



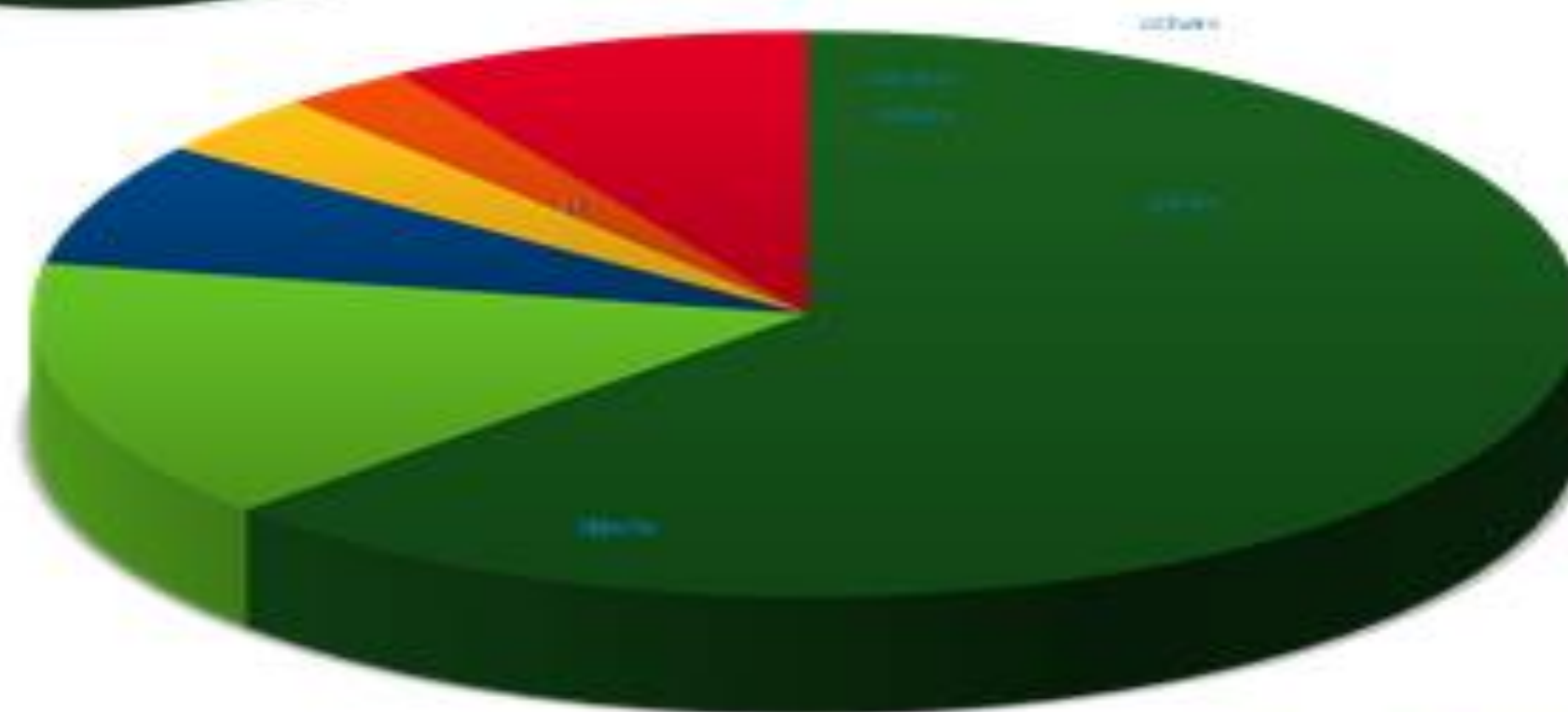
The Central Laboratory for Aquaculture Research CLAR - Egypt



Aquaculture production in Africa



Egypt is leading aquaculture in Africa production



■ Egypt ■ Nigeria ■ Uganda ■ Ghana ■ Zambia ■ others

Egypt



Location



- ❑ Abbassa, Abou Hammad, Sharkia Gov., approx. **70 km** Northeast of Cairo .
- ❑ It is about **80 km** inland from the Mediterranean Sea.
- ❑ Latitude and longitude: 30 32'N and 31 44'E.





Central Laboratory for Aquaculture Research

LEADING RESEARCH INSTITUTE IN EGYPT.

- ❑ **CLAR** has a strong track record of conducting **pioneering research** that has led to the development of new aquaculture technologies.
- ❑ **CLAR** has a team of **experienced researchers and staff** who are committed to advancing aquaculture research and training in Egypt.
- ❑ **CLAR** offers a variety of **training courses** for aquaculture professionals.



