15 YEARS

FISH FOR ALL RESEARCH AND TRAINING CENTRE

# BUILDING RESILIENCE AND TRANSFORMING LIVELIHOODS OF SMALL-SCALE FISHERS

M.S. Swaminathan Research Foundation

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SCIENCE FOR SUSTAINABLE DEVELOPMENT

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**15 Years Fish for All Research and Training Centre - Building Resilience and Transforming Livelihoods of small-scale fishers**

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# FOREWORD

## FIFTEEN YEARS OF TRANSFORMING LIVES: A TESTAMENT TO RESILIENCE AND INNOVATION

**Dr. Soumya Swaminathan**
Chairperson, MSSRF

As we mark the fifteenth anniversary of the MSSRF Fish for All Research and Training Centre, I am filled with satisfaction at the transformative impact it has had on the lives of coastal communities. Established in the aftermath of the devastating 2004 tsunami, the Centre was born out of the recognition that the resilience of our coastal populations needed to be built on a foundation of shared knowledge, innovation, and collaboration.

From its small beginnings in Poompuhar, the Centre has evolved into a vibrant hub, addressing the complex challenges faced by fisher families while creating opportunities for sustainable progress. The Centre's work tells a story of transformation – one where science has been brought closer to the lives of people who depend on our oceans.

The Centre's initiatives have introduced fisherfolk to cutting-edge tools and technologies, improving their safety, increasing incomes, and enhancing their resource management capabilities. Programs like the Fisher Friend Mobile Application and WomenConnect Challenge have democratized access to technology, enabling safer and more efficient livelihoods.

Innovations such as community-managed artificial reefs and bycatch reduction devices have struck a balance between conservation and livelihoods. Most inspiring is the Centre's role in empowering women, once on the periphery of fisheries-related activities, to become active leaders and entrepreneurs. From value-added fish products to quality dry fish production using solar dryers, fisherwomen have demonstrated how innovation and training can create new economic opportunities while improving food safety and quality. Initiatives promoting small scale aquaculture have opened doors for sustainable income, benefiting families and communities alike.

This fifteen-year journey has proven that real change happens when science listens to people, when technology works for communities, and when solutions are co-created with those who will use them. The fisherwomen, fishermen, fish farmers and youth themselves are the real champions of this success story.

As we reflect on our accomplishments, we must also recognize that the road ahead is challenging. Coastal ecosystems are under pressure from climate change, overexploitation, and pollution. These challenges demand greater collective effort, stronger partnerships, and innovative solutions.

The Fish for All Centre has laid a strong foundation, showing what is possible when science, society, and sustainability come together. I extend my heartfelt congratulations to the Fish for All Centre team for their unwavering commitment and passion.

To the fisher communities who trusted this Centre and contributed their time, knowledge, and efforts – you are the heart of this journey. I also thank our partners, funders, and supporters who believed in this vision and helped us take it forward.

Let this fifteenth year not just be a milestone but the beginning of an even more ambitious chapter – one where our coastal communities continue to thrive, where oceans and the living beings in it are safeguarded, and where livelihoods are strengthened for generations to come

# FOREWORD

## FIFTEEN YEARS OF TRANSFORMING LIVES: A TESTAMENT TO RESILIENCE AND INNOVATION

**Dr. Rengalakhsmi**
Executive Director, Area Operations, MSSRF

As we commemorate the 20th anniversary of the 2004 Indian Ocean tsunami, we reflect invaluable learnings in disaster management and vulnerability reduction. The cornerstone of long-term preparedness lies in empowering local communities, particularly women and men on preparedness, to mitigate risks and protect themselves from natural disasters.

The Fish for All Centre is established the with this objective by M.S. Swaminathan Research Foundation (MSSRF) in 2009-10. Over the past 15 years, we have made significant strides in enhancing the community's resilience in preparedness and risk reduction. Our efforts have yielded notable results, demonstrating the effectiveness of our approach.

However, it is evident that the adverse impacts of climate change on coastal communities has been rising. To mitigate its detrimental effects on health, livelihoods, natural resources and the regional economy, further translational research and innovations, knowledge generation, and practical actions are imperative.

This impact report highlights our journey over the past 15 years, showcasing our contributions in achieving Sustainable Development Goals 1, 2, and 14, addressing the Ocean Decade Challenges 1, 2, 5, 6, and 9 along with contributing to the Target G and priorities for action of the Sendai Framework for Disaster Risk Reduction 2015-2030. We aspire to upscale our successful models in new areas of concern with relevant partnerships.

Our 15-years journey has been marked with several challenges, growth and learning. We extend our gratitude to all the partners; community, government and research, policy and development organizations for their unwavering support and guidance.

This report is a testament to the dedication and hard work of our team: scientists, development professionals, administrative staff and students at the Fish for All Centre. Their tireless efforts and dedicated actions have improved the lives and livelihoods of coastal communities along with environment. I commit to extend all the possible support and wish them for their continued success all future endeavors and actions.

# ACKNOWLEDGEMENT

## FIFTEEN YEARS OF TRANSFORMING LIVES: A TESTAMENT TO RESILIENCE AND INNOVATION

**Dr. Velvizhi**
Area Director – Coastal Resources and Fisheries, MSSRF

Our Founder Prof. M.S. Swaminathan, envisioned a unique program of "Fish for All Centre" to address the pressing challenges faced by coastal communities in the post tsunami recovery phase to minimize the impact of climate risks and strengthen the livelihoods of coastal communities. Today, we proud to say that the Fish for All Research and Training Centre achieved its 15th year of operations meaningfully fulfilled his vision by linking science with society for sustainable development.

As we celebrate 15 years of the Fish for All Centre, we express our gratitude to our pillars of support. We thank our donors: TATA, INCOIS-MoES, Qualcomm Wireless Reach, NABARD, Environment Defense Fund, Reliance Foundation, ICAR-CIBA, ICAR-NBFGR, UNDP-SGP, Five Star, Department of Science and Technology, National Fisheries Development Board (NFDB), and HCL Foundation for their continuous support for the various initiative of the Fish for All Centre

We are grateful for the exceptional leadership and encouragement of our Chairperson, Dr. Soumya Swaminathan, whose guidance and expertise have been invaluable in shaping our centre's actions and driving our mission forward.

We also thank our Executive Directors, Dr. R. Rengalakshmi, Dr. G.N. Hariharan, and Mr. Srini Raman, for their timely guidance and support, which has enabled us to execute our programs effectively and achieve our goals. Furthermore, we appreciate the valuable guidance and support of our senior Fellows and Directors, including Dr. R. Ramasubramanian, Dr. V.R. Prabavathy, and Dr. E.D.Israel Oliver King, whose expertise and experience have been essential in informing our strategy and driving our programs forward.

I extend my sincere thanks to all current and past directors and team members of the Fish for All Centre for their teamwork, dedication, and commitment to our mission, which has been instrumental in driving our success.

Special mention to Ms. Shwetha Tony and Ms. Arthi for their assistance in compiling data for this report.

Most importantly, we thank every fisherman, woman, fish farmer youth leader and children who has been part of our program, as your feedback, success stories, and needs have guided us and helped us to refine our approach to better serve the coastal communities.

As we embark on the next chapter of our journey of this co-development, we carry forward the lessons and successes of the past 15 years with renewed energy, committed to innovating, restoring, and empowering India's coastal communities to remain resilient, prosperous, and future-ready. We look forward to continue our partnerships and collaborations to achieve a safe future for people, oceans, and livelihoods alike.


# 15 YEARS OF FISH FOR ALL RESEARCH AND TRAINING CENTRE BUILDING RESILIENCE AND TRANSFORMING LIVELIHOODS OF SMALL-SCALE FISHERS

# EXECUTIVE SUMMARY

The Fish for All Research and Training Centre (FRTC) stands as a beacon of transformation for India's coastal communities. Established after the 2004 tsunami, FRTC has spent 15 years redefining the fisheries landscape by integrating traditional knowledge with innovation, fostering sustainable livelihoods, and restoring ecosystems.

The Centre's community-managed artificial reefs have revitalized marine ecosystems, increasing fishery yields by 20-30 tons per square kilometer annually while fostering ecological restoration and economic opportunity. Bycatch reduction devices introduced in Palk Bay have minimized environmental damage while maintaining shrimp yields. The community managed ghost gear recovery program has removed over 30,000 kg of marine debris from the Gulf of Mannar and Palk Bay. Fisherwomen have been trained to upcycle discarded gear into livelihood products, merging environmental restoration with sustainable incomes.

Key initiatives like the Fisher Friend Mobile Application (FFMA) have connected over 1.22 lakh fishers across nine states to real-time weather updates, ocean conditions, and market trends, improving safety and incomes. Small-scale fishers report annual gains of up to ₹1,00,000. Collaborations with INCOIS have equipped over 200,000 fishers with ocean forecasts, advisory services, and disaster alerts, inspiring localized innovations like Kondalkattru Alerts.

In post-harvest fisheries, the HACCP-standard Fish Processing Unit has processed over 200 tons of fish, empowering fisherwomen from 10 villages to produce solar-dried fish and earn monthly additional income of ₹3,000- ₹5,000. Nutritional profiling of dry fish species has underscored their importance in combating food insecurity, while 52 innovative fish products have boosted nutrition and income. Digital initiatives like the WomenConnect Challenge have trained 6,000 fisherwomen in post-harvest practices, digital marketing, and financial literacy. The FisherwomenConnect app bridges traditional practices with modern markets, enhancing access to buyers and schemes.

In aquaculture, the Integrated Fish Farming System (IFFS) in 64 villages has demonstrated productivity gains, yielding ₹110,369 per hectare annually. The Integrated Mangrove Fishery Farming System in Cuddalore district of TN has planted over 5,000 mangrove saplings and produced 457 kg of fish and crabs, generating ₹3,87,705 for 35 beneficiaries, showcasing scalable climate-resilient models. Specialized aquaculture efforts include a seabass nursery with a 52.8% survival rate, generating ₹2,71,000, and portable carp

hatcheries producing disease-resistant fingerlings.

Training and capacity-building programs have benefited over 110,000 individuals through 1,146 initiatives, with collaborations educating 67,114 fishers in sustainable practices. Nearly 900 students have completed certificate courses, and fisherwomen have earned ₹2,48,268 from dry fish sales through improved market linkages.

Education initiatives like "Every Child a Scientist" have engaged 600 school students, while tribal development programs have supported over 1,000 Irular families. The coastal grid of virtual Village Knowledge Centres connects 192 villages, promoting inclusive growth and community empowerment.

Thus, the FRTC's holistic approach to innovation, sustainability, and resilience sets a benchmark for fisheries and coastal livelihoods, leaving a legacy of hope and transformation for India's coasts and beyond.

# IMPACT METRICS

## 1.22 LAKHS

### FISHERS EMPOWERED

Through the Fisher Friend Mobile App (FFMA), safety advisories, weather updates, and operational risk reduction reached 1.22 lakhs users across 66 coastal districts.

## 33.3 TONS

### RETRIEVED MARINE DEBRIS

Recovered 33,360 kg (33.3 tons) of marine litter, including 9,528 kg of ghost gear, across 208.5 hectares in the Gulf of mannar and Palk Bay regions

## 20

### CO-MANAGEMENT COMMITTEES

20 Village Co-Management Committees Established to support participatory fisheries management and sustainability in coastal communities.

## ₹32,00,00

### GENERATED BY FISHERWOMEN

Entrepreneurial activities by fisherwomen processed over 200 tons of fish and prawns, creating a sustainable income source.

## 2,500

### ARTIFICIAL REEFS INSTALLED

## 25%

### FISH YIELD INCREASED

Coastal communities installed 2,500 reefs, resulting in sustainable fishery resource enhancement. Artificial reefs significantly boosted fish production in coastal waters, improving incomes for fisher households.

## 210

### INTEGRATED FISH FARMING SYSTEMS PROMOTED

Integrated mangrove conservation with aquaculture to support biodiversity and livelihoods.

