition, environment-related, so any instrument identified as ocean-related is also relevant to ocean sustainability. The most commonly tagged instruments relate to fish and vessels and a majority are taxes, fees and charges.

Interpretation

Care should be taking when interpreting the indicators included in this section. The existence of an instrument does not guarantee its enforcement; moreover, the level of stringency might not be adequate for the desired environmental outcome. Analysis of the effectiveness of ocean-related instruments is paramount, and structured cross-country information on policies can allow these analyses to be performed.

This section last updated

December 2019
Revenue from environmentally related taxes in the ocean economy

Policy Responses > Payments to government > Revenue from environmentally related taxes in the ocean economy

Source

OECD Policy Instruments for the Environment (PINE) database


Related publications


Series

- Ocean-related tax revenue as share of environmentally related tax revenue, %
- Ocean-related tax revenue as share of GDP, %
- Ocean-related tax revenue, million USD 2010 PPP
- Ocean-related tax revenue as share of total tax revenue, %

Concept and classification

Taxes are compulsory, unrequited payments, in cash or in kind, made by institutional units to government units. Taxes play a key role in the transition towards a sustainable ocean economy. Compared to regulatory instruments, environmentally related taxation encourages the lowest-cost abatement across polluters. It also provides incentives for abatement at each unit of pollution. In addition, the revenue raised can be used to support fiscal consolidation or to reduce other taxes (e.g. taxes on labour and capital that distort the labour supply and saving decisions).

The identification of Ocean-environment related tax revenues follows the same process as used for the section called “Taxes, fees and charges, tradable permit systems, subsidies, deposit refund schemes, etc. directed at ocean sustainability” These are the revenues from the tax instruments identified through that process.

Interpretation

Note that the indicators on environmentally related taxes discussed here should not be used to assess the "environmental friendliness" of the tax systems. For such analysis, additional information, describing the economic and taxation structure of each country, is required. Moreover, a number of environmentally related taxes can have important environmental impacts, even if they raise little (or no) revenue. In addition, revenue from fees and charges, and from royalties related to resource management, is not included.

This section last updated

April 2020
Ocean-related fossil fuel support

Policy Responses > Payments from government > Ocean-related fossil fuel support

Source

OECD Inventory of Support Measures for Fossil Fuels

http://www.oecd.org/fossil-fuels/data/

Related publications


Series

- Ocean-related Fossil-fuel support estimate benefitting consumers (CSE), million USD nominal
- Ocean-related Fossil-fuel support estimate benefitting general services (GSSE), million USD nominal
- Ocean-related Fossil-fuel support estimate benefitting producers (PSE), million USD nominal
- Ocean-related Fossil-fuel support estimate benefitting consumers (CSE) as share of ocean-related FFS, %
- Ocean-related Fossil-fuel support estimate benefitting general services (GSSE) as share of ocean-related FFS, %
- Ocean-related Fossil-fuel support estimate benefitting producers (PSE) as share of ocean-related FFS, %
- Ocean-related Fossil-fuel support estimate benefitting agriculture and fisheries sectors as share of ocean-related FFS, %
- Ocean-related Fossil-fuel support estimate benefitting transportation sector as share of ocean-related FFS, %
- Ocean-related Fossil-fuel support estimate benefitting hydrocarbon sector as share of ocean-related FFS, %

Concept and classification

Background

The OECD Inventory of FFS Measures is an online database that identifies, documents and estimates direct budgetary support and tax expenditures supporting the production or consumption of fossil fuels (http://www.oecd.org/fossil-fuels/data). The Inventory currently covers 36 OECD member countries and eight partner economies (Brazil, Colombia, China, India, Indonesia, the Russian Federation, and South Africa) and has compiled more than 1 100 individual support measures (both active and terminated ones). In addition to national measures, subnational support measures for selected economies are also covered (i.e., Australia, Canada, China, Germany and the US).

For each measure two types of information are provided: (i) fiscal information on the budgetary transfers or tax expenditures (monetary value) and (ii) textual metadata about a measure’s beneficiaries, eligibility criteria, historical background, and any relevant data on procurement and processing information.

