Fishing Technology Division

Overview

The **Fishing Technology Division** focuses on the development and improvement of fishing craft, fishing gear, equipment, and fishing methods. The division plays a crucial role in modernizing Sri Lanka's fishing industry while promoting sustainable fishing practices that protect marine ecosystems and ensure long-term resource availability.

The division conducts cutting-edge research on gear selectivity, vessel stability, and innovative fishing technologies, directly supporting the advancement of Sri Lanka's fishing industry by improving efficiency while promoting environmental sustainability.

Leadership & Contact

Head of Division

- **Name:** Dr. W.N.C. Priyadarshani
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Research Staff

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Key Functions & Responsibilities

Fishing Gear Development

- Design and testing of fishing gear for various marine environments
- Optimization of gear efficiency while minimizing environmental impact
- Development of selective fishing gear to reduce bycatch
- Modification of traditional gear for improved performance
- Testing of new materials and construction techniques

Fishing Vessel Technology

- Fishing vessel design optimization for different fishing operations
- Vessel stability analysis and safety assessment
- Energy-efficient vessel design research
- Improvement of onboard fish handling and storage systems
- Small-scale fishing craft development

Gear Selectivity Research

- Studies on gear selectivity to minimize juvenile fish capture
- Bycatch reduction device development and testing
- Mesh size optimization for target species
- Escape panel design for non-target species
- Assessment of ecological impacts of different gear types

Reservoir Fishing Technology

- Development of specialized fishing technologies for inland reservoirs
- Deep reservoir fishing gear innovation
- Assessment of appropriate fishing methods for different reservoir types
- Transfer of marine fishing technologies to inland water bodies

Technology Transfer & Training

- Training programs for fishing communities on improved methods
- Demonstration of new fishing technologies to fishermen
- Technical advisory services for fishing vessel operators
- Dissemination of research findings to stakeholders
- Capacity building for sustainable fishing practices

Services Offered

Technical Consultancy

- Fishing gear design consultation for fishermen and vessel owners
- Vessel stability testing and certification support
- Advice on fishing method selection for different target species
- Technical problem-solving for fishing operations
- Optimization of fishing effort and efficiency

Training Programs

- Hands-on training on improved fishing gear operation
- Workshops on gear maintenance and repair
- Vessel safety and stability training
- Sustainable fishing method demonstrations
- Technology adoption support for fishing communities

Research Support

- Gear selectivity studies for fisheries management
- Impact assessment of fishing gear on marine ecosystems
- Collaboration with fisheries management authorities
- Data collection on fishing effort and catch composition
- Support for policy development on fishing regulations

Current Research Projects

Project 3.1: Deep Reservoir Fishing Gear Development

The Development of a New Fishing Gear to Harvest Fishery Resources in Deep Reservoirs in Sri Lanka

This innovative project addresses the challenge of efficiently and sustainably harvesting fish from Sri Lanka's deep inland reservoirs. The research focuses on:

- Adapting marine fishing technologies for freshwater environments
- Designing gear suitable for deep water operations
- Ensuring selectivity to protect breeding populations
- Developing cost-effective solutions for reservoir fishermen
- Testing and validation in multiple reservoir systems

Negombo Estuary Fishing Gear Study (2025)

Comprehensive Study on Fishing Gears Utilized in the Negombo Estuary

Launched in 2025 at the request of the Department of Fisheries and Aquatic Resources, this critical study examines:

- Diversity of fishing gears used in the estuary ecosystem
- Ecological impacts of different gear types
- Identification of potentially detrimental fishing practices
- Community concerns about fishing methods

- Development of sustainable management recommendations
- Balance between fishing efficiency and ecosystem conservation

Gear Selectivity for Coastal Fisheries

Research on Selective Fishing Gear for Sustainable Coastal Resource Management

Ongoing research program focusing on:

- Mesh size optimization for different target species
- Escape mechanism development for juvenile fish
- Bycatch reduction technologies
- Seasonal variation in gear selectivity
- Economic viability of selective fishing gear

Facilities & Equipment

Gear Testing Facilities

- Testing tanks for net behavior analysis
- Flume tanks for studying gear hydrodynamics
- Strength testing equipment for fishing gear materials
- Model testing facilities for gear design optimization

Vessel Design & Modeling

- Computer-aided design (CAD) software for vessel design
- Stability analysis software and equipment
- Scale model testing capabilities
- Hydrodynamic testing facilities

Field Research Infrastructure

- Research vessels for at-sea gear testing
- GPS and sonar equipment for fishing operation monitoring
- Underwater cameras for gear behavior observation
- Data logging equipment for fishing effort studies

Workshop & Fabrication

- Gear fabrication and prototype development workshop
- Net-making and repair facilities
- Materials testing equipment
- Modification and adaptation tools

Major Achievements

- Development of innovative deep reservoir fishing technologies
- Comprehensive assessment of Negombo Estuary fishing practices
- Successful technology transfer to fishing communities
- Contribution to sustainable fishing policy development
- Improvement of fishing vessel designs for small-scale fisheries
- Research support for gear selectivity regulations

Collaboration & Partnerships

The Fishing Technology Division works closely with:

- Department of Fisheries and Aquatic Resources
- Fishing communities and fisher organizations
- Boat builders and fishing gear manufacturers
- University fisheries departments
- International fishing technology institutes
- Regional fisheries management organizations
- NGOs working on sustainable fishing

Research Impact

Economic Benefits

- Increased fishing efficiency through improved gear design
- Reduced operational costs through energy-efficient vessel designs
- Enhanced safety reducing loss of life and property
- Better fish quality through improved handling systems

Environmental Benefits

- Reduced bycatch protecting non-target species
- Minimized ghost fishing through improved gear design
- Protection of juvenile fish ensuring future stocks
- Reduced seafloor impact through gear modification
- Ecosystem-friendly fishing methods

Social Benefits

- Improved safety for fishing communities
- Enhanced livelihoods through better technology
- Capacity building and skill development
- Empowerment of fishing communities
- Preservation of traditional knowledge with modern innovation

Future Directions

- Development of smart fishing technologies with sensors and monitoring
- Integration of GPS and communication technologies in fishing gear
- Research on climate change impacts on fishing technologies
- Expansion of deep-water fishing technology research
- Development of artificial intelligence for fishing gear optimization
- Enhanced collaboration with international fishing technology institutes
- Focus on reducing marine pollution from fishing gear
- Development of biodegradable fishing gear materials

Contact Information

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