Important Facts for Prelims (July 18th, 2018)

Cyanothece

- It is a bacteria that is able to fix nitrogen because it has a circadian rhythm.
- *Cyanothece* photosynthesises during the day, converting sunlight to the chemical energy they use as fuel, and fix nitrogen at night, after removing most of the oxygen created during photosynthesis through respiration.
- By taking the genes from Cyanothece and putting them into another type of cyanobacteria, Synechocystis, scientists could coax it into fixing nitrogen from the air too.
- This could help in engineering plants to develop their own fertilizer by using atmospheric nitrogen to create chlorophyll for photosynthesis.
- Doing so could eliminate the use of some human-made fertilizer, which has a high environmental cost.

Dolphin Population Declines

- The population of Gangetic river dolphin has declined at the Vikramshila Gangetic Dolphin Sanctuary (VGDS) which is India's only sanctuary for its national aquatic animal.
- The Gangetic dolphin is among the four freshwater dolphins - the other three are the Baiji now likely extinct from the Yangtze River in China, the Bhulan of the Indus in Pakistan and the Boto of the Amazon River in Latin America.
- The prominent reason for the decline is the movement of big cargo vessels in the river and dredging activities. Since they depend on echolocation, the Gangetic dolphins suffer from the noise pollution created by large ship propellers, and by dredging.
- Other reasons for the decline are increasing pollution, human interference, siltation and decreasing water flow and water level in the river.

Ganges River Dolphins

- Common Name: Ganges River Dolphin, Blind Dolphin, Ganges Susu, Hihu, Side-swimming Dolphin, South Asian River Dolphin.
- Scientific Name: Platanista gangetica
- IUCN Status: Endangered
- It is listed on CITES Appendix I.
- It is classified under Schedule 1, Wildlife (Protection) Act, 1972 as this provides absolute protection and offences under these are prescribed the highest penalties.

NOTE: CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) is an international agreement which aims to ensure that international trade in specimens of wild animals and plants does not threaten their survival.

Vikramshila Gangetic Dolphin Sanctuary

- It is located in Bhagalpur District of Bihar, India.
- The sanctuary is a 50 km stretch of the Ganges River from Sultanganj to Kahalgaon.
- It was designated as a protected area for the endangered Gangetic dolphins in 1991.

Expanding 'dead zone' in the Arabian Sea

- According to scientists, climate change may be causing the expansion of a vast dead zone in the Arabian Sea.
- As waters warm because of climate change, they hold less oxygen - and that, coupled with the excess fertilizer and run-off that gets dumped into the Gulf of Oman – worsens the situation.
- It starts at about 100 metres and goes down to 1,500 metres, so almost the whole water column is completely depleted of oxygen.
- This dead zone, the researchers now believe is by far the largest in the world.

Dead Zones

- Also known as Hypoxic zone are areas of the sea where the lack of oxygen makes it difficult for organisms to survive.
- There are many physical, chemical, and biological factors that combine to create dead zones, but nutrient pollution is the primary cause of those zones created by humans.
- Excess nutrients can stimulate an overgrowth of algae, which then sinks and decomposes in the water.
- The decomposition process consumes oxygen and depletes the supply available to healthy marine life.
- Other factors contributing to the formation of dead zones: absorption of air-borne nitrogen by water bodies, sewage run-off, the churning of ocean waters.
- Dead zones are found across the world. They are found in coastal as well as inland waters.

Pangolin

- A special unit of Odisha Police said it would soon approach Interpol to bust the international smuggling operations of pangolin, the world’s most illegally traded mammal.
- Of the eight species found worldwide (four each in Asia and Africa), two are found in India- Indian Pangolin (Manis crassicaudata) and Chinese Pangolin (Manis pentadactyla).

- The Indian Pangolin is found throughout the country south of the Himalayas, excluding the north-eastern region while the Chinese Pangolin ranges through Assam and the eastern Himalayas.
- Due to their huge demand for **medicinal purposes,** pangolins are smuggled through roads and rails and sent to China.

Current Status

- The Chinese pangolin has been listed as "**critically endangered**" by the International Union for Conservation of Nature's (IUCN) Red List, while the Indian pangolin has been listed as **"endangered**".
- In India, this species is included in Schedule I of the Wildlife Protection Act 1972, therefore hunting, trade or any other form of utilisation of the species or their body parts and derivatives is banned.
- All pangolin species are listed in Convention on International Trade in Endangered Species(CITES) Appendix I.