Following the OECD’s PSE-CSE framework the measures benefitting fossil fuel producers are classified as the Producer Support Estimate (PSE) while those that benefit individual fossil fuel consumers are classified under the Consumer Support Estimate (CSE). A third category, the General Services Support Estimate (GSSE), is assigned for measures that do not currently increase fossil fuel production and consumption but may do so in the future.
The Inventory identifies the type of fossil fuels benefitted by each measure and presents a breakdown of the amount of support by assigning fuel type tags. In cases where this breakdown is not available in official government sources, the OECD performs data transformation procedure to allocate support to individual fuel tags according to the relative value of production or consumption as calculated from the IEA’s World Energy Balances database. Note that measures can benefit more than one type of fossil fuel at the same time and can thus receive multiple fuel tags in this respect. For example, a measure granting lower sales tax rates for road transport fuels will receive multiple fuel tags such as motor gasoline, diesel, LPG and natural gas.

Building on this methodology, an additional binary tag is developed for ocean-related government support for fossil fuels.

Search strategy to identify ocean-related measures

First, measures in countries not bounded by a coastline are removed (Austria, Czech Republic, Hungary, Luxembourg, Slovak Republic and Switzerland).

Second, a keyword search is conducted on both the programme name and description to pre-screen measures and identify potential candidates for ocean-related FFS. The list of keywords includes generic ocean terms, keywords related to off-shore oil and gas, maritime transport, maritime fisheries and the ocean economy more broadly. See the following table for the full list. While entries in the programme name and description fields occasionally appear in their original language, all of these occurrences are consistently translated into English thus removing the necessity to devise foreign language keywords in the dictionary.

Keywords to identify a candidate subset of ocean-related FFS measures

| Search terms          | ocean | sea  | marine | maritime | offshore | blue   | reef   | coral  | deep-sea | deep-water | sea-bed  | benthic | lagoon | mudflat | tidal   | mangrove | coast*  | coastal | wetland | coastal | marshsalt | marsh   | salt-water | brackish | fish*   | marshsalt | mariculture | cod     | tuna      | coral*   | mussels | oysters | crustacean | mollusc | pelagic | sea-food | aquatic plants | ship*   | shipping | ship-building | boat | vessel | ferry | floating | naval | port | sea-port | harbour | harbor | dock | sea transport | cargo | ballast | oil spill* | oceanogra* | cruise | tour | touris* | dregd* | sea salt | desal*  | hurricane | cyclone | typhoon | flood | biotechnology | robotics | wave | underwater vehicle | continental shelf | EEZ | exclusive economic | arctic | piracy | submarine |
Third, additional measures may be identified using the sector dimension which labels individual measures following the nomenclature used in the IEA World Energy Balances. Multiple sectors may be assigned to a single measure. The following table lists the sector tags that are used (adapted from IEA (2019), "World energy balances", IEA World Energy Statistics and Balances).

**Selected sector dimension tags to identify ocean-related FFS measures**

<table>
<thead>
<tr>
<th>Sector (IEA shortname)</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indigenous production (INDPROD)</td>
<td>This category comprises the production of primary energy such as various types of primary coal and natural gas. Among ocean-related measures falling under this category are measures benefitting oil and natural gas extraction in off-shore environments</td>
</tr>
<tr>
<td>Oil and gas extraction (EOILGASEX)</td>
<td>This category represents the energy which is used for oil and gas extraction. Ocean-related measure under this category are those benefitting off-shore oil and gas extraction operations.</td>
</tr>
<tr>
<td>Domestic navigation (DOMESNAV)</td>
<td>Measures benefitted under this category includes fuels delivered to maritime vessels not engaged in domestic navigation (i.e. determined in terms of the port of departure and port of arrival belonging to the same single country and not by the flag or nationality of the ship). Note that while the voyages considered are domestic, these may involve routes of considerable distance that may transit through foreign countries or international waters.</td>
</tr>
<tr>
<td>Fishing (FISHING)</td>
<td>Measures are classified under the fishing sector if the benefitted fuels are used for inland, coastal and deep-sea fishing as well as energy used in the fishing industry. It is recognised that this sector captures fuels used for inland fishing, which is not considered as ocean-related, but this approach is adapted in the absence of more specific breakdown that isolates fuels used for ocean-related purposes under the FISHING sector.</td>
</tr>
</tbody>
</table>