## 110,902

### TRAINED

## 1,146

### PROGRAMS

Conducted training programs that enhanced the skills and knowledge of fishers and coastal communities

## 30%

### IMPROVED PRODUCTIVITY

Community interventions led to significant improvements in aquaculture productivity.

# BUILDING RESILIENCE:

## THE BIRTH OF FISH FOR ALL RESEARCH AND TRAINING CENTRE (FRTC)

### ESTABLISHED: DECEMBER 26, 2009

In response to the devastation caused by the 2004 tsunami, the **M.S. Swaminathan Research Foundation (MSSRF)**, with support from **TATA Trusts**, inaugurated the **Fish for All Research and Training Centre (FRTC)** in **Poompuhar, Mayiladuthurai**. The center was set up with the vision of fostering **sustainable coastal development and disaster resilience through community-focused research and training initiatives**.

# GENESIS OF THE PROGRAMME

December 26,2004 was the most distress day in the modern history of human lives and natural calamity in the Indian Ocean region. The earthquake that struck on that day with an estimated magnitude of 9.1 Richter scale in Sumatra region caused the strongest tsunami since March 28, 1964. According to the National Centre for Environmental Statistics 2,27,898 people were killed or listed as missing and presumed dead by the Indian Ocean tsunami. Devastation was massive as waves measuring 10-40 feet in height stuck the shores and surged up beaches, buildings, and entire villages before waning back into the ocean. All the 13 coastal districts of Tamil Nadu were affected, but the worst losses were recorded in Nagapattinam where 6,065 people were killed. An estimated 85% of people affected by tsunami came from the fishing community; it left them with great shock, fear and trauma and they had to struggle to adapt to the post-tsunami situation and rebuild their livelihoods. Ever since the devastating event, disaster risk reduction and preparedness became part of the development plans and policies of almost all coastal nations of the Indian Ocean coast.

M.S. Swaminathan Research Foundation (MSSRF), in response to the disaster had undertaken a range of field level activities to build the resilience of the coastal communities in Tamil Nadu, Puducherry and Andhra Pradesh. On December 26, 2009, MSSRF with funding support from the TATA trusts, inaugurated community research and training centre named Fish for All Research and Training Centre in Poompuhar fishing village of Tamil Nadu with the purpose of spear heading a coordinated effort in promoting sustainable development practices

# FISH FOR ALL RESEARCH AND TRAINING CENTRE (FRTC)

This centre was conceptualized based on the felt needs expressed during the post-tsunami interactions with the coastal communities as part of addressing a long-term strategy to bring a collective and holistic approach in fish resource management, sustainable livelihood options, disaster preparedness and management. This centre functions as training cum demonstration space, to strengthen and diversify livelihoods and identify alternative economic activity for coastal communities to add value to the process chain- capture/ culture, commercialization and consumption- by adopting a participatory approach involving all the associated stakeholders and institutions.

The centre's focus is taking appropriate actions to build the adaptive capacity of fishers and make them resilient to the changing climate. This is carried out through participatory research, creating awareness on adaptation, importance of sustainable fishing and environmental practices; diversifying livelihood options; evolve a network of fishers for strengthening the coastal and marine biodiversity; enable access to key relevant and real time based scientific information; and providing early warning alerts by using affordable and energy efficient communication technologies, besides working towards enhanced security in maritime borderline, risk zones and safeguarding coastal and marine biodiversity.

# GEOGRAPHICAL REACH

The Fish for All Research and Training Centre (FRTC) extends its program coverage across multiple coastal states of India, ensuring a widespread impact on coastal communities and marine ecosystems. The centre expands in reach in almost all coastal states of India through its Fisher Friend Programe. For the livelihood and conservation related programmes are being implemented in Five states including Tamil Nadu, Puducherry, Andhra Pradesh, Odisha and Karnataka. It covers more than 22 coastal districts in these five states

This extensive geographical presence reflects the organization's commitment to sustainable coastal development, resource management, and capacity building across India's diverse coastal regions

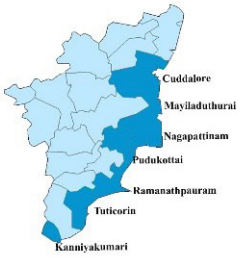
# Geographical Reach

## Fisher Friend Mobile Application


## Livelihood and Conservation Related Programmes

5 Coastal States

### Tamilnadu




### Andhra Pradesh


### Kerala


### Karnataka


### Puducherry


# FOUR THEMATIC AREAS OF FOCUS

- Capture Fisheries Resource Management and Enhancement
- Post-harvesting technologies and Livelihood Promotion
- Culture Fisheries Resource Management and Enhancement
- Training and Capacity Building

# KEY DEVELOPMENT ACTIONS

Promoting responsible & sustainable fisheries

Gear Selectivity - bycatch reduction devices

Community managed artificial reef program

Ocean observation & monitoring

Sea safety and risk reduction

Value addition through low-cost post-harvest technologies

Integrating aquaculture in Coastal and Mangrove areas

Training and capacity building through ICT and Non-ICT tools

Every Child A Scientist Program in rural areas & fishing villages

Promotion of sustainable livelihood options

# THE FISH FOR ALL RESEARCH AND TRAINING CENTRE: A 15-YEAR JOURNEY

In 2009, the Fish for All Research and Training Centre was established in Poompuhar, Tamil Nadu, with a vision to promote sustainable fisheries management and improve the livelihoods of coastal communities. Over the past 15 years, the Centre has embarked on a remarkable journey, marked by innovation, collaboration, and community empowerment.

## EARLY YEARS (2009-2012)

The Centre's initial focus was on relief activities of Tsunami affected communities, providing materials, training and capacity-building programs for fishers, women, and youth. This included workshops on sustainable fishing practices, fish processing and marketing. A community-based fish processing unit was established, providing women with training and processing opportunities.

## SETTING FOCUS AND INNOVATION (2013-2016)

As the Centre grew, it expanded its scope to include research and development initiatives focusing on small-scale fisheries development. Key innovations included introduction of tunnel solar dryers, improving the quality and safety of dried fish products, Community-managed artificial reefs, enhancing fish populations and reducing fishing pressure, launch of the Fisher Friend Mobile Application in Android platforms, providing critical information on weather forecasts, fish markets, and fishing regulations

## EXPANDING THE SCOPE AND GEOGRAPHICAL LOCATION (2017-2020)

The Centre expanded its scope to promote sustainable marine fisheries, including fishery improvement programs, participatory fishery management, fishery enterprise development, collectivization of grassroots institutions, emphasizing women's leadership and entrepreneurship

## WIDEN THE FOCUS AREA AND SCALING UP (2020-PRESENT)

Today, the Fish for All Centre is a unique institution in India, linking science with society to promote sustainable fisheries management, conservation, and community development. The Centre has expanded its reach to multiple states, working with thousands of fishers, women, youth, and children. Ongoing initiatives focus on marine debris management, climate resilience, fisheries governance- co-management, post-harvest fisheries, technology, market access and policy advocacy

# SIGNIFICANT ACHIEVEMENTS OF FISH FOR ALL CENTRE OVER 15 YEARS

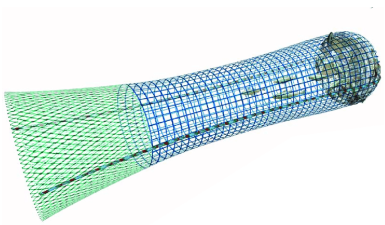
Over the past 15 years, the Fish for All Research and Training Centre (FRTC) has pioneered a remarkable journey of sustainable innovation, touching lives, transforming livelihoods, and restoring marine ecosystems.

Here's how FRTC has made a difference:

## REVIVING MARINE ECOSYSTEMS

### ARTIFICIAL REEFS THAT REVITALIZE

In Tuticorin, T.R. Pattinam, and Poompuhar, artificial reefs now thrive as fish havens, improving incomes and ensuring sustainability for small-scale fishers in and around the region. It is an icon for the community managed initiatives

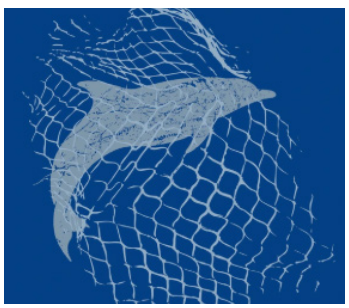


### FISHING FOR SUSTAINABILITY

In Rameswaram, 75 fishermen introduced square mesh cod ends in shrimp trawlers, championing a voluntary code for sustainable shrimp harvesting.

### GHOST GEAR GUARDIANS

With 145 volunteers, FRTC has retrieved 33.3 tons of abandoned and lost fishing nets (ghost gear) from the Gulf of Mannar and Palk Bay, saving marine life and habitats demonstrating FRTC's commitment to preserving our oceans.



# STRENGTHENING PARTICIPATORY MANAGEMENT

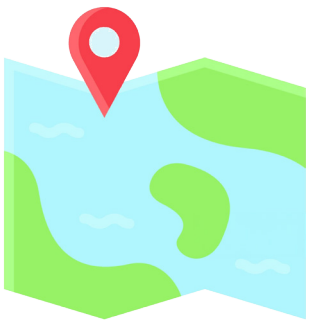
## CO-MANAGEMENT COMMITTEES

Pioneered participatory approaches to promote sustainable fisheries and marine resource management.
Over 20 village-level co-management committees have been established to ensure community involvement in decision-making on fisheries management and resource sustainability.

# EMPOWERING COMMUNITIES THROUGH TECHNOLOGY

## FISHER FRIEND MOBILE APP (FFMA)

Reaching 1.22 lakh fishers across 66 coastal districts, this PAN India app provided timely weather updates, ocean state conditions, and marine fisheries advisories. It saved 527 lives during cyclones like Hudhud, Phailin, Okhi, Thanae and Gaja and reduced operational costs while improving incomes through guidance on Potential Fishing Zones (PFZs).

## WAVE RIDER BUOYS

Collaborated with INCOIS deployed buoys in Muttom, Tharuvaikulam, and Puducherry coastal waters, enabling to measure the real time location-specific ocean informations. Disseminating ocean state forecasts and marine fishery advisories to coastal communities has been vital in reducing risks and improving efficiency in fishing.

## DIGITAL LITERACY FOR WOMEN

Trained 6,000 women through 211 digital literacy sessions, focusing on digital marketing, finances, and post-harvest practices empowered women role in digital space

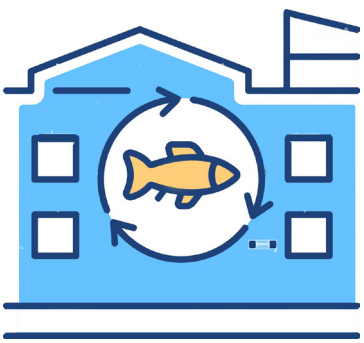
## DIGITAL KNOWLEDGE REVOLUTION

With 121,134 users, our Village Knowledge and Resource Centers (VRCs/VKCs) bridged the digital divide, serving as hub for education, health, and employment information.

# DRIVING INNOVATION FOR SUSTAINABILITY

## HACCP-STANDARD PROCESSING UNIT

Established to prevent distress sales by improving the quality of processed fish, ensuring better market prices.
The Fish Processing Centre equipped fisherwomen with skills to process and add value to fish products, transforming them into entrepreneurs.



# CHAMPIONING GENDER EQUALITY AND LIVELIHOODS

## POWER OF WOMEN COLLECTIVES

4731 fisherwomen have processed over 200 tons of fish, created 52 value-added products and driven local economies.

## A BRAND BORN OF RESILIENCE

Vetri Paavai Fisherwomen Producer Company Limited (VPFWPCL), boasting 160 shareholders and ₹1,60,000 in share capital, specializes in hygienic dry fish using solar driers and a range of value-added fish products.

