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Blue Revolution: Fisheries and Aquaculture in India

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Blue Revolution: Fisheries and Aquaculture in India

India’s fish production has more than doubled in a decade. The country now trails only China in global output.

At a Glance

Four facts to hold on to.

01
2015-16

Neel Kranti Mission, ₹3,000 crore.

02
10 Sep 2020

PMMSY launched, ₹20,050 crore.

03
2024-25

197.75 lakh tonnes of fish.

04
Rank

World’s second-largest producer, about 8%.

Blue Revolution Growth of fisheries and aquaculture.
PMMSY Pradhan Mantri Matsya Sampada Yojana.
FIDF Fisheries and Aquaculture Infrastructure Development Fund.
RAS Recirculating Aquaculture Systems.

Chapter 1: From Neel Kranti to PMMSY

Must Know

Timeline

- 2015-16: the government launches the Neel Kranti Mission, with a ₹3,000 crore outlay over five years, to modernise fisheries.
- 5 February 2019: the Department of Fisheries is carved out as its own department, separated from the erstwhile Animal Husbandry, Dairying and Fisheries department.
- 31 May 2019: the Ministry of Fisheries, Animal Husbandry and Dairying is formed.
- 10 September 2020: the Pradhan Mantri Matsya Sampada Yojana (PMMSY) launches, the sector's flagship scheme, with a ₹20,050 crore outlay.
- FY 2024-25: fish production reaches 197.75 lakh tonnes, making India the world's second-largest producer.

What the Blue Revolution is

- The Blue Revolution is the growth of India's fisheries and aquaculture sector.
- It is one of several colour-named revolutions covered in India's Agricultural Revolutions.

PMMSY: the flagship scheme

- PMMSY was announced in the 2019-20 Union Budget and launched on 10 September 2020.
- It aims to double fishers' and fish farmers' incomes.
- It aims to cut post-harvest losses from 20-25% down to 10%.
- It aims to generate 55 lakh direct and indirect jobs.

- It was planned for FY 2020-21 to FY 2024-25, and has since been extended through FY 2025-26.

Remember: Neel Kranti 2015-16 · PMMSY 10 Sep 2020 · ₹20,050 crore · 197.75 lakh tonnes.

> **Quick check 1.** India is the world's largest fish producer. *(True or False?)* See answer ↓

Chapter 2: Who Manages What

Good to Know

Centre and states

- Fisheries is a State subject.
- Inland fisheries are managed entirely by state governments.
- Marine fisheries are shared between the Centre and coastal states and UTs.
- The Fisheries and Aquaculture Infrastructure Development Fund (FIDF) was set up in FY 2018-19 with a ₹7,522.48 crore corpus.
- It offers concessional finance for fisheries infrastructure, including an interest subvention of up to 3% a year.

Technology and numbers

- Under PMMSY's technology-infusion component, the Department of Fisheries promotes Recirculating Aquaculture Systems (RAS).
- These raise fish indoors in tanks, reusing over 90% of the water.
- Over four years, 11,995 RAS units were approved across 31 states, at ₹887.85 crore.
- Read more in Recirculating Aquaculture Systems and Biofilters.

- India is the world’s second-largest fish producer, at about 8% of global output.
- It also ranks second in aquaculture and capture fisheries, and leads the world in shrimp production and export.

> **Quick check 2.** Inland fisheries are managed entirely by state governments. *(True or False?)* See answer ↓

Exam Edge

Previous Year Questions

UPSC has tested biofilters and the Blue Revolution.

Chapter 3: Policies, Concerns and Geography

Great to Know

Draft policies and real concerns

- A draft National Fisheries Policy, released in 2020, takes an ecosystem approach: sustainable harvesting, habitat protection and participatory governance.
- A draft Blue Economy Policy Framework, also from 2020, aims to grow the Blue Economy's GDP contribution.
- Its nodal ministry is Earth Sciences.
- It proposes a National Blue Economy Council to bring fisheries and other marine schemes under one oversight body.
- Growth has raised real environmental concerns.
- Unsustainable aquaculture practices and coastal ecosystem damage are common criticisms.