Finally, following the pre-screening by the automated keyword-based searches, each candidate measure is then individually reviewed in order to eliminate false positives and to ascertain that measures inadvertently flagged as ‘negative’ have not been omitted.

The table below shows some examples of ocean-related measures identified

**Selected examples of ocean-related measures in the FFS inventory**

<table>
<thead>
<tr>
<th>Sectors Benefitted</th>
<th>CSE</th>
<th>PSE</th>
<th>GSSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indigenous Production</td>
<td>Sales Tax Exemption for Exploration Equipment (Canada)</td>
<td>Norwegian Petroleum Directorate geological surveys (Norway)</td>
<td></td>
</tr>
<tr>
<td>Oil and gas extraction</td>
<td>Mineral oil tax exemption for offshore petroleum sector (Norway)</td>
<td>Sales-Tax Exemption for Repairs and Materials Used on Drilling Rigs (United States)</td>
<td></td>
</tr>
<tr>
<td>Sectors Benefitted</td>
<td>CSE</td>
<td>PSE</td>
<td>GSSE</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-----------------------------------------</td>
<td>-----------------------------------------</td>
<td>-------------------------------------------</td>
</tr>
<tr>
<td>Domestic navigation</td>
<td>Fuel tax exemption for shipping (Italy)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fishing</td>
<td>Fuel tax exemption for fisheries (Korea)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Interpretation**

Please see the underlying inventory documentation for general comments on these data.

Not all sectors or support types are necessarily present per country. A missing entry means that either no corresponding measures were identified, or that measures were identified however there is insufficient or incomplete data to report a value. Note that the complete inventory can be accessed at the source link above.

For the sectoral variables (agriculture and fisheries, transport and hydrocarbon), Percentage shares are derived from median measure disbursement values for period 2015-17.

**This section last updated**

January 2020
Protected area designation

Policy responses > Regulations & management approaches > Protected area designation

Source

OECD Environment database - Protected areas.

Only a subset of available protected area data is republished here, more comprehensive data is available at the link below.


Accessed June 2020

Related publications


Series

- Total marine protected area, sqkm
- Total marine protected areas as share of exclusive economic zone, %
- Marine protected area designated with IUCN management objectives I-III which generally preclude commercial fishing and other extractive industries, sqkm
- Marine protected area designated with IUCN management objectives I-III which generally preclude commercial fishing and other extractive industries, as share of exclusive economic zone, %
- Marine protected area designated with IUCN management objectives IV-VI or with no management category provided, sqkm
- Marine protected area designated with IUCN management objectives IV-VI or with no management category provided, as share of exclusive economic zone, %
- Total protected area within 1km of coastline (both terrestrial and marine), sqkm
- Total protected area within 10km of coastline (both terrestrial and marine), sqkm
- Total protected area within 1km of coastline (both terrestrial and marine) as share of 1km buffer area, %
- Total protected area within 10km of coastline (both terrestrial and marine) as share of 10km buffer area, %

Concept and classification

Marine protected areas (MPAs) are generally defined as any area within or adjacent to the marine environment which has been reserved by legislation or other effective means so that its marine and/or coastal biodiversity enjoys a higher level of protection. MPAs can help conserve and restore habitats and species and ensure that marine and coastal ecosystems continue to provide storm and erosion protection, carbon storage, fisheries, recreation and tourism opportunities, and other services. The importance of protected area networks for marine biodiversity and ecosystem services is recognised by the shared CDB Aichi Target 11 and SDG Target 14.5 to conserve at least 10% of coastal and marine areas by 2020.