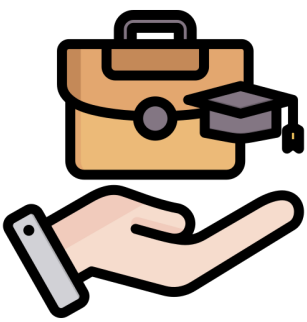

## INTEGRATED FARMING

Over 210 Integrated Fish Farming Systems (IFFS) combined fish farming, poultry, horticulture, and vermicomposting, ensuring year-round income and enhancing sustainability for small-scale farmers.

# CAPACITY BUILDING AND KNOWLEDGE SHARING

## BUILDING SKILLS AND COMMUNITIES

Conducted 1,146 training programs, empowering 110,902 individuals in sustainable fisheries, new fishing technologies, marine debrish management, livelihoods, and coastal farming practices.



## HUB FOR EXPERIENTIAL LEARNING

Hosted over 1,831 students and research scholars from Tamil Nadu, Puducherry, Karnataka, and West Bengal. Through internships, exposure visits, and fieldwork, the Centre bridged the gap between theory and practice, equipping future leaders with hands-on skills in sustainable fisheries, coastal conservation, and community development.

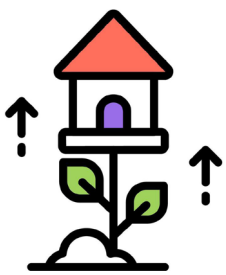
## STRENGTHENING SOCIAL CAPITAL

Nurtured 120 Self-Help Groups (SHGs), two federations, and four Fish Farmer Producer Organizations (FFPOs), fostering collective action for livelihood enhancement and coastal resource management.

# CONNECTING COMMUNITIES TO RESOURCES

## FACILITATING BENEFITS WORTH ₹9.6 CRORE

Through effective networking, 534 fisherfolk and farmers accessed government schemes and programs, enabling livelihood enhancement.



## LIVELIHOOD ENTERPRISES

Benefiting 922 households, location-specific enterprises such as crab fattening, collective fish trade, ornamental fish culture, composting, and value-added fish production have strengthened livelihoods.

# RECOGNITION AND INSPIRATION

## AWARD-WINNING EXCELLENCE

FRTC has received seven prestigious awards between 2014 and 2023, affirming its innovative work in fisheries and technology for social good.

# I

# CAPTURE FISHERIES RESOURCE MANAGEMENT AND ENHANCEMENT

# FISHER FRIEND MOBILE APPLICATION (FFMA): EMPOWERING FISHERS, ENHANCING LIVELIHOODS

*"With the Fisher Friend Mobile App, we plan our trips better, avoiding crab molting seasons and rough waters. It's made fishing safer and more profitable for us, turning technology into a true lifeline." - Subash, Chinnangudi*

The Fisher Friend Mobile Application (FFMA) is a groundbreaking, PAN-India initiative by the Fish for All Centre, available in all Indian coastal languages and English.

This innovative app provides fishermen with real-time updates on weather, fishing zones, ocean forecasts, and market trends, enabling them to ensure safety, protect assets, and make informed decisions.

FFMA has evolved from a pilot initiative to a nationwide application, benefiting over 1.22 lakh fishers from 66 coastal districts across nine states and one Union Territory in India.

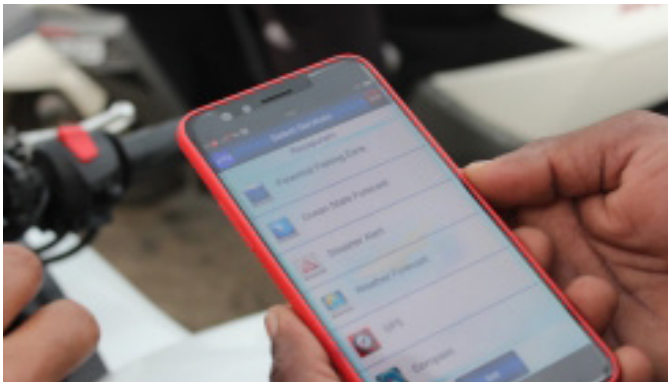
Its user-centric design, continuous innovation and providing critical information at fisher fingertips have transformed the app into a lifeline for fishers.

By integrating localized features, such as no-fishing zone alerts and traditional fishing zone maps, FFMA has successfully bridged the gap between traditional fishing practices and modern technology.

The FFMA's geo-fencing technology alerts fishers as they approach restricted zones, ensuring they stay clear of sensitive nesting areas.

In Odisha, this innovation has protected Olive Ridley Turtles and empowered fishers by reducing penalties and safeguarding their livelihoods.

FFMA's incredible growth story reflects not only its scalability but also its adaptability to unique regional challenges. This pioneering initiative has demonstrated the power of innovation, localization, and community-centric solutions in transforming the fisheries sector in India.



# COMMUNITY-MANAGED ARTIFICIAL REEF PROGRAM: ENHANCING FISHERY RESOURCES AND SUSTAINABLE LIVELIHOODS

The Centre's community-managed artificial reef program, implemented in the Gulf of Mannar and Coromandel coast, has achieved remarkable success in enhancing fishery resources, benefiting small-scale fishers, and promoting sustainable livelihoods.

## KEY OUTCOMES

- Artificial reefs have attracted valuable species like cuttlefish, croakers, and groupers, improving fishery production and supporting gears like hook-and-line and gill nets.
- Post-assessment studies have shown a noticeable increase in fishery resources near the deployed reefs.
- The initiative has integrated ecological restoration with community governance, ensuring sustainable resource use and boosting economic opportunities for traditional fishing communities.
- A post-assessment study conducted near Van Island in 2002 revealed impressive results, with an average annual fish yield of 20-30 tons per square kilometer. This success demonstrates the potential of artificial reefs in revitalizing local marine ecosystems and supporting sustainable fisheries management.

## COMMUNITY GOVERNANCE AND MANAGEMENT

Village Marine Councils, guided by key stakeholders, manage the artificial reefs, ensuring community-led decision-making and sustainable resource management.

# FLOWER SHRIMP FISHERY IMPROVEMENT PROGRAM: PROMOTING SUSTAINABLE FISHING PRACTICES IN PALK BAY

A pioneering initiative in the Palk Bay region has demonstrated the effectiveness of Bycatch Reduction Devices (BRDs) in promoting sustainable fishing while maintaining commercial shrimp yields.

## KEY RESULTS

Trials with Square Mesh Codend, Juvenile Fish Excluder cum Shrimp Sorting Device (JFE-SSD), and Turtle Excluder Device (CIFT-TED) showed significant reductions in bycatch compared to traditional trawl nets.

Discards decreased by 3-5 kg per hour, with the Square Mesh Codend being the most effective in reducing bycatch while capturing nearly the same shrimp yield as control nets.

## ECOLOGICAL AND ECONOMIC BENEFITS

- Reduced bycatch minimizes the capture of juvenile and non-target species, enabling them to grow and achieve higher market value.
- This approach supports both ecological sustainability and improved long-term economic outcomes for fishers.

These initiatives demonstrate a commitment to promoting sustainable fishing practices, reducing ecological impact, and supporting the long-term viability of the flower shrimp fishery in Palk Bay.

## STAKEHOLDER CONSULTATION AND ADOPTION

- A voluntary code of practice for sustainable flower shrimp management was developed and promoted through 22 training programs, engaging 526 fishers.
- A turtle recovery plan handbook was distributed to 500 fishers, supporting conservation efforts.
- A stakeholder consultation on the use of square mesh cod-end in shrimp trawling was held on October 2022, at Rameswaram Island.
- 75 selected master fishermen received 25mm square mesh cod-ends and committed to using them, sharing commercial catch data for further analysis and decision-making.

# EFFORTS FOR MINIMIZING MARINE DEBRIS PARTICULARLY GHOST GEAR THROUGH ENHANCED CIRCULARITY

*"Learning about ghost gear through FFA - MSSRF opened our eyes to its damage to marine life and our livelihoods. Along with my group, we've collected over 1,500 pieces of marine litter across 10.5 hectares and rescued more than seven turtles and a few dolphins trapped in nets. This effort earned me the Kadal Kappan award, inspiring us to continue protecting our ocean." - Kalinjiam*

A pioneering initiative by the M.S. Swaminathan Research Foundation (MSSRF), in collaboration with UNDP-SGP, HCL Foundation, GOMBRT, and Local Fishermen and women has successfully reduced ghost gear pollution in the Gulf of Mannar, Palk Bay and Coramandal Coast. This community-driven project demonstrates the power of collective action in restoring marine ecosystems and building resilient coastal communities.

## KEY ACHIEVEMENTS

- Recovered 33,360 kg of marine litter, including 12,527.5 kg of ghost gear, through 75 cleanup drives in coast, sea and island regions
- Successful rescue and release of 20 turtles and 10 dolphins back into the ocean by dedicated volunteers from the negative effect of ghost gears
- Total 209.8-hectare area covered for the ghost gear recovery
- Active engagement of 2207 volunteers, including fishers and other stakeholders, in clean-up efforts
- Educated 672+507 fishers and 406 school children on ghost gear management and sustainable practices through awareness campaigns.
- Trained 123 fisherwomen in upcycling ghost gear for enhanced circularity, creating sustainable livelihoods.
- The voluntary commitment from 25 fishermen associations, 76 boat owners and 35 youth volunteers, committed who contributed significantly to the programe success.

## EMPOWERING LOCAL COMMUNITIES

This initiative has empowered local communities, particularly youth, active fishers and women, to take ownership of marine conservation. MSSRF has helped build a resilient and environmentally conscious coastal community by fostering a sense of responsibility and stewardship.

These collective efforts have safeguarded marine biodiversity by minimizing marine debris, supported the livelihoods of coastal communities, and promoted a healthier ocean ecosystem.

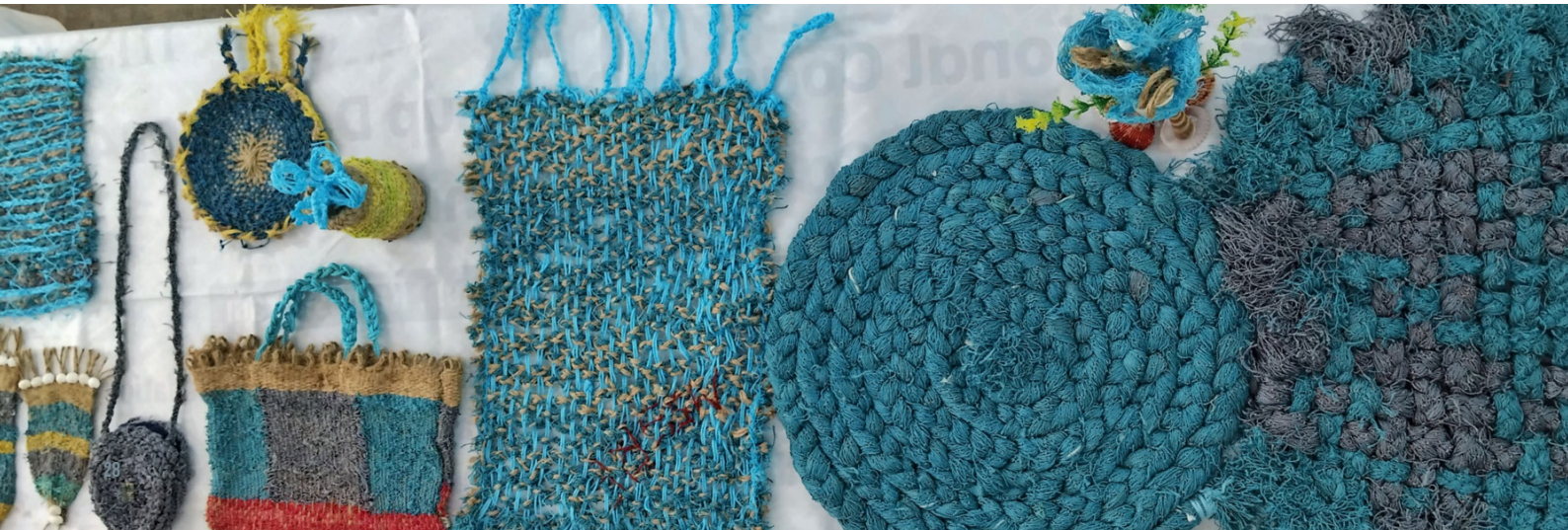
# CO-MANAGEMENT COMMITTEES FOR PARTICIPATORY FISHERY RESOURCE MANAGEMENT

The center promotes participatory management of fishery resources, engaging resource user communities to manage resources sustainably, foster sustainable livelihoods, and reduce disaster risk.

