# Drone Applications in Fisheries and Aquaculture



## Drones

Drones, known as Unmanned Aerial Vehicles (UAVs), are aircraft that operate without a human pilot onboard, typically controlled remotely or autonomously. Equipped with advanced sensors and cameras, drones are increasingly used in various sectors for monitoring, data collection, and operational tasks, offering efficiency and precision.



### Fisheries

Survillance and Monitoring

Fish Shoal Detection

Research Purpose

Patrolling to Deter Illegal , Unreported & Unregulated  fFshing

### Aquaculture

Survey and Mapping

Aqua Farm Monitoring

Aqua Feeding, Spray of Chemicals

Fish Catch Transportation

Water Quality Monitoring

**Drone Applications**

## Drone Types and their Uses

- **Fixed-Wing Drones**: Designed for long-duration flights; can cover large areas of water bodies.
- Ideal for monitoring large-scale aquaculture farms and surveying vast aquatic environments.
- **Multirotor Drones:** Smaller, more maneuverable, and commonly used for precise tasks such as water quality monitoring, fish stock assessments, and close-up inspections of aquaculture ponds.
- **Agricultural Drones**: A type of multirotor drone customised for  application of fertilizer, feed, seed and pesticides
- **Hybrid Drones:** Combination of fixed-wing and multirotor designs, hybrid drones offer the ability to cover large areas while also hovering for detailed inspections. These drones are versatile, suitable for both broad surveys and localized monitorin
- **Submersible Drones:** Specialized underwater drones designed for inspecting submerged structures, and monitoring fish health and behavior in aquatic environments.  Particularly useful for managing underwater habitats in fish farms.

# Key Schemes Promoting Drone Usage in Fisheries, Aquaculture and Agriculture

**Pradhan Mantri Matsya Sampada Yojana (PMMSY)**
Financial support for adopting modern technologies, including drones, for sustainable fish farming and fisheries management.

**National Mission on Agricultural Extension & Technology (NMAET)**
Provides funding for technology adoption, including drones, to improve agricultural practices and enhance productivity.

**AtmanirbGhar Bharat Abhiyan**
Supports rural women and entrepreneurs through skill development programs, including drone operation training, to promote self-reliance in agriculture and aquaculture.

**Fisheries and Aquaculture Infrastructure Development Fund (FIDF)**
Offers loans to aquaculture farmers for the development of infrastructure, including the integration of drones for monitoring and resource management.

**Soil Health Management Scheme**
Encourages the use of drones for precision farming, soil health monitoring, and pest control, improving crop yield and sustainability.

**Kisan Urja Suraksha Evam Utthaan Mahabhiyan (KUSUM)**
A scheme that promotes renewable energy in agriculture, with potential for drones to be powered by solar energy for sustainable farming practices.

**Drone Didi Initiative**
Empowers rural women by providing drone operation training, specifically for agricultural, aquaculture, and related tasks.

## CIFE's Role

**Drone Demonstrations for Farmers:**
Conducts live drone demonstrations to showcase their practical applications in fisheries aquaculture & agriculture, helping farmers understand their potential benefits.

**Training and Exposure for Students:**
Offers specialized training programs to students, equipping them with hands-on experience in using drones for feed application, water quality monitoring, fish stock assessment, and other applications in aquaculture.

**Technology Awareness for Farmers:**
Provides exposure to emerging drone technologies for farmers, enabling them to adopt advanced methods for improving productivity, resource management, and sustainability in aquaculture, and agriculture.

**Capacity Building and Skill Development:**
Focuses on enhancing the skills of both students and farmers through workshops, seminars, and field exposure to drone technology, fostering innovation and technology adoption.

**Collaborations and R&D:**
Partners with technology providers to ensure farmers and students have access to the latest drone equipment and software, collects feedback and conducts R&D to customise drone tech for specialised applications.

**Contact**
Director (ICAR-CIFE), director@cife.edu.in
Dr. Ananthan P.S (PI), ananthan@cife.edu.in
Dr. Shivaji Argade(CO-PI), shivaji@cife.edu.in
Mr. Abuthagir Iburahim.S (CO-PI), iburahim@cife.edu.in