The underlying data for this indicator are taken from UNEP-WCMC’s World Database on Protected Areas (WDPA). For marine coverage the protected area boundaries are intersected with the boundaries of countries’ Exclusive Economic Zones (EEZs)
derived from the Flanders Marine Institute marine boundaries dataset. EEZs typically extend for 200 nautical miles from a country’s coast or halfway to a neighbour where the zone would otherwise overlap. For coastal coverage, coastal areas are defined as either a 10km or 1km (inland and marine) buffer around countries’ coastlines.

Protected areas recorded as points are included in the ‘all marine’ variables (the first 6 variables above) but excluded for the calculation of coastal protected areas. Where protected areas are recorded as points they are accompanied by a reported area attribute (submitted by the original data sources to UNEP-WCMC). This reported area can exceed the area of the reference areas used as denominators which can result in % coverages greater than 100%.

Interpretation

Protection designation does not guarantee that the area in question is effectively managed or appropriately located; and empirical studies of the effectiveness of marine protected areas in conserving biodiversity show mixed results.

The WDPA relies on regular submissions of data from countries and other data providers; therefore, where these have not been provided the database is incomplete or outdated. Furthermore, protected area attribute fields (such as the management category) can be missing or incomplete so these measures are not perfectly reliable.

Some designated marine protected areas target only a narrow range of species (or even just a single species) through (e.g.) proscription of a particular fishing technique but without any special restrictions on other high impact activities that may harm biodiversity and are therefore only marginally more protected than other areas.

Protected areas without a designation date provided are assumed to have always existed so historical totals may be overestimated.

ABNJ refers to area beyond national jurisdiction only, World all refers to all the ocean (the union of area under national jurisdiction and area beyond national jurisdiction).

OECD aggregate includes all OECD members (including COL).

This section last updated

June 2020 (using data from April 2020 release of the WDPA)
Marine landings

Socio-economic context > Fisheries and aquaculture > Marine landings

Source

These data are a subset of data published by the OECD Trade and Agriculture Directorate (TAD). The complete dataset, including a distinction between foreign and domestic landings, and more comprehensive metdata are available at the source below.

Data on marine landings, aquaculture production, inland fisheries catch, fleet, employment and fisheries support estimate (FSE) are collected from Fisheries Ministries, National Statistics Offices and other institutions designated as an official data source. The surveys used for this exercise are the OECD Fisheries questionnaires.


Accessed May 2020

Related publications


Series

- Total marine landings, all species, thousand tonnes
  - The mass in tonnes of fish, crustaceans, molluscs and other aquatic invertebrates (and animals), residues and seaweeds landed in any port (foreign or domestic) by vessels registered to that country.

- Total marine landings, all species, million USD
  - The value, expressed in USD, of fish, crustaceans, molluscs and other aquatic invertebrates (and animals), residues and seaweeds landed in any port (foreign or domestic) by vessels registered to that country.

Concept and classification

The concept of landings refers to the quantities of fish, crustaceans, molluscs and other aquatic invertebrates (and animals), residues and seaweeds on a landed weight basis, i.e. the mass (or weight) of a product at the time of landing, regardless of the state in which is landed (i.e. whole, gutted, filleted, meal, etc.). Data cover all industrial, artisanal and subsistence fisheries, excluding aquaculture.

The methodological reference document for fisheries and aquaculture statistics is the CWP Handbook of Fishery Statistics.

Interpretation

- The OECD aggregate includes 30 of 37 OECD countries (excludes AUT, CHE, CZE, HUN, ISR, LUX, SVK). When calculating aggregates, missing values are interpolated if bracketed by valid values or else back-and-forward filled using the closest valid result.
Aquaculture production

Socio-economic context > Fisheries and aquaculture > Aquaculture production

Source

These data are a subset of data published by the OECD Trade and Agriculture Directorate (TAD). The complete dataset, including a distinction between production of different species and species classes, and more comprehensive metadata are available at the source below.