Where fish actually comes from

- India has eight major fish-producing states: Andhra Pradesh, Gujarat, Karnataka, Kerala, Maharashtra, Odisha, Tamil Nadu and West Bengal.
- Andhra Pradesh was the single largest producer in 2024, followed by West Bengal, Gujarat and Kerala.
- Inland fisheries grew 140% over the past decade, reaching 147.37 lakh tonnes in FY 2024-25.
- Inland fisheries now account for more than 75% of India's total fish output.

Related reading

- Andhra Pradesh, the largest fish-producing state.
- Gujarat
- Karnataka
- Kerala

- Maharashtra
- Odisha
- The Rainbow Revolution
- The White Revolution

> **Think it through: Why do inland fisheries lead now?**
> Marine catch is limited by the sea. Inland ponds, tanks and reservoirs can be farmed and scaled. That is why aquaculture drives the growth.

Chapter 4: Current Affairs

Current Affairs

First national deep-sea fishery report (20 August 2026)

- CMLRE released India's first National Report on Deep-Sea and Distant-Water Fishery Resources of the Indian EEZ.
- The release marked the Centre's Silver Jubilee.
- The report compiles nearly four decades of research and over 400 cruises by FORV Sagar Sampada across India's 2.37 million sq km EEZ.
- It maps the mesopelagic twilight zone (200-1,000 m, lanternfishes and deep-sea shrimps) and distant-water species like tunas, billfishes and Antarctic krill.
- It is meant to guide India's Blue Economy under Vision 2047 and its SDG 14 commitments. (Source: PIB.)

Six years of PMMSY: the headline numbers

- On 28 July 2026, a NITI Aayog evaluation recommended PMMSY's continuation. The scheme has been extended to September 2026 in its current form.
- Fish production rose from 141.64 lakh tonnes (2019-20) to 197.75 lakh tonnes (2024-25).
- PMMSY has created 58 lakh direct and indirect jobs. (Source: PIB.)
- Over the last three years, proposals worth ₹6,885.18 crore have been approved. (Source: PIB.)
- Fisheries exports rose from ₹46,663 crore (2019-20) to ₹73,890 crore (2025-26), a 58% rise. (Source: PIB.)
- Seafood exports hit a record $8.45 billion in FY 2025-26, across 670 approved processing units.
- Value-added products made up just 10% of exports. The government wants 25% by 2030. (Source: PIB.)

Deep-sea fishing gets a push

- On 9 July 2026, Vice President C.P. Radhakrishnan launched the Letter of Authorisation (LoA) framework for high-seas fishing, in Bhubaneswar, alongside Odisha's 2026-2036 Deep Sea Fishing Mission. (Source: PIB.)
- The LoA fee was cut from ₹25,000 to ₹5,000 to boost cooperative participation. (Source: PIB.)

Safety, sustainability and clusters

- ISRO built a ₹364 crore Vessel Communication and Support System (VCSS).
- It equips 1 lakh marine fishing vessels with free transponders and a "Nabhmitra" safety app. (Source: PIB.)

- ICAR-CMFRI found 91.1% of India's 135 assessed marine fish stocks are sustainable, monitored across over 1,300 landing centres. (Source: PIB.)
- Odisha's Balasore district, after 12 years of Blue Revolution and PMMSY funding, is declared India's Production and Processing Cluster for scampi. (Source: PIB.)
- Four coldwater fisheries clusters are notified: Anantnag (J&K), Pithoragarh (Uttarakhand), Kargil (Ladakh) and Kullu (Himachal Pradesh). They target Rainbow Trout, Golden Mahseer and Snow Trout. (Source: PIB.)
- The Union Budget 2026-27 announced integrated development of 500 reservoirs and Amrit Sarovars. So far 351 reservoirs and 100 Amrit Sarovars are selected. (Source: PIB.)

> **Quick check 3.** The Letter of Authorisation fee for high-seas fishing was cut from ₹25,000 to ₹5,000. *(True or False?)* See answer ↓

Quick Q&A

PMMSY launched?

10 September 2020.

PMMSY outlay?

₹20,050 crore.

Fish production 2024-25?

197.75 lakh tonnes.