A participatory needs assessment process was conducted to identify issues and challenges in implementing participatory fishery resource management in all selected villages. This informed the development of targeted interventions and solutions.

## RAISING AWARENESS

- Trained 1,553 fisherfolk from 29 fishing villages in Tamil Nadu and Puducherry UT on co-management principles.
- Established and strengthened gender-balanced committees in 20 fishing villages, ensuring community-led decision-making.
- Selected Vanagiri and Madapathukuppam in Mayiladuthurai district, Tamil Nadu, as model villages for executing co-management concepts.
- Provided training to selected committee members on their roles, responsibilities, and committee functioning.
- Initiated co-management plan preparation in selected villages.
- Launched livelihood support programs in model villages, engaging communities in the co-management process.
- These initiatives demonstrate our commitment to promoting participatory fishery management, empowering fishing communities, and fostering sustainable livelihoods.



# TURTLE CONSERVATION AND MANAGEMENT: A COMMUNITY-DRIVEN INITIATIVE

In collaboration with the Forest Department, the Fish for All Centre has been spearheading a turtle conservation effort, engaging the fisher community, Panchayat leaders, youth, college students, and SHG women.

- 11,003 turtle eggs collected and incubated in a Forest Department-established hatchery
- Approximately 4,173 hatchlings released into the sea with community participation

## PROTECTING OLIVE RIDLEY TURTLES AND FISHER LIVELIHOODS

Protecting endangered Olive Ridley Turtles during mass nesting seasons while preserving their livelihoods in Odisha Coast the Fisher Friend Mobile Application (FFMA) has introduced a groundbreaking solution jointly Fisheries Department of Government of Odisha

## "NO FISHING ZONE" ALERT SYSTEM

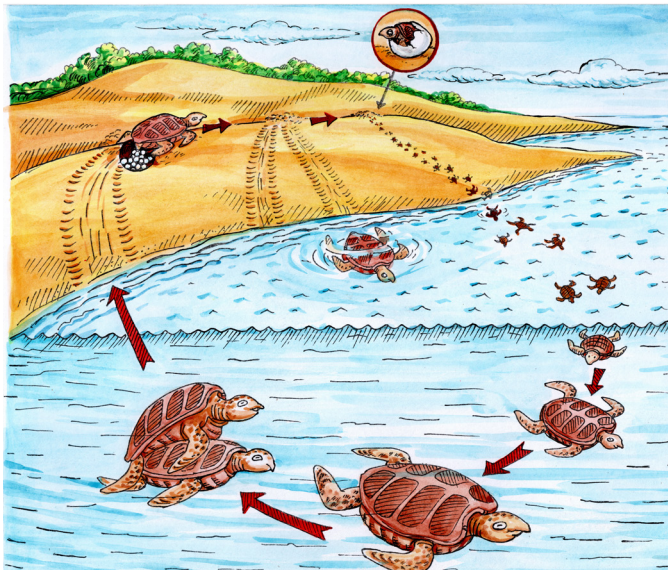
This No fishing zone alerts fishers approaching restricted zones, ensuring they avoid sensitive turtle nesting areas.

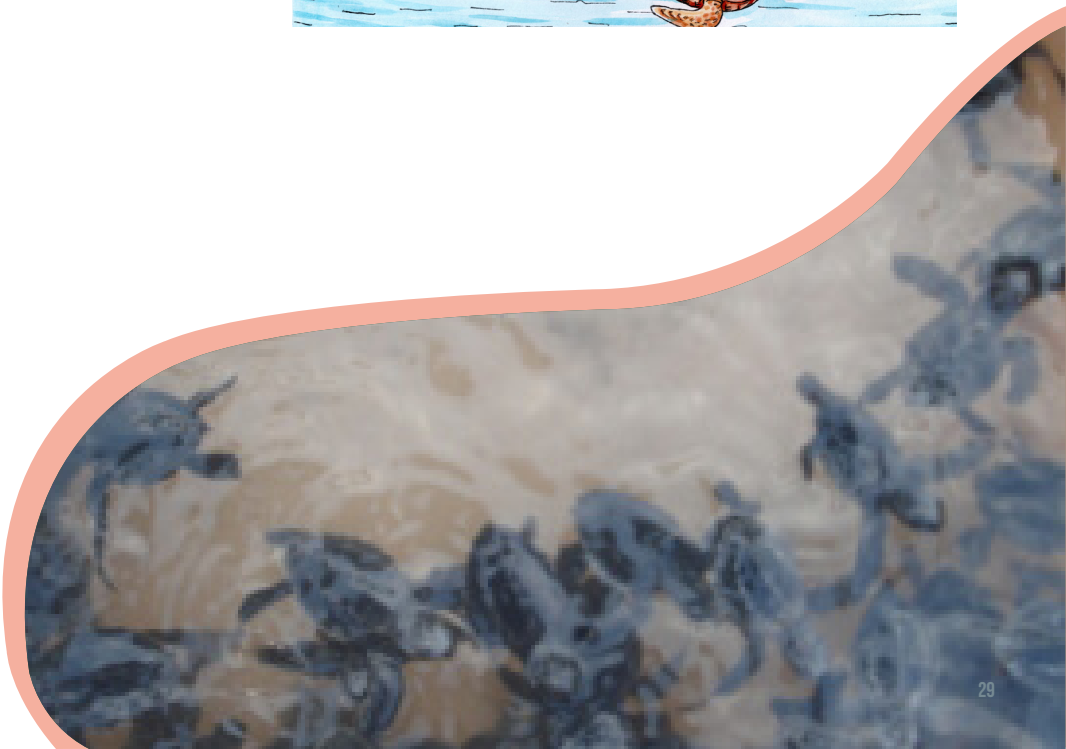
This innovation has:

- Protected Olive Ridley Turtles
- Empowered fishers by reducing penalties and safeguarding livelihoods
- Prevented numerous violations, preserving vital habitats (over 6,811 alerts triggered in nine months)

## SCALABLE SOLUTIONS FOR GLOBAL IMPACT

The integration of technology into traditional fishing practices demonstrates FFMA's adaptability to local challenges while creating scalable solutions for global impact.





# TRANSFORMING LIVES OF FISHERFOLK THROUGH OCEAN STATE AND MARINE FISHERY ADVISORY SERVICES

Since 2005, the M.S. Swaminathan Research Foundation (MSSRF) has partnered with INCOIS, witnessing the transformative impact of INCOIS services on fisherfolk nationwide. The Centre, a partner of INCOIS, manages ocean observation tools like Wave Rider Buoys (WRB) and Automatic Weather Stations in Tamil Nadu and Puducherry. Real-time data from these tools enables INCOIS to generate and communicate ocean state advisories, enhancing forecasting and early warnings.

INCOIS's advisory services, including Potential Fishing Zone (PFZ) forecasts, Ocean State Forecasts (OSF), and disaster alerts, have become invaluable for fishing communities. These services are disseminated through various communication tools, enabling fisherfolk to make informed decisions that enhance their safety and livelihoods.

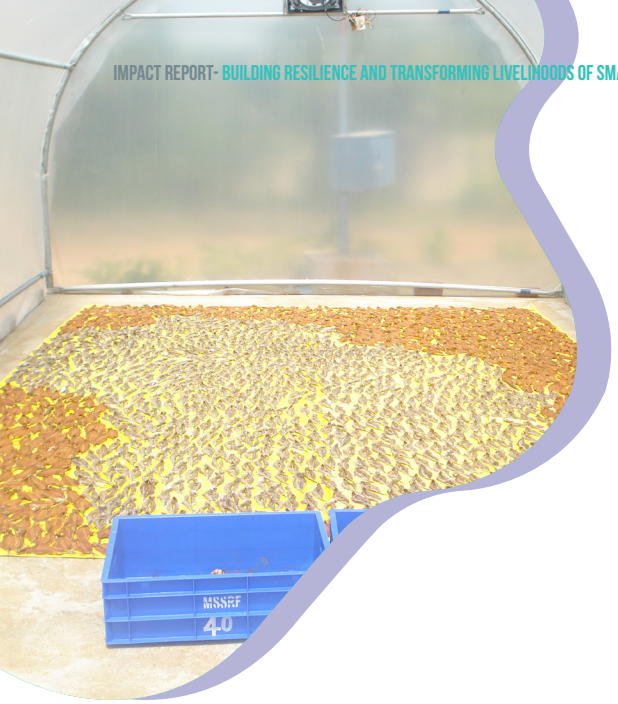
## REACH AND IMPACT

- Over 200,000 fishers receive INCOIS services, making informed decisions to enhance their safety and livelihoods
- A separate database for all users ensures targeted dissemination of information

## LONG-TERM IMPACTS

- Promotion of sustainable fishing practices and community resilience
- Contribution to the preservation of marine ecosystems and socio-economic well-being of fisherfolk

# II
# POST-HARVEST FISHERIES MANAGEMENT AND LIVELIHOOD PROMOTION




# COMMUNITY-BASED FISH PROCESSING FACILITIES

The Fish for All Research and Training Centre has established a state-of-the-art Fish Processing Unit (FPU) that meets HACCP standards, boasting a 5-tonne fish processing capacity. The FPU features cutting-edge infrastructure, including a laboratory, packaging and storage facilities, and a chill room.
To promote high-quality dry fish production, two Tunnel Solar dryers were installed, offering a combined 600 kg production capacity.

Through the facilities at the Fish Processing Centre, women from 10 fishing villages have successfully transformed local fishery resources into high-quality dry fish and value-added products. These efforts have resulted in the processing of over 200 tons of fish, crab, and prawn, demonstrating the scalability and effectiveness of these initiatives. It has directly empowered 4,731 women, who collectively earned ₹52,43,776. This initiative not only boosts household incomes but also strengthens women's economic roles in their communities.

A comprehensive analysis by the Centre highlights the superiority of solar drying in achieving lower moisture content, faster drying rates, and enhanced nutritional quality.

Key findings include 30-40% faster moisture removal rate compared to open sun drying, better dry fish product quality and nutritional parameters, compliance with food regulatory standards, extended shelf life up to 12 months, importance of affordable drying systems during winter and monsoon seasons.

To scale up this initiative, six solar dryers were established at Mudasalodai fishing village in Cuddalore district, in collaboration with NABARD. The installed solar dryers and fish handling equipment were handed over to fisherwomen, who initiated bulk production. A total of 1,385 kg of fish was processed, generating an income of ₹48,640 from the sale of dry fish.

The women's group has obtained an FSSAI registration certificate, and their income from marketing solar-dried products is two to three times higher than traditional drying methods. Furthermore, Fish for All Centre facilitated MoUs with two marketing companies, aiming to create employment opportunities, develop ready-to-cook fish products, and ensure affordable, nutrient-rich fish products for urban consumers.