Data on marine landings, aquaculture production, inland fisheries catch, fleet, employment and fisheries support estimate (FSE) are collected from Fisheries Ministries, National Statistics Offices and other institutions designated as an official data source. The surveys used for this exercise are the OECD Fisheries questionnaires.


Accessed May 2020

Related publications


Series

• Total aquaculture production, marine and partly-marine species, thousand tonnes
• Total aquaculture production, marine and partly-marine species, million USD

Concept and classification

Aquaculture is the farming of aquatic organisms including fish, molluscs, crustaceans and aquatic plants. Farming implies some form of intervention in the rearing process to enhance production, such as regular stocking, feeding, protection from predators, etc. Farming also implies individual or corporate ownership of the stock being cultivated. For statistical purposes, aquatic organisms which are harvested by an individual or corporate body which has owned them throughout their rearing period contribute to aquaculture while aquatic organisms which are exploitable by the public as a common property resource, with or without appropriate licenses, are the harvest of fisheries.

Fish, crustaceans, molluscs and all other aquatic organisms included in the database have been classified according to approximately 608 commercial species items, further arranged within the 50 groups of species constituting the nine divisions of the FAO International Standard Statistical Classification of Aquatic Animals and Plants (ISSCAAP). The taxonomic code descriptors are taken from the ASFIS list of species for fishery statistics purposes.

Interpretation

• In this dataset, species considered to be marine or partly marine are selected and aggregated according to the table below. This is done with the intention of better identifying only the ocean-relevant parts of aquaculture production however in some cases (such as diadromous species groups like sturgeons) the farmed species may plausibly in fact be bred and raised entirely in inland freshwater. Full data are available from the source dataset.
The underlying species-level data includes estimated values. Please see the underlying data for more specific information.

OECD aggregate includes 36 of 37 OECD countries (excludes Luxembourg).

ISSCAAP classification:


### Classes included as marine or partly-marine

Showing classes that occur in the underlying statistics only, the full classification is larger

<table>
<thead>
<tr>
<th>Division</th>
<th>Species group</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diadromous fishes</td>
<td>21</td>
<td>Sturgeons, paddlefishes</td>
</tr>
<tr>
<td>-</td>
<td>22</td>
<td>River eels</td>
</tr>
<tr>
<td>-</td>
<td>23</td>
<td>Salmons, trouts, smelts</td>
</tr>
<tr>
<td>-</td>
<td>24</td>
<td>Shads</td>
</tr>
<tr>
<td>-</td>
<td>25</td>
<td>Miscellaneous diadromous fishes</td>
</tr>
<tr>
<td>Marine fishes</td>
<td>31</td>
<td>Flounders, halibuts, soles</td>
</tr>
<tr>
<td>-</td>
<td>32</td>
<td>Cods, hakes, haddocks</td>
</tr>
<tr>
<td>-</td>
<td>33</td>
<td>Miscellaneous coastal fishes</td>
</tr>
<tr>
<td>-</td>
<td>34</td>
<td>Miscellaneous demersal fishes</td>
</tr>
<tr>
<td>-</td>
<td>36</td>
<td>Tunas, bonitos, billfishes</td>
</tr>
<tr>
<td>-</td>
<td>37</td>
<td>Miscellaneous pelagic fishes</td>
</tr>
<tr>
<td>-</td>
<td>39</td>
<td>Marine fishes not identified</td>
</tr>
<tr>
<td>Crustaceans</td>
<td>42</td>
<td>Crabs, sea-spiders</td>
</tr>
<tr>
<td>-</td>
<td>43</td>
<td>Lobsters, spiny-rock lobsters</td>
</tr>
<tr>
<td>-</td>
<td>45</td>
<td>Shrimps, prawns</td>
</tr>
<tr>
<td>-</td>
<td>47</td>
<td>Miscellaneous marine crustaceans</td>
</tr>
<tr>
<td>Molluscs</td>
<td>52</td>
<td>Abalones, winkles, conchs</td>
</tr>
<tr>
<td>-</td>
<td>53</td>
<td>Oysters</td>
</tr>
<tr>
<td>-</td>
<td>54</td>
<td>Mussels</td>
</tr>
<tr>
<td>-</td>
<td>55</td>
<td>Scallops, pectens</td>
</tr>
<tr>
<td>-</td>
<td>56</td>
<td>Clams, cockles, arkshells</td>
</tr>
<tr>
<td>Division</td>
<td>Species group</td>
<td>Name</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>---------------</td>
<td>-------------------------------------------</td>
</tr>
<tr>
<td>-</td>
<td>57</td>
<td>Squids, cuttlefishes, octopuses</td>
</tr>
<tr>
<td>-</td>
<td>58</td>
<td>Miscellaneous marine molluscs</td>
</tr>
<tr>
<td>Miscellaneous aquatic animals</td>
<td>72</td>
<td>Turtles</td>
</tr>
<tr>
<td>-</td>
<td>74</td>
<td>Sea-squirts and other tunicates</td>
</tr>
<tr>
<td>-</td>
<td>76</td>
<td>Sea-urchins and other echinoderms</td>
</tr>
<tr>
<td>-</td>
<td>77</td>
<td>Miscellaneous aquatic invertebrates</td>
</tr>
<tr>
<td>Miscellaneous aquatic animals products</td>
<td>81</td>
<td>Pearls, mother-of-pearl, shells</td>
</tr>
<tr>
<td>Aquatic plants</td>
<td>91</td>
<td>Brown seaweeds</td>
</tr>
<tr>
<td>-</td>
<td>92</td>
<td>Red seaweeds</td>
</tr>
<tr>
<td>-</td>
<td>93</td>
<td>Green seaweeds</td>
</tr>
<tr>
<td>-</td>
<td>94</td>
<td>Miscellaneous aquatic plants</td>
</tr>
</tbody>
</table>