FIDF corpus?

₹7,522.48 crore.

World rank?

Second, after China.

Practice: Fisheries

8 verified questions from this topic.

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The Rainbow Revolution

The White Revolution

Recirculating Aquaculture Systems and Biofilters

Andhra Pradesh

Practice MCQs

1. When was the Pradhan Mantri Matsya Sampada Yojana (PMMSY) formally launched?

A. 5 February 2019

B. 31 May 2019

C. 5 July 2019

D. 10 September 2020

See answer ↓

2. The 'Blue Revolution' refers to which of these?

A. A movement to reduce fish consumption

B. A campaign focused purely on ocean conservation

C. The rapid expansion of intensive commercial aquaculture

D. A policy limiting freshwater fishing only

See answer ↓

3. During PMMSY's implementation, national fish production rose from 141.64 lakh tonnes in 2019-20 to how much in 2024-25?

A. 210.60 lakh tonnes

B. 165.30 lakh tonnes

C. 180.45 lakh tonnes

D. 197.75 lakh tonnes

See answer ↓

4. Odisha's Balasore district, after twelve years of Blue Revolution and PMMSY investment, has been declared India's Production and Processing Cluster for which species?

A. Hilsa

B. Pompano

C. Pangasius

D. Scampi

See answer ↓

5. In a Recirculating Aquaculture System (RAS), which component removes uneaten fish feed and faeces from the water?

A. The mechanical filter

B. The foam fractionator

C. The biofilter

D. The denitrification reactor

See answer ↓

6. With reference to the role of biofilters in Recirculating Aquaculture System, consider the following statements:

1. Biofilters provide waste treatment by removing uneaten fish feed.

2. Biofilters convert ammonia present in fish waste to nitrate.

3. Biofilters increase phosphorus as nutrient for fish in water.

How many of the statements given above are correct?

A. Only one

B. Only two

C. All three

D. None

See answer ↓

7. Which change does nitrification bring about in a RAS biofilter?

A. Ammonia to nitrite, and then nitrite to nitrate

B. Ammonia to phosphate

C. Nitrite to ammonia

D. Nitrate to nitrogen gas

See answer ↓

8. When was the Pradhan Mantri Matsya Sampada Yojana (PMMSY) launched, and with what investment size?

A. 10 September 2020, Rs 20,050 crore

B. 10 September 2020, Rs 5,763 crore

C. 14 January 2025, Rs 2,500 crore

D. 20 May 2020, Rs 9,407 crore

See answer ↓

9. How does a biofloc system differ from a RAS in handling fish waste?

A. It discharges the waste into a nearby river

B. It sends all water through a drum filter

C. It keeps the waste in the tank, where microbes turn it into feed

D. It removes all the microbes from the water

See answer ↓

10. Under the Department of Fisheries backyard model, about how much land does a backyard RAS unit need?

A. About 1 hectare

B. About 10 square metres

C. About 1,000 square metres

D. About 100 square metres

See answer ↓

11. As of 5 March 2026, which pair of approvals under PMMSY is correct?

A. 22,057 RAS units and 12,081 biofloc units

B. 4,205 RAS units and 12,081 biofloc units

C. 11,995 RAS units and 4,205 biofloc units

D. 12,081 RAS units and 4,205 biofloc units

See answer ↓

12. What does denitrification do in a RAS?

A. It turns ammonia into nitrite

B. It turns nitrate into nitrogen gas

C. It adds phosphate to the water

D. It removes solid faeces from the tank

See answer ↓

13. Nitrification inside a RAS biofilter converts ammonia into which final product?

A. Nitrate

B. Nitrogen gas

C. Ammonium

D. Nitrite

See answer ↓

14. With reference to the role of biofilters in Recirculating Aquaculture System, consider the following statements:
1. Biofilters provide waste treatment by removing uneaten fish feed.
2. Biofilters convert ammonia present in fish waste to nitrate.
3. Biofilters increase phosphorus as nutrient for fish in water.
How many of the statements given above are correct? (UPSC CSP 2023)

A. Only one

B. Only two

C. All three

D. None

See answer ↓

15. Under PMMSY's Group Accident Insurance Scheme (GAIS) for fishers, detailed on 28 July 2026, what is the maximum coverage for death or permanent total disability?