*"FFA's solar drying initiative completely transformed our dry fish business. Switching from open sun drying to solar dryers improved the quality of our fish, letting us sell at premium prices—anchovy now fetches ₹500/kg instead of ₹250-300. With better packaging and market connections, we've expanded to supermarkets in Cuddalore district and even other districts and states. Longer shelf life and reduced losses mean higher profits, empowering us to thrive in a competitive market." - Sathya, Mudasalodai*


SOLAR FISH DRYER
சூரிய மீன் உலர்த்திகள்
மீன் கொள்ளளவு
500 கிலோ

## NUTRITIONAL PROFILING OF COMMONLY CONSUMED DRY SPECIES

Dry fish is a staple food source for millions of people, particularly in coastal regions. Understanding the seasonality of dry fish production, types of fish commonly dried, and their nutritional profiles is crucial for promoting food security, improving nutritional outcomes, and enhancing the livelihoods of small-scale fishers. The Centre has initiated such studies and profiling the commonly available dry fish species in the region. Profiling of the following commonly consumed dry fish species were selected for nutritional analysis:

- *Sardinella gibbosa* (Golden-strip Sardine)
- *Leiognathus splendens* (Silver Bellies)
- *Kathala axillaris* (Kathala Crocker)
- *Leiognathus insidator* (Pony Fish)
- *Dussumierinaea acuta* (Rainbow Sardine)
- *Rastrelliger kanagurta* (Mackerel)
- *Encrasicholina heteroloba* (Short Head Anchovy)
- *Lepturacanthus savala* (Ribbon Fish)
- *Thryssa malabarica* (Malabar Anchovy)
- *Alepes apercna* (Smallmouth Scads)

The nutritional profiling of commonly consumed dry fish species revealed that they are a nutrient-rich food source, providing essential protein, micronutrients, and energy. Consuming dry fish as part of a balanced diet can contribute to improved nutritional outcomes, particularly for vulnerable populations in coastal regions.

Anchovy (Stolephorous sps.)

Croaker (Kathala axillaris)

Silver belly
(Leiognathus insidator)

- Rainbow Sardines
(Dussumierinae acuta)

Ribbon fish
(Lepturacanthus savala)

Scads
(Alepes apercna)

# STANDARDIZATION OF VALUE-ADDED FISH PRODUCTS FROM SMALL MARINE PELAGIC FISHES

The Fish for All Research and Training Centre has been conducting product development studies to create value-added products from small pelagic fishes, such as anchovies, silverbellies, and prawns. This initiative aims to address distressed sales and reduce post-harvest losses.

Over 15 years, the Centre has developed and demonstrated 59 fish products using fish, prawn, crab, and seaweed materials. Notably, anchovy-based value-added products, such as powder, spice mix, soup sticks, sambal, paste, and peanut snacks, offer a sustainable solution to improve nutritional intake for vulnerable populations.

These products have undergone sensory, quality, and packaging stability studies, ensuring their shelf life and suitability for large-scale production. By integrating these products into daily diets, the study supports food and nutritional security while enhancing the livelihoods of smallholder fishers.

Training programs for women Self-Help Groups (SHGs) in regions like Poompuhar and Vanagiri have equipped fisherwomen with the skills to generate income through value-added product making. This initiative contributes to the economic upliftment of coastal communities.

This research offers practical implications for industry practices, government policies, and consumer health. Key recommendations include improved post-harvest techniques, value addition to strengthen the sustainability and resilience of the fishing sector and enhanced support for smallholder fishers and coastal communities

## LITERACY ON FAO CODE OF PRACTICE ON FISH QUALITY AND SAFETY

The Fish for All Centre, in collaboration with the NETFISH, MPEDA, and Fisher Associations, launched an extensive literacy program on the FAO Code of Practice for fish and fishery products. This initiative targeted fishermen, women, processing workers, auctioneers, and traders involved in fishing, fish handling, storage, processing, and marketing.

The primary objective of this program was to enhance the standards of fish products by educating stakeholders on best practices in fish quality management.

A series of training and demonstration programs were conducted at fish processing units, landing centres and Selected fishing harbors in Nagapattinam, Mayiladuthurai, Cuddalore, Ramanathapuram, and Kanyakumari districts. Over 7,097 women and 5,768 men from 112 villages benefited from this training.

The program led to significant improvements in fish handling and processing practices. Bamboo baskets, previously used for fish handling, were replaced with safer alternatives. Ice handling improved, with fishers adopting the recommended 1:1 ratio of ice for fish processing, resulting in better quality retention. Onboard and personal hygiene practices improved among marine fishermen.

The continuous education and training provided through this program have empowered fishermen and women to adopt safer and more sustainable fishing and processing practices. This initiative has contributed significantly to enhancing the quality and safety of fish products, ultimately benefiting consumers and promoting a more responsible fisheries sector.

# EMPOWERING FISHERWOMEN THROUGH DIGITAL LITERACY AND POST-HARVEST INNOVATIONS

*"Initially, I only had a basic button phone and wasn't familiar with technology. Thanks to FFA -MSSRF's training, I learned to use digital tools like GPay and WhatsApp. Today, my business is not just local—it's national. Digital literacy has truly changed my life." - Anushiya, Mudasalodai*

Fish for All Centre is one of the seven social sector organizations to have bagged the 'WomenConnect Challenge' (WCC) grant from Reliance Foundation and USAID amongst 260 applications received across India

The WomenConnect Challenge programme on "ICT Innovations in Post-Harvest Fisheries for Bridging Gender Digital Divide and Building Socio-Economic Resilience of Fisher Women in Coastal Districts of Tamil Nadu and Puducherry Union Territory" has successfully empowered fisherwomen through digital tools and post-harvest literacy. By leveraging digital tools and post-harvest literacy, the project has enhanced the knowledge, skills, and socio-economic resilience of fisherwomen in the region.

A preliminary study conducted on mobile and internet penetration among 550 fisherwomen aged 18-50 years, engaged in various post-harvest fisheries across 38 fishing villages in Tamil Nadu and Puducherry (UT), reveals significant insights into their digital access and mobile/internet penetration. The findings emphasize the need for efforts to bridge the digital divide, promote digital literacy, and ensure safe internet practices among fisherwomen to connect open markets.

## KEY FINDINGS:

- 82% had access to a feature phone or smartphone, either personally owned or shared within their families.
- 55% used feature phones, while 27% used smartphones.
- Only 29% had internet access through their own or family devices. Alarmingly, 73.28% of women were unaware of the risks associated with internet usage.

To bridge the gaps, the WCC programe has been implemented in six coastal districts of Tamil Nadu and Puducherry using several ICT platforms to minimize the gaps.

## DIGITAL TOOLS

Distributed tablets to 50 Self-Help Groups (SHGs) engaged in post-harvest fisheries, bridging the digital divide and promoting financial inclusion

## DIGITAL LITERACY

Trained 6,000 women across 211 digital literacy sessions, focusing on essential skills in digital marketing, finances, and post-harvest practices.

## A MOBILE APPLICATION

FisherwomenConnect, an exclusive mobile application, has been launched on the Google Play Store, transforming the lives of women in post-harvest fisheries. FisherwomenConnect is more than just an app - it's a powerful tool for empowerment. This innovative app bridges the information gap, fosters a supportive community, and promotes inclusivity and empowerment for women in the sector.

### Key Features:

- Comprehensive learning modules on hygienic fish processing, value addition, fish safety, and best practices
- Real-time weather updates, disaster alerts, and market trends for informed decision-making
- Regular updates on news, government schemes, and fisheries sector initiatives
- Dedicated online store connecting fisherwomen directly with buyers, ensuring fair prices and economic opportunities
- Critical information on minimizing and managing occupational health hazards in post-harvest fisheries

## FISHERWOMEN HELPLINE

A dedicated helpline has been established exclusively for fisherwomen, providing critical support and guidance on post-harvest fisheries and their development. The Fisherwomen Helpline is a powerful tool for empowerment, providing a safe and supportive space for fisherwomen to seek help and guidance on

- Post-harvest activities Expert advice on fish handling, processing, and marketing to enhance livelihoods.
- Guidance on entrepreneurship, financial literacy, and skill development to promote economic empowerment.
- Access to occupational related health tips, and information on nutrition and wellness.
- Support for fisherwomen and their families on educational opportunities, scholarships, and vocational training.

This initiative has profoundly impacted the socio-economic resilience of fisherwomen, empowering them with knowledge, tools, and market access. The project has not only bridged the digital divide but also fostered greater economic independence, skill development, and market access for fisherwomen in the region. As the Fish for All Centre continues to innovate and expand its reach, it remains committed to promoting women's empowerment, digital inclusion, and sustainable livelihoods in the fisheries sector.

# PORTABLE MINI SOLAR FISH DRYER

The Portable Mini Solar Fish Dryer, developed by the MSSRF Fish for All Centre, is a breakthrough innovation designed to address the challenges faced by fisherwomen in traditional fish drying methods. Conventional solar dryers available in the market are often large, expensive, and difficult to manage, requiring significant space for installation and external support for repairs. These factors have made them impractical for small-scale users, especially fisherwomen, despite their potential benefits. In response, the centre has developed a compact and cost-effective model tailored to local needs. This hybrid dryer operates on both solar and electrical power, ensuring uninterrupted functionality even during cloudy days or at night. Its design allows it to be easily installed in backyards, making it portable, manageable, and user-friendly for women, reducing their reliance on external agencies.

The model was officially launched during the 14th-anniversary celebrations of the Fish for All Centre, marking a significant milestone in empowering fisherwomen with innovative technology. Over the past year, the dryer has undergone extensive field trials and testing to evaluate its efficiency and performance under real-world conditions. These trials provided critical feedback from the fisherwomen, which highlighted areas for improvement. Based on this feedback, plans are underway to strengthen the design further and introduce an upgraded version of the dryer to the women this year. This improved version will address the identified challenges, ensuring that it is even more effective, durable, and suited to their needs.

The dryer operates at an average temperature of 53°C and has a capacity to dry up to 20 kg of fish. It ensures faster drying with uniform heat distribution, significantly reducing drying time compared to traditional sun drying. This portable mini solar fish dryer represents a practical and sustainable solution for small-scale fish drying, combining technology and local expertise to uplift the lives of fisherwomen and their communities. With the upcoming upgraded version, this innovation is set to make an even greater impact in supporting fisherwomen and promoting hygienic, efficient fish drying practices.

# PROMOTE COMMUNITY COLLECTIVES FOR SUSTAINABILITY AND SCALABILITY OF POST HARVEST INITIATIVES

The Fish for All Centure nurtured and groomed Vetri Paavai Fisherwomen Producer Company Limited (VPFWPCL), with 160 shareholders and an initial share capital of ₹1,60,000, has become a leading example of women-led collective action in the post-harvest fisheries sector. The company specializes in the production and sale of hygienic dry fish using solar driers, along with an extensive range of value-added and ready-to-eat fish products. Since its inception, VPFWPCL has demonstrated remarkable success, producing 500.9 kg of dry fish annually and achieving total sales of ₹1,69,000. The company's products are marketed under the "Samudra" brand, which emphasizes quality, hygiene, and sustainability. These products are distributed across local markets, exhibitions, and collaborations with government-supported initiatives. VPFWPCL's achievements were prominently showcased at the Puducherry Tarang Exhibition, where the company's vibrant stall attracted significant attention, resulting in sales of ₹16,050 and earning the prestigious first prize for its high-quality offerings. This success laid the foundation for VPFWPCL's selection to participate in the World Food India 2024 event in New Delhi, reflecting its growing reputation and market presence.

The company has adopted innovative strategies to scale its operations, including obtaining GST registration to formalize its business processes and securing FSSAI certification to ensure adherence to food safety standards. Additionally, VPFWPCL has leveraged local exhibitions, digital platforms, and partnerships with organizations to enhance its visibility and connect directly with consumers. This journey highlights the transformative potential of collective entrepreneurship, empowering fisherwomen, enhancing livelihoods, and setting a benchmark for sustainable and inclusive growth in the fisheries sector.