**Classes excluded as not marine**

Showing classes that occur in the underlying statistics only

<table>
<thead>
<tr>
<th>Division</th>
<th>Species group</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshwater fishes</td>
<td>11, 12, 13</td>
<td>Freshwater fishes,</td>
</tr>
<tr>
<td>Crustaceans</td>
<td>41</td>
<td>Freshwater crustaceans</td>
</tr>
<tr>
<td>Molluscs</td>
<td>51</td>
<td>Freshwater molluscs</td>
</tr>
<tr>
<td>Miscellaneous aquatic animals</td>
<td>71</td>
<td>Frogs and other amphibians</td>
</tr>
</tbody>
</table>

**This section last updated**

May 2020
Employment in fishing

Socio-economic context > Fisheries and aquaculture > Employment in fishing

Source

These data are a subset of data published by the OECD Trade and Agriculture Directorate (TAD). The complete dataset, including more sectoral disaggregation and more comprehensive metadata are available at the source below.

Data on marine landings, aquaculture production, inland fisheries catch, fleet, employment and fisheries support estimate (FSE) are collected from Fisheries Ministries, National Statistics Offices and other institutions designated as an official data source. The surveys used for this exercise are the OECD Fisheries questionnaires.


Accessed November 2020

Related publications


Series

- People employed in fishing sectors excluding inland fisheries, total by occupation rate, thousands
- People employed in aquaculture sector (marine and inland), total by occupation rate, thousands
- People employed in fishery processing sector (marine and inland), total by occupation rate, thousands

These are all expressed by occupation rate - see below for more details.

Concept and classification

Data on employment are collected by economic sector, occupation rate and gender. The occupation rate is defined as follows:

- Full-time fishers receive at least 90% of their livelihood from fishing or spend at least 90% of their working time in that occupation.
- Part-time fishers receive at least 30% but less than 90% of their livelihood from fishing or spend at least 30% but less than 90% of their working time in that occupation.
- Occasional fishers receive under 30% of their livelihood from fishing, or spend under 30% of their working time in that occupation.