SINCE
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Research Departments

10

Hatchery & Fish physiology

Fish Nutrition & Feed Technology

Limnology and water quality
assessment

Fish Processing & Quality Control

Aquaculture Economics

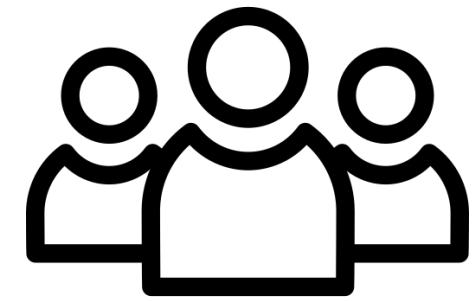
Fish Health Management

Fish Ecology & Biology

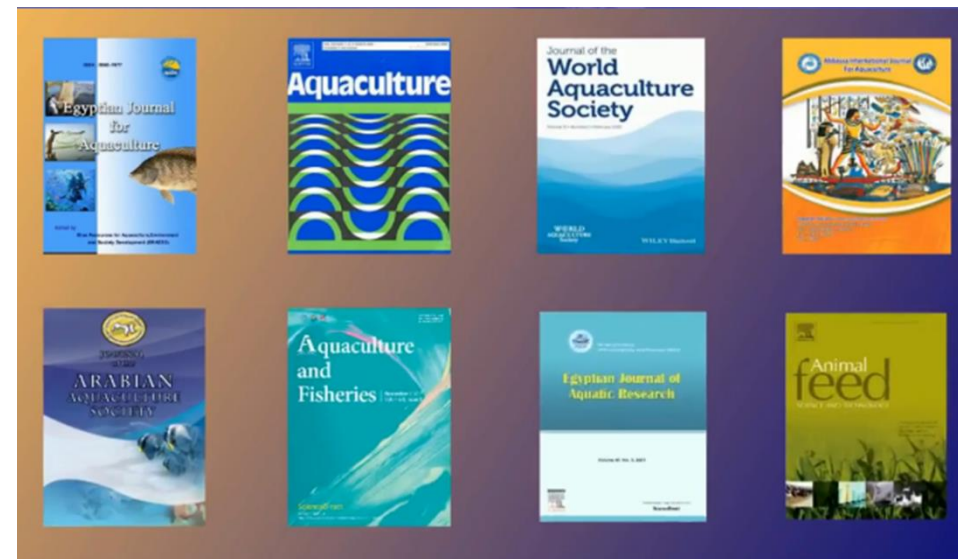
Fish Breeding & Genetic

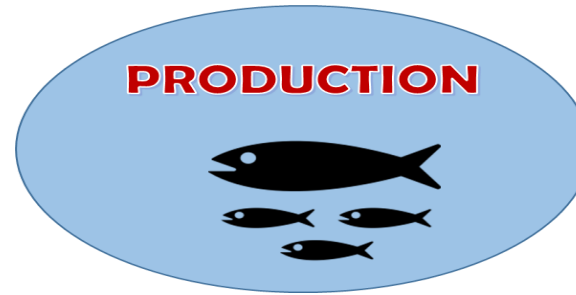
Fish production & Aquaculture
Systems

Aquaculture Extension



- **CLAR have 160 researcher** staff conducts pioneering aquaculture research, tackling industry challenges both in the laboratory and in the field..
- At **CLAR**, our team of dedicated scientists conducts extensive research on various aspects of Fish farming. We disseminate our work in international journals & magazines





- 1200 Feddan
162 productive earthen ponds
- Modern Hatcheries:
 - Tilapia
 - Deferent type of Carp





INTERNATIONAL COOPERATION

CLAR nominated as one of the African Union Centers of Excellence in Fisheries and Aquaculture (AU-COEs)



AFRICAN UNION
**INTERAFRICAN BUREAU
FOR ANIMAL RESOURCES**





World Organisation
for Animal Health
Founded as OIE

- **CLAR** is in last stage of nomination as a new WOAH Collaborating Centre for Aquatic Animal Health Management in the Middle East .

Head of department of Fish health Management **Chairman of Technical committee Aquatic Middle East Network (AQMENET)** First scientific meeting at Saudi Arabia discussing **AQMENET** Strategy.





- Cooperation with Arab Organization for Agricultural Development (AOAD) for training and technology transfer.
- Also CLAR Staff trainer in Egypt worldfish courses



December 14, 2022: (IFAD) mission visit to Egypt
Advancing climate Smart Aquaculture Technologies (ACLISAT) project





FISH HEALTH MANAGEMENT DEPARTMENT

MEMBERS OF FHM DEPARTMENT



Prof. Mohamed E. Abou ElAtta
Head of FHM department



Prof. Refaat M. Ali Al-Gamal
Director of CLAR



Prof. Doaa El-Araby



Prof. Somayah Awad



Prof. Ahmed Abdel-Wahab



Prof. Yasser M. Abdelhadi



Prof. Gehan Shagar



Prof. Osama Saleh



Dr. Hala F. Ayoub



Dr. Ahmed Ali



Prof. Saleh Sker



Prof. Azza Abd El-Rhman



Prof. Samah Attia



Prof. Walaa El.Ekiaby



Dr. Aml Fath-Allh



Dr. Sameh Abdel Azeem



Dr. Nashwa Abdel-Razek



Dr. Rania A. Nasr



Dr. Taghrid M. Naguib



Dr. Mahmoud El-