*"With FFA - MSSRF's support, we transformed dry fish into a premium product through solar drying and value addition, securing FSSAI certification and GST compliance. Today, our products are shipped by air to distant markets, showcasing unmatched quality. As Chairman of the first women-led FFPO, I now train others, empowering more women in fisheries." - Sharmila ,Vanagiri*


MSSRF
SEED Division, DST, Govt. of India
3 – Day Training Programme on
Fish Processing and Value Additio
Jointly Organized by


MSSRF
Consultative Workshop on Commemorating

# III

# CULTURE FISHERIES AND RESOURCE ENHANCEMENT

## PROMOTING INTEGRATED FISH FARMING SYSTEMS (IFFS)

The Fish for All Centre has promoted a farmer-centric Integrated Fish Farming System (IFFS) model in Mayiladuthurai and Nagapattinam districts as part of agronomic rehabilitation efforts in tsunami-affected areas since its inception. IFFS is a low-input fish farming method that optimizes on-farm resources while minimizing external inputs.

This holistic approach integrates diverse components such as poultry, vegetables, Azolla, vermiculture, apiculture, dairy, goat farming, and tree, fruit, and fodder crops around fishponds. The primary focus is on endorsing IFS and utilizing existing resources efficiently, ensuring year-round income for farmers through multiple sub-components.

A 15-year study involving 250 fish farmers from 64 villages demonstrated significant productivity gains. The system integrating fish, poultry, fodder crops, horticultural crops, and Azolla recorded the highest productivity, with total yields of Rs. 110,369/ha. Daily productivity per hectare was notably higher in the IFFS model (42.6 kg/ha/day) compared to traditional farming systems (18.2 kg/ha/day).

The IFFS model also demonstrated higher gross and net incomes, with Rs. 110,369/ha and Rs. 77,658/ha, respectively. One farmer achieved a remarkable yield of 2,375 kg of fish per hectare over a 10-month period.

The Centre facilitated quality carp fish seeds, training, and capacity-building initiatives for fish farmers, as well as technical support and linkages for Coastal Aquaculture Authority clearances.

The development and promotion of IFFS demonstrate that sustainable farming practices can be achieved through optimal use of natural resources. It reduces risks of fish farmers in cyclone prone regions like Mayiladuthurai and Nagapattinam through diversification, enhances farmer incomes, and reduces production costs by maximizing output per unit of land. By efficiently recycling resources, IFFS provides year-round employment opportunities for farmers, improving their socio-economic status.

# INTEGRATED MANGROVE FISHERY FARMING SYSTEM

Rising sea levels pose a significant threat to India's coastal communities, with approximately 5,700 square kilometers of land and nearly 7 million families at risk of inundation. The fragility of these communities is exacerbated by poverty, lack of social services, and degraded ecosystems.

However, the projected increase in sea level rise also presents an opportunity to enhance fish production through aquaculture. The Coastal Zone Management Subgroup of the Intergovernmental Panel on Climate Change predicts that people will adapt to these changes by modifying land-use patterns, including converting saline-affected agricultural lands into aquaculture farms.

In this context, integrated mangrove fishery farming offers a sustainable solution. MSSRF is a pioneer who demonstrates and promotes this approach. This approach combines mangrove cultivation and fish farming in saline lands, utilizing tidal water for natural aeration and fresh plankton supply. By eliminating the need for artificial feed or energy, this method reduces input costs and environmental pollution.

The programe implemented by the Fish for All Centre in partnership with NABARD in Cuddalore district has demonstrated remarkable success. The project has planted 5,308 mangrove saplings across three ponds, providing a natural bio-shield against storms and erosion, as well as nutrients for aquatic life.

It has generated significant economic benefits, with a total harvest of 457 kg of fish and crabs, earning a total income of Rs. 3,87,705. This has directly benefited 35 individual fishers, enhancing their resilience to climate change while promoting sustainable aquaculture and environmental restoration.

Overall, the integrated mangrove fishery farming system offers a sustainable approach to aquaculture, environmental restoration, and climate resilience, with tangible economic and social benefits for local communities.

*"Before the project, I struggled with lack of confidence and financial dependence. But through skill training in aquaculture and group activities, I became the leader of our Self-Help Group. Now, I'm financially independent and, along with my group, we've raised 1050 mangroves. This journey has given us confidence, leadership, and a commitment to sustainability." - Uthra*


# AQUACULTURE BASED LIVELIHOOD SUPPORT PROGRAMS

## 1. PORTABLE FISH HATCHERY:

Portable hatchery established at FRTC with the grant support from ICAR- National Bureau of Fish Genetic Resources (ICAR-NBFGR) in the year 2021initially faced issues on availability of healthy male and female brooders from natural waters and increased fungal and bacterial outbreaks. In the subsequent cycle these issues were addressed by collecting enough indigenous, healthy and matured brooders from natural waters and stocking it in the Fish for All farm ponds, regular feeding of brooders with 28% protein pellet feed and the water circulation set up has been replaced to ensure controlled continuous water supply throughout breeding process.

A successful trial of induced breeding of common carp was conducted at the Portable Carp Hatchery, yielding a substantial number of healthy fingerlings. These fingerlings are currently being maintained in nursery tanks for future distribution to farmers, paving the way for successful carp breeding in the upcoming seasons.

## 2. CRAB FATTENING THROUGH FAMILY FARMING

The Fish for All Research and Training Centre has played a significant role in promoting sustainable crab fattening practices particularly among tribal fishers in and around Pichavaram Mangrove Forest region.

In collaboration with ICAR-NBFGR in Lucknow, FRTC established a crab fattening unit at Mudasalodai and Kalaingnar villages in Cuddalore district as a family farming activity. The Centre provides training and capacity-building programs for fishers on crab fattening techniques, water quality management, and disease control.

Despite initial challenges like mortalities and disease outbreaks, SHGs overcame them through training and culture techniques to improve the efficiency and sustainability of crab fattening practices.

The Centre established demonstration ponds for Integrated Mangrove Fishery Farming and piloted crab fattening projects to showcase best practices and encourage adoption among local communities. These initiatives demonstrated the potential of sustainable aquaculture practices. As a result, a total of 276 kg of fattened crabs were harvested and sold, generating an income of ₹1,51,450, thereby providing a valuable livelihood opportunity and promoting financial independence for the participating communities.

## 3. SEABASS NURSERY MANAGEMENT

In collaboration with ICAR-CIBA, the Fish for All Centre established a seabass nursery unit in Mathampattinam Village to promote sustainable brackishwater aquaculture as a viable livelihood opportunity for the local people. The facility features a crab net enclosure with 22 strategically placed hapas, ensuring optimal water circulation and efficient seed rearing. The initiative has achieved significant milestones. In the first batch, 7,000 seabass seeds were stocked, attaining a 34.31% survival rate and generating ₹55,000 in income. The second batch saw an improved survival rate of 52.8% with 10,000 seeds, earning ₹2,16,000. A total of 44 families, including 20 women, are actively involved in the seabass nursery operations. Their involvement has significantly reduced reliance on external funds, fostering self-sufficiency and financial independence. The seabass nursery unit exemplifies a holistic approach to livelihood support by combining aquaculture innovation, women's empowerment, and financial sustainability, creating a replicable model for coastal community development.

# PROMOTION OF FISH FARMER PRODUCER COMPANIES FOR COLLECTIVE ACTION AND SUSTAINABILITY IN SMALL SCALE AQUACULTURE

The Fish for All Research and Training Centre of the M.S. Swaminathan Research Foundation (MSSRF) has been designated as a Cluster-Based Business Organization (CBBO) for forming and promoting Fish Farmer Producer Organizations (FFPOs) under the Central Sector Scheme of the Ministry of Fisheries, Government of India. MSSRF commenced its interventions in Mayiladuthurai and Nagapattinam districts of Tamil Nadu, Puducherry, and Karnataka in line with the sanction issued by the National Fisheries Development Board (NFDB) on November 1, 2022. The Centre has successfully formed and is promoting the following FFPOs:

1. Bharathidasan Freshwater Fish Farmers Producers Company Limited
2. Mayiladuthurai Kaveri Fish Farmers Producers Company Limited
3. Kanara Cage Fish Farmer Producer Company Limited (registered in December 2024)

## MAYILADUTHURAIKAVERI FISH FARMERS PRODUCERS COMPANY LIMITED (MKFFPCL)

MKFFPCL has made notable strides with 150 shareholders and successfully raised ₹1,50,000 in share capital. The company specializes in live fresh fish sales, quality fingerling production, and fish feed sales. MKFFPCL has formed key partnerships, including with Naveena Aqua Feed, to enhance its market presence and diversify its product offerings. Through these collaborations and strategic business planning, MKFFPCL aims to boost revenue by focusing on live fish, fingerling, and fish feed marketing. In April 2024, the company successfully procured fish, sold it at a profitable margin, and strengthened its market position, ensuring the delivery of high-quality products and maintaining customer satisfaction

## BHARATHIDASAN FRESHWATER FISH FARMERS PRODUCERS COMPANY LIMITED (BFFFPCL)

BFFFPCL has emerged as a successful Farmer Producer Company (FPC) with 152 shareholders, focused on enhancing the livelihoods of freshwater fish farmers in Puducherry. The company has made significant strides in promoting sustainable aquaculture, successfully raising ₹3,04,000 in share capital, and securing a partnership with ICAR-Central Institute of Fisheries Technology (CIFT) to implement innovative technologies. BFFFPCL's product portfolio includes fresh fish and value-added products such as dried fish, which are marketed through a monthly sales agreement with UzhayarSanathai Shop. The company also aims to introduce sustainable practices by producing fish feed, plant growth enhancers, and self-digesting manure from fish waste. Their success extends beyond products, as they continue to offer training and field demonstrations to improve farming practices, contributing to the growth and development of the local aquaculture sector.

## KANARA CAGE FISH FARMER PRODUCER COMPANY LIMITED (KCFFPCL)

Kanara Cage Fish Farmers Producer Company Limited (KCFFPCL), registered in December 2024, is a newly established Farmer Producer Organization (FFPO) based in Kumta, Karnataka. With 100 shareholders and a share capital of ₹100,000, the company is focused on promoting sustainable and efficient cage fish farming practices. KCFFPCL's business plan revolves around cage fish farming, live fish sales, quality fingerling production, and stocking. The organization is dedicated to delivering high-quality fish products to the local market and is laying a strong foundation for future growth and expansion within the aquaculture sector, aiming to improve both the livelihoods of its members and the overall sustainability of the industry

# TRAINING AND CAPACITY BUILDING

## FISH FOR ALL TRAINING CENTRE

Over the past 15 years, the Fish for All Research and Training Centre has been a transformative force for coastal communities, offering a wide range of programs that emphasize sustainable fisheries, aquaculture practices, and livelihood enhancement. Through 1,146 training initiatives, including workshops, internships, and awareness campaigns, the center has directly reached 110,902 individuals, leaving a lasting impact on their lives.

One notable success was the collaboration with INCOIS, NETFISH, NABARD which led to a comprehensive capacity-building campaign that trained 67,114 fishers across 504 villages in seven districts. Additionally, the center has taken its commitment a step further by registering as a Private Training Partner under the Pradhan Mantri Formalization of Micro Food Processing Enterprises (PMFME) scheme, supporting micro-entrepreneurs in the fishery sector.

### (I) CAPTURE FISHERIES

Under capture fisheries, the center conducted extensive training programs to enhance the skills and knowledge of fisherfolk in sustainable fishing practices, marine biodiversity conservation, and fish quality management. These programs, spanning multiple districts, focused on critical topics such as co-management, square mesh fishing techniques, sea safety, ghost gear management, diesel engine troubleshooting, and the use of bycatch reduction devices like Turtle Exclusion Devices (TEDs). Through 731 events, a total of 75,242 participants benefited from these initiatives.

*"Using the square mesh nets has been a game-changer. They protect young fish, keep the ecosystem healthy, and make our work easier by reducing sorting time. Plus, with less fuel needed, fishing has become more affordable and environmentally friendly for us" - N.J. Bose from Rameswaram*

Training on ghost gear management emerged as a remarkable achievement. Fishermen, once unaware of the environmental hazards posed by abandoned fishing gear, now actively collect ghost gear during their trips. This proactive effort has significantly reduced ghost gear presence in marine ecosystems and increased awareness of its harmful effects on marine species like turtles, dolphins, and fish.