The ‘fishing population’ includes all commercial, industrial and subsistence fishers, operating in freshwater, brackish water, and marine waters in economically inspired efforts to catch and land any of the great variety of aquatic animals and plants, should be included. People working on fish farms, hatcheries, and employed in shell fish culture operations, should also be included. The term ‘fisher’ should include not only those operating from fishing vessels of all types, but also those operating land-based fishing gears and installations from the banks of rivers, lakes, canals, dams etc., and from beaches and shores which do not require the use of auxiliary boats. Where possible a breakdown by the type of activity should be included. The crews on fish factory ships, mother ships to fishing fleets, and on auxiliary craft such as, fish carriers, and fish transport craft should be included.
The methodological reference document for fisheries and aquaculture statistics is the CWP Handbook of Fishery Statistics.

Interpretation

- The OECD aggregate includes 36 of 37 OECD countries (excludes LUX). When calculating aggregates, missing values are interpolated if bracketed by valid values or else back-and-forward filled using the closest valid result. Sometimes this involves filling data many years from the nearest valid value so caution in using the aggregate is advised.

This section last updated

November 2020
Fishing fleet

Source

These data are a subset of data published by the OECD Trade and Agriculture Directorate (TAD). The complete dataset, including a distinction by length of vessel and power type, and more comprehensive metadata are available at the source below.

Data on marine landings, aquaculture production, inland fisheries catch, fleet, employment and fisheries support estimate (FSE) are collected from Fisheries Ministries, National Statistics Offices and other institutions designated as an official data source. The surveys used for this exercise are the OECD Fisheries questionnaires.


Accessed December 2019

Related publications


Series

- Total number of fishing vessels, all sizes
- Gross tonnage of fishing vessels of all sizes, thousand tonnes

Concept and classification

The term 'fishery fleet' or 'fishery vessels' refers to mobile floating objects of any kind and size, operating in freshwater, brackish water and marine waters which are used for catching, harvesting, searching, transporting, landing, preserving and/or processing fish, shellfish and other aquatic organisms, residues and plants. The term 'fishing vessel' is used instead when the vessel is engaged only in catching operations.

The methodological reference document for fisheries and aquaculture statistics is the CWP Handbook of Fishery Statistics.

Interpretation

- The OECD aggregate includes 31 of 37 OECD countries (excludes CHE, CZE, HUN, ISR, LUX, SVK). When calculating aggregates, missing values are interpolated if bracketed by valid values or else back-and-forward filled using the closest valid result.

This section last updated

December 2019
Trade in fisheries products

Socio-economic context > Fisheries and aquaculture > Trade in fisheries products

Source

These data are a subset of data published by the OECD Trade and Agriculture Directorate (TAD) which are in turn directly sourced from the UN Comtrade Database. The complete dataset, including a distinction between different product classes, and more comprehensive metadata are available at the source below.


Accessed May 2020

Related publications


Series

- Total exports of fisheries products, million USD
- Total imports of fisheries products, million USD

Concept and classification

Following the UN recommendations, the international merchandise trade statistics record all goods which add to or subtract from the stock of material resources of a country by entering (imports) or leaving (exports) its economic territory. Goods simply being transported through a country (goods in transit) or temporarily admitted or withdrawn (except for goods for inward or outward processing) do not add to or subtract from the stock of material resources of a country and are not included in the international merchandise trade statistics.

Customs records should be the main source of the data; and the additional sources could be used where customs sources are not available. Goods should be included in statistics at the time when they enter or leave the economic territory of a country. In the case of customs-based data collection systems, the time of recording should be the date of lodgement of the customs declaration.

International trade statistics published by the Statistical Office of the European Communities (Eurostat) for EU Member states might differ from data disseminated by UN in Comtrade because of different treatment of goods in transit.

The methological manual of reference on international trade statistics is the International Merchandise Trade Statistics, Concepts and Definitions (IMTS, 2010)

This section last updated

May 2020
Marine Freight

Socio-economic context > Maritime transport > Marine Freight

Source

These data are a subset of data published by the International Transport Forum (ITF). The complete dataset is available at the source below.