A. Rs 1 lakh

B. Rs 5 lakh

C. Rs 2.5 lakh

D. Rs 25,000

See answer ↓

Answer Key

1. **D.** PMMSY was announced in the 2019-20 Union Budget, but formally launched on 10 September 2020, with an outlay of ₹20,050 crore. ↑ Q1
2. **C.** The Blue Revolution describes India's push toward large-scale, intensive fish and aquaculture production. ↑ Q2
3. **D.** National fish production rose from 141.64 lakh tonnes (2019-20) to 197.75 lakh tonnes (2024-25) during PMMSY's implementation period. ↑ Q3
4. **D.** Balasore has been declared India's Production and Processing Cluster of Scampi, after sustained fisheries investment including finfish and scampi hatcheries. ↑ Q4
5. **A.** The mechanical filter screens out solids such as faeces and other particles. In UPSC's 2023 question, biofilter bacteria break down leftover feed. This question asks which component removes solids, so the answer is the mechanical filter. ↑ Q5
6. **B.** UPSC's official key for CSP 2023 gives (b) Only two. Statement 2 is correct, because nitrification turns ammonia into nitrate. Statement 1 is correct, because bacteria in the biofilter break down organic waste, including leftover feed that slips past the mechanical filter. Statement 3 is incorrect, because a biofilter does not add phosphorus. ↑ Q6
7. **A.** Nitrification is a two-step change done by bacteria. Ammonia becomes nitrite, and nitrite becomes nitrate. Oxygen is used at both steps. Nitrate to nitrogen gas is denitrification. ↑ Q7
8. **A.** PMMSY was launched on 10 September 2020 with an investment of Rs 20,050 crore. The Union Cabinet had approved it on 20 May 2020. Rs 9,407 crore of the total was the Centre's share. Rs 2,500 crore is the 2026-27 Budget allocation. ↑ Q8
9. **C.** In biofloc technology, helpful microbes form clumps called biofloc. The clumps serve as natural feed and help clean the water. The method needs little or no water exchange. A RAS instead removes waste with filters. ↑ Q9
10. **D.** The Department of Fisheries says land of approximately 100 square metres is needed for a backyard RAS unit. Ponds need far more land and water. ↑ Q10

11. **D.** A PIB backgrounder gives 12,081 RAS units at Rs 902.97 crore and 4,205 biofloc units at Rs 523.30 crore. The figure 11,995 was the RAS count in a July 2024 reply. The figure 22,057 also includes biofloc units and raceways. ↑ Q11
12. **B.** Denitrifying bacteria work without oxygen. They turn nitrate into nitrogen gas, which leaves the water. FAO says denitrification is worth considering when a farm uses under 300 litres of water per kg of feed. ↑ Q12
13. **A.** The correct answer is **nitrate**. Nitrification is a two-step oxidation: ammonia to nitrite, then nitrite to nitrate. Nitrite is only the intermediate, and it is itself toxic to fish. Nitrogen gas is the product of a later, separate denitrification step carried out by different bacteria in anoxic zones. Nitrate is comparatively safe, even at the 50-200 mg/L levels a RAS often carries.

    ↑ Q13
14. **B.** The correct answer is **(b) Only two**, as per UPSC's official answer key (CSP 2023, GS Paper I, Series A, Q55). **Statement 1 is correct**: the biofilter is the waste-treatment unit of the system. Its bacteria break down the organic waste that comes from uneaten feed and fish excreta. **Statement 2 is correct**: nitrifying bacteria turn ammonia into nitrite and then into nitrate. **Statement 3 is wrong**: biofilters add no phosphorus to the water. Phosphorus comes only from the feed.

    ↑ Q14
15. **B.** GAIS provides Rs 5,00,000 against death or permanent total disability, Rs 2,50,000 for permanent partial disability, and Rs 25,000 for hospitalisation expenses. ↑ Q15

Quick-check answers

1. **False.** ↑ 1
2. **True.** ↑ 2
3. **True.** ↑ 3

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