Simultaneously, fisherwomen were trained to recycle ghost gear into marketable products, providing them with sustainable livelihood opportunities. MSSRF's active support in marketing these products has ensured steady incomes while contributing to marine conservation. Hands-on training on diesel engine troubleshooting further empowered fishers by enhancing their technical skills, ensuring greater operational reliability, and reducing costs. These integrated efforts have made capture fisheries both economically and environmentally sustainable. Equally noteworthy was the promotion of bycatch reduction devices, including TEDs. Fishers received specialized training in using these devices, which not only prevent accidental turtle captures but also improve fishing efficiency.

*"Since using the Turtle Exclusion Device (TED), I've seen a big difference. It lets turtles escape without affecting our catch, especially during shrimp fishing. Now knowingly I'm protecting turtles while doing my work gives me great satisfaction." - Sudarsan, Mandapam*

### (II) POST-HARVEST FISHERIES

In the area of post-harvest fisheries, the center has implemented a series of training programs aimed at empowering fisherfolk, particularly women, in fish processing. These initiatives focused on building skills in fish processing, preservation, value addition, quality management, and entrepreneurship, with a strong emphasis on improving hygiene and promoting sustainable practices. A total of 287 programs were conducted, benefiting 27,315 participants.

Significant progress was made in improving FAO code of practice on fish safety measures, fish handling methods, such as the adoption of plastic baskets and better ice-handling ratios. Training programs encouraged the use of

safer, quality-retaining techniques in fish processing and preservation, alongside promoting onboard and personal hygiene among fishers. These efforts have not only enhanced the quality of fish products but also increased their market value, thereby improving incomes.

A special focus was placed on empowering fisherwomen, equipping them with skills in value addition, digital literacy, financial literacy, and marketing. Under NABARD's Livelihood Development and Enhancement Program (LEDP) and Online courses, 270 women from 32 Self-Help Groups (SHGs) underwent an intensive 15-days training on fish processing and post-harvest technology. This training helped them refine existing techniques, explore new product development, and create sustainable livelihood opportunities. These programs not only improved their fish production techniques but also incorporated lessons on value-added products, marketing, and financial management, giving them a holistic foundation for entrepreneurial success.

The trained groups adopting the skills and knowledge on their day-to-day fishing activities. For example, the Nakshatra group in Vanagiri, generating Rs. 2,48,268 from 1,054 kilograms of dry fish and Rs. 35,784 from value-added products. By creating an online presence through WhatsApp, the group reached a wider market, boosting both their income and entrepreneurial skills.

*"The training programmes offered by the center transformed not just my business but my outlook on life. Today, I proudly call myself a modern entrepreneur. I am grateful for the opportunities that helped me achieve for who I am now today."*
*- Valarmathi, Cuddalore*

## (III) CULTURE FISHERIES

The center has also made remarkable strides in the field of culture fisheries, offering training programs that introduced participants to sustainable aquaculture practices and integrated approaches to fisheries. These programs addressed critical challenges such as disease management, biosecurity, and sustainable culture methods, while also promoting innovative techniques like mangrove crab fattening, seabass cage farming, and integrated fish farming with dairy and poultry.

Through 46 events, over 2,700 participants have been trained, gaining the knowledge and skills needed to diversify their livelihoods. These initiatives have not only improved the economic resilience of coastal communities but have also fostered a deeper understanding of sustainable aquaculture practices.

## (IV) TRAINING ON SPECIAL PROGRAMS

Specialized programs conducted by the center have addressed pressing issues such as health, nutrition, and pandemic resilience, reaching a total of 4,900 participants. These programs also included targeted training for FFPO leaders and CEOs, enhancing their operational and financial planning skills to strengthen farmer cooperatives. The center's efforts during the COVID-19 pandemic were particularly impactful, with awareness programs reaching over 3,000 participants.

Teachers were also engaged in advanced technological awareness programs to improve education delivery, ensuring that the benefits of the center's initiatives extend beyond fisheries to other aspects of community development.

## CERTIFICATE COURSES FOR STUDENTS AND RESEARCHERS

The Fish for All Research and Training Centre has taken significant strides in building capacity through its collaboration with local colleges. This initiative has provided a combination of field visits, workshops, and hands-on training, benefiting 892 students and 32 faculty members.

Additionally, 220 community members have benefited from community college certificate courses, further expanding the reach of this impactful program. In total, 1,144 individuals have gained valuable knowledge and skills, with growing interest from colleges in other districts looking to participate in these courses.

| | |
|---|---|
| 892 STUDENTS | 32 FACULTY |
| 220 COMMUNITY MEMBERS | |
| 1,144 INDIVIDUALS | |

## INSPIRING YOUNG MINDS IN COASTAL REGION THROUGH THE "EVERY CHILD A SCIENTIST" PROGRAM

| | |
|---|---|
| 636 STUDENTS | 18 BATCHES |

The "Every Child a Scientist" (ECAS) program, inaugurated by Thiru Siva V Meyyanathan, Minister for Environment and Climate Change, during the 33rd MSSRF Annual Day in August 2022, has been transforming young minds in coastal schools in and around our Centre. With 18 batches completed, the program has engaged 636 students (315 male and 321 female), offering hands-on science education that fosters curiosity, creativity, and a passion for learning. This initiative equips students with valuable scientific knowledge, practical skills, and a deeper appreciation for science, fostering a lasting impact on their academic and personal development.

Students have expressed their excitement and growth through their experiences. Nithyasri, a student from Panchayat Union Middle School, Poompuhar, shared, *"After attending the ECAS classes, I started preparing compost using vegetable waste from my kitchen. I've also learned about the scientific names of fish, their nutritional value, fishing methods, value-added products, and how to dry fish hygienically using solar dryers. I now share this knowledge with my parents."*

Similarly, Manish Devan from Government High School, Kaveripoompattinam, reflected, *"During our school prayer, I confidently shared the names of elements from the periodic table, which I learned in the ECAS class. Science practical's are now much easier for me to understand. Earlier, I used to memorize topics, but now I grasp the concepts clearly."*

The program's impact extends beyond the classroom, as teachers and parents have observed a visible transformation in students' attitudes and capabilities. Teachers have noted increased enthusiasm for science and research, with students proactively creating scientific models and encouraging their peers to participate in similar initiatives. Parents have also reported a renewed interest in studies, with students integrating their learnings into daily life and even contributing to traditional knowledge at home. For example, a student's mother shared how her daughter's participation in ECAS not only improved her academic performance but also helped

the family through her insights into fisheries and resource management.

To further enhance learning, expert video conference sessions were organized, featuring scientists from esteemed institutions such as the Central Marine Fisheries Research Institute (CMFRI), Krishi Vigyan Kendra (KVK), and the Central Institute of Brackishwater Aquaculture (CIBA). These sessions exposed students to advanced scientific concepts and inspired them to explore the practical applications of science.

The ECAS program is successfully inspiring a generation of young scientists, empowering them to think critically, solve problems, and contribute meaningfully to their families and communities. It stands as a testament to the transformative power of hands-on education in shaping the future.

## ICT-BASED VILLAGE RESOURCE CENTRE AND VILLAGE KNOWLEDGE CENTRES

**192 VILLAGES CONNECTED VIRTUALLY**

**1.1 LAKH USERS VIA 24/7 HELPLINE**

**50,000 HELPDESK CALLS**

The ICT-based Village Resource Centres (VRC) and Village Knowledge Centres (VKC) have made a profound impact on the coastal communities of Tamil Nadu, Puducherry, and Andhra Pradesh. With 192 villages now connected virtually to the Fish for All Centre, these centres serve as critical hubs for information on fisheries, education, health, and aquaculture. Through the 24/7 helpline, over 1.1 lakh users have accessed vital services, including real-time ocean state forecasts (windspeed, wave height, currents), potential fishing zones, cyclone warnings, and high wave alerts, all of which significantly improve safety and decision-making for fishermen. Additionally, fishers have received valuable guidance on government schemes, marine biodiversity conservation, and the latest fishing technologies like GPS and the Fisher Friend Mobile Application (FFMA). With 50,000 helpdesk calls made, the VRCs and VKCs have become indispensable, not only enhancing livelihoods but also empowering the fishing community with knowledge that supports sustainable practices, financial inclusion, and better access to resources. These initiatives have transformed the way fishers interact with their environment, enabling smarter, safer, and more sustainable fishing practices.



M.S.SWAMINATHAN RESEARCH FOUNDATION
FISH FOR ALL RESEARCH AND TRAINING CENTRE
TSUNAMI NAGAR, POOMPUHAR
NFDB - CSBO - MSSRF


பயிற்சி மையம்
TRAINING CENTRE


NCCR
Clean Seas Campaign
TCC - 2019
3

# SPECIAL PROGRAMES

# THE IRULAR TRIBAL COMMUNITY: BREAKING BARRIERS AND BUILDING RESILIENCE

The M.S. Swaminathan Research Foundation (MSSRF) recognized the Irular community's innate connection with the mangrove ecosystem and engaged them in a pioneering mangrove management program in the Pichavaram region. By leveraging their traditional skills, MSSRF successfully involved the Irular fishers in mangrove regeneration and management efforts. This innovative approach not only helped restore the mangrove ecosystem but also generated sustainable income opportunities for the Irular community through backwater fishing, thereby enhancing their livelihood security and well-being. Unlike traditional fishers, the Irular tribes of Killai and Pichavaram are uniquely dependent on mangrove resources for their livelihood, engaging in practices such as shrimp groping, hand fishing, and mussel collection.

Irular women are renowned for their expertise in hand-catching prawns and small fish, spending long hours in the neck-deep waters of the Vellar estuary and Pichavaram mangroves. However, these fishing activities come with significant health risks, particularly for women. Common hazards include catfish stings, body pain, and exposure to treacherous weather conditions. Women engaged in shrimp groping face additional health issues, such as oyster lesions, snake bites, and skin rashes.

Addressing these challenges, the M.S. Swaminathan Research Foundation (MSSRF) launched a comprehensive program benefiting over 1,000 Irular tribal families in Cuddalore District. This initiative focuses on education, healthcare, and livelihood promotion through sustainable interventions.

## KEY PROGRAM COMPONENTS

**VILLAGE KNOWLEDGE CENTRES (VKC):** Established at Kalaignar nagar and MGR Nagar, VKCs provide essential services focused on education, environmental awareness, and employment opportunities.

**EDUCATION LEARNING CENTRE:** MSSRF's tuition centers support the educational development of 107 students from five Irular villages, fostering academic growth and empowerment.

**MINIMIZING OCCUPATIONAL HAZARDS:** A specialized intervention package targets 250 women fishers, providing safety tool kits, including specialized gumboots, goggles, and supportive materials, to protect them from injuries and health risks.

**HEALTHCARE SUPPORT:** Regular medical camps address the health needs of the community and raise awareness about common risks associated with their livelihoods.

Through these initiatives, MSSRF is working to empower the Irular tribal community, improve their livelihoods, and enhance their resilience in the face of environmental and health challenges.

# COVID-19 RESPONSE AND RECOVERY INITIATIVES

The COVID-19 pandemic severely impacted India's fisheries sector, affecting fish production, supply chains, and access to fish-based foods. The Fish for All Research and Training Centre responded swiftly to support vulnerable fishing communities.

Immediate Response Measures Fish for All Centre took the following initiatives:

- Disseminated critical information to fishers through Fisher Friend Mobile App, WhatsApp, and phone-in programs.
- Facilitated fish farmers in harvesting and selling their produce while maintaining social distancing.
- Documented issues faced by fishers and updated district administrations for necessary support.

- Conducted online awareness programs, displayed awareness materials in coastal villages, and provided 24/7 helpline support.

**COVID-19 RELIEF PROGRAM:** FRTC launched a COVID-19 relief program in Tamil Nadu's Ramanathapuram, Pudukottai, and Mayiladuthurai districts, benefiting 15,000 families. The program comprised two key packages:

- Health Package: Bio-fortified food for 5,000 households, focusing on women, children, and elderly fishers, along with 55,000 masks and 1,000 liters of hand sanitizers.
- Livelihood Package: 50-liter ice boxes for 500 women fish vendors and small craft fishers to ensure hygienic fish transportation.

These initiatives demonstrate our commitment to supporting vulnerable fishing communities during the pandemic and promoting their overall well-being.

## FORTIFIED SALT TO COASTAL COMMUNITIES FOR ADDRESSING HIDDEN HUNGER

Micronutrient deficiency is a pressing public health concern, particularly among fisherfolk in coastal regions. Despite 76% of India's population consuming iodized salt, there's still potential to combat deficiencies by fortifying salt with iron and other micronutrients. Over the past five years, the Fish for All Research and Training Centre (FRTC) has collaborated with Sundaram Chemicals to raise awareness and distribute fortified salt to coastal communities. Our awareness programs have reached over 3,000 fishers in Nagapattinam and Mayiladuthurai coastal districts, emphasizing the importance of a balanced diet and consuming iodized salt.

To address hidden hunger, we distributed 16.3 tons of fortified salt to 2,320 families across both regions. This initiative demonstrates our commitment to improving the health and well-being of coastal communities.

## STUDENT INTERNSHIP AND EXPOSURE VISITS

The FRTC has been a hub for experiential learning, hosting over 1831 students and research scholars from renowned institutions across Tamil Nadu, Puducherry UT, Karnataka, and West Bengal. These students visited the FRTC for internships, exposure visits, field visits, and short-term courses, gaining invaluable hands-on experience. During their stay, ranging from one day to three months, students were immersed in various field-focused interventions. They witnessed firsthand how scientific principles are demystified and customized to benefit coastal communities.

This unique opportunity allowed students to:

- Gain practical knowledge on sustainable fisheries management, coastal conservation, and community development
- Interact with local fishing communities, understanding their challenges and innovative solutions
- Participate in fieldwork, data collection, and research activities
- Develop skills in critical thinking, problem-solving, and teamwork
- Foster a deeper appreciation for the interconnectedness of science, society, and the environment

The FRTC's experiential learning program has not only enhanced students' academic knowledge but also inspired them to become responsible stewards of the environment and champions of sustainable development. By bridging the gap between theory and practice, the FRTC has empowered the next generation of leaders to create positive change in coastal communities.


# EMPOWERING LOCAL LEADERS: GROOMING COMMUNITY MEMBERS AS EXPERTS

The Fish for All Centre has a pioneering initiative to identify, train, and empower local youth, women, and men fishers to become leaders and champions in their communities. This program aims to foster a culture of sustainability and resilience in coastal ecosystems, promoting a brighter future for generations to come.

### NVA FELLOWS: BRIDGING TRADITION AND INNOVATION

Our 28 NVA Fellows serve as vital links between the Centre and the community, seamlessly blending traditional knowledge with modern methods. These fellows strengthen activities related to:

- Promoting sustainable fishing practices and conserving marine resources.
- Enhancing coastal ecosystems and protecting biodiversity.
- Improving the socio-economic well-being of fishing communities.

### FFMA AMBASSADORS: CHAMPIONS OF DIGITAL EMPOWERMENT

Our 144 Ambassadors are passionate advocates for the Fisher Friend Mobile Application. They educate fishers on the app's benefits, including:

- Enhancing emergency response and disaster preparedness.
- Optimizing fishing practices and reducing waste.
- Improving market linkages and increasing income.

The ambassadors' dedication has significantly increased app adoption, transforming the livelihoods of fishing communities across multiple regions.

### MASTER TRAINERS: COMMUNITY EDUCATORS

Our 114 Master Trainers serve as community educators, disseminating essential ocean-based knowledge. They train fishers in:

- Promoting eco-friendly methods and reducing bycatch.
- Enhancing adaptability to changing marine and coastal environments.
- Protecting marine biodiversity and ecosystems.

### KADAL KAPPALAN (SEA GUARDIANS): MARINE ECOSYSTEM RESTORATION

Our 145 Ghost Gear removal Volunteers are dedicated to restoring marine ecosystems. Equipped with training and tools, they:

- Retrieve abandoned fishing gear (ghost nets) from the Gulf of Mannar.
- Prevent marine biodiversity loss and promote cleaner oceans.

### COLLECTIVE IMPACT

The collective efforts of our NVA Fellows, FFMA Ambassadors, Master Trainers, and Sea guardians demonstrate the Centre's commitment to developing a cadre of community-driven experts. These local leaders are instrumental in:

- Promoting sustainable practices and improving coastal livelihoods.
- Safeguarding marine ecosystems and biodiversity.
- Enhancing disaster preparedness and climate resilience.

## PEDAL PUMPS TO MARGINAL FARMERS

To enhance sustainable farming practices, the centre has fabricated and distributed high-efficiency, low-cost, fuel-saving concrete pedal pumps to 200 small and marginal farmers engaged in agriculture. These pedal pumps are manually operated water-lifting devices powered by pedaling, offering an affordable and environmentally friendly alternative for irrigation and water management.

The pedal pumps are especially beneficial in tsunami-affected coastal areas, where they help mitigate the risk of increased saline water intrusion from mechanical bore wells. By reducing salt intrusion, these pumps support sustainable farming practices and enhance water management in vulnerable regions. They also provide an efficient means of irrigation, crucial for farmers in areas where access to electricity is limited or unreliable.

The adoption of pedal pumps has helped marginal farmers by eliminating fuel costs and reducing dependency on electricity. With these pumps, farmers can effectively irrigate their fields, boosting productivity while lowering operational expenses. This initiative contributes to the long-term sustainability of farming practices and improves the livelihoods of small-scale farmers in coastal communities.

## FISHING AIDS TO MINIMIZE THE RISKS AND MAXIMIZE THE LIVELIHOOD EFFICIENCY

The centre implementing several direct livelihood support programe for the fishers. The innovative and customized tools distributed for the centre help the fishing communities to cope with their livelihood emergencies.

**NAVIGATIONAL AIDS:** 300 GPS devices to small-scale fishers, with the community contributing 50% of the cost. These devices assist fishers in efficiently locating fishing grounds, tracking routes, and storing traditional fishing spots for future reference, improving fishing precision and reducing time spent at sea.

**MOBILE HANDSETS AND TABLETS:** More than 1000 Android mobile handsets and 250 tablets were provided to fishermen and women for timely access and easy communication of ocean-related information and knowledge.

**ROLLING TROLLEYS:** To improve mobility for fisherwomen, specially modified rolling trolleys were introduced to five fisherwomen's groups in Mudasalodai village of Cuddalore district. The trolleys reduce physical strain, lower injury risks, minimize post-harvest losses, enhance productivity, improve fish quality while promoting health and economic empowerment.

**SEA SAFETY TOOL KITS:** A total of 184 fishers received lifebuoys, solar lights, and sea-safety toolkits from the centre

**HYGIENIC FISH STORAGE:** 750 women across Tamil Nadu received iceboxes for storing fish in a hygienic manner, improving fish quality and reducing post-harvest losses.

**PUBLIC ADDRESS SYSTEM:** The centre established wired and wireless public address systems in over 15 villages to disseminate timely information.

**FARM IMPLEMENTS:** Farm implements fish feed and cast nets, and 50 sets of farm inputs to enhance productivity and livelihoods.

These initiatives demonstrate our commitment to supporting fishing communities by providing innovative solutions, improving livelihood efficiency, and promoting safety at sea.

# LEVERAGING GOVERNMENT SCHEMES THROUGH PARTNERSHIP

The Centre has been instrumental in establishing effective partnerships with key institutions such as ICAR-NBFGR, Fisheries Department, Agriculture department, NETFISH-MPEDA, Indian Overseas Bank TAFCOFED and others enabling fishers, fish farmers, and tribal families to access vital schemes and programs. These collaborations have delivered a range of benefits tailored to the needs of coastal and fishing communities.

**KEY CONTRIBUTIONS INCLUDE:**

**ENHANCED RESOURCES:** Distribution of essential tools like farm implements, fish feed, and cast nets to boost productivity.

**AQUACULTURE INNOVATIONS:** Support for establishing crab fattening units and implementing biosecurity and hygiene measures in aquaculture farms, ensuring sustainable practices.

**FINANCIAL INCLUSION:** Facilitated loans and credit through schemes like PMFME and TAFCOFED, empowering beneficiaries to expand their fish-based enterprises and improve their livelihoods.

These linkages have transformed the lives of 534 individuals, enabling them to secure benefits worth ₹9.6 crore. By bridging the gap between communities and institutional support, the Centre has not only enhanced incomes but also promoted sustainability and resilience within the fisheries sector.


Livelihood Development Project for
Coastal Adi Dravida Families - Mathumpattinam village
Asian seabass (Lates calcarifer) Fish Nursery Farm

## AWARDS AND RECOGNITION:

The Fish for All Centre has been consistently recognized for its innovative and impactful work in promoting sustainable fisheries, empowering women, and enhancing the livelihoods of coastal communities. Our centre's unique approach, commitment to excellence, and dedication to creating positive change have earned us numerous prestigious awards.

## INSTITUTIONAL AWARDS

### WomenConnect Challenge (WCC) Grant (2023):

We were one of seven social sector organizations selected from 260 applications across India to receive this esteemed grant. This recognition acknowledges our innovative initiatives that promote women's empowerment and digital inclusion.

### Global Mini Innovation Challenge Award (2019):

Our Fisher Friend Mobile Application was recognized as a novel solution for building climate resilience for marginalized communities. This award acknowledges our commitment to creating innovative solutions for pressing social and environmental challenges.

### Tech for Good Award (2021):

Our Fisher Friend mobile application won this award in the category of ICT for Disaster Management. The judging panel recognized our innovative use of technology to promote social good, scalability, and sustainability.

### Billionth Award South Asia (2014):

We won this award for our mobile application designed to communicate vital information to fisher folks. This recognition highlights our ability to leverage technology to improve the lives of coastal communities.

### Mobile for Good Award (2014):

Our Fisher Friend Mobile Application was one of four finalists among 245 nominations. This award recognizes our commitment to using technology for social good.

# INDIVIDUAL AWARDS

Our staff has received numerous awards fortheir outstanding contributions to the fisheries sector:

## Women in STEM Award (2023):

Velvizhi, Head, Fish for All Centre received this award under the Research Category for her role in participatory research in the fisheries sector.

## Women Achiever Award (2021):

Velvizhi received this award for her commitment and excellence in the fisheries sector.

## Chidambaram Memorial Annual Award (2021):

Velvizhi, Head, Fish for All Centre received this award for her major role in enhancing livelihood options and socioeconomics of coastal rural fisherfolks.

## SPARK Pancharatna Women Achiever Award (2019):

Velvizhi received this award under the category of Fisheries for her outstanding contributions to the sector.

These awards are a testament to our centre's commitment to excellence, innovation, and creating positive change in the lives of coastal communities.

# SUPPORTED PARTNERS

| | | | | |
|---|---|---|---|---|
| Tata Trust | NABARD, Chennai | Tamil Nadu Fisheries and Forest Departments | TNFDC, Chennai | Government of Puducherry |
| INCOIS, Hyderabad | NFDB, Hyderabad | ICAR-NBFGR, Lucknow | ICAR-CIBA, Chennai | DST, GoI, New Delhi |
| Qualcomm, USA | American Indian Foundation | Microsoft | Reliance Foundation & USAID | UNDP- SGP, New Delhi |
| Five Star, Chennai | World WildLife Fund | Environment Defense Fund (EDF) | HCL Foundation | Water for third world, Switzerland |
| Blue Sensus, Germany | | | | |

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