Accessed November 2020

Related publications


Series

- Total coastal shipping, freight, million tonne-kilometers
- Total maritime container transport, number of TEUs, thousands
- Total maritime container transport, million tonnes

Concept and classification

Containers are a special box to carry freight, strengthened and stackable and allowing horizontal or vertical transfers. Swap bodies are excluded.

Coastal shipping or short sea shipping [E.V.06] is the movement of cargo by sea between ports situated within a relatively narrow geographical area. Included in such movements would be ferry and feeder traffic. For Europe, short sea shipping would consist of the movement of cargo by sea between ports situated in Europe as well as between ports in Europe and ports situated in non-European countries having a coastline on the enclosed seas bordering Europe.

Interpretation

- The OECD aggregate includes 30 of 37 OECD countries (excludes AUT, CHE, COL, CZE, HUN, LUX, SVK). When calculating aggregates, missing values are interpolated if bracketed by valid values or else back-and-forward filled using the closest valid result. Sometimes this involves filling data many years from the nearest valid value so caution in using the aggregate is advised. Because this is measuring freight passing through ports, for each departure there is also an arrival somewhere, so individual freight units will sometimes be double counted.

This section last updated

November 2020
Tourism receipts and expenditure

Socio-economic context > Ocean-related tourism > Tourism receipts and expenditure

Source

These data are a subset of data published by the OECD Centre for Entrepreneuship (CFE) as part of their work on tourism. Data comes from the OECD International Trade in Services Statistics (ITSS) database and the WTO. The complete dataset and more comprehensive metadata are available at the sources below.


Accessed March 2020

Related publications


Series

- International sea passenger transport expenditure, million USD
- International sea passenger transport expenditure as share of total international tourism expenditure, %
- International sea passenger transport receipts, million USD
- International sea passenger transport receipts as share of total international tourism receipts, %

Concept and classification

Passenger services cover the transport of people. This category covers all services provided in the international transport of non-residents by resident carriers (credit or international passenger transport receipts) (similar to exports) and that of residents by non-resident carriers (debit or international passenger transport expenditure) (similar to imports). Passenger services include fares and other expenditure related to the carriage of passengers, any taxes levied on passenger services, and fares that are a part of package tours, cruise fares, rentals, charters, and leases of vessels, aircraft, coaches, or other commercial vehicles with crews for the carriage of passengers

Interpretation

- The OECD aggregate only includes around 20 of 37 OECD countries so those results may not be representative of OECD members. When calculating aggregates, missing values are interpolated if bracketed by valid values or else back-and-forward filled using the closest valid result.

This section last updated

March 2020
Coastal population

Socio-economic context > Population > Coastal population

Source

OECD calculations using Florczyk et al., (2019)


Related publications


Series

- Population resident within 100km of coast, millions
- Population resident within 10km of coast, millions
- Population resident within 100km of coast as share of total population, %
- Population resident within 10km of coast as share of total population, %

Concept and classification

These population estimates are calculating using GIS analysis of gridded population data. Coastlines from FAO GAUL are buffered at 10 and 100km distances and the population within the buffers summed. Counts are scaled to match UN population estimates.

The GHS POP datasets used (GHSPOP2015GLOBEYYYYAY54009250V10) are created by allocating census-sourced area population estimates (GPWv4) from the Center for International Earth Science Information Network to built up areas.

Interpretation

These counts use a definition of coastal based on distance (as opposed to travel time or some socioeconomic concept of coastalness). Obviously such areas do not necessarily have any close physical access to the sea or any cultural or economic connection. Conversely, areas well inland but with (e.g.) river ports may have economic or coastal links (and exposure to coastal risks) but are not counted.

Coastlines are inherently ‘fuzzy’ concepts and results calculated using them are likely to be sensitive to the specific coastal boundaries used.

References


FAO (2015), The Global Administrative Unit Layers (GAUL) 2014 dataset, implemented by FAO within the CountrySTAT and Sustainable Ocean Economy Database documentation. Contact env.stat@oecd.org. 25 Nov 2020


UN World Population Prospects https://population.un.org/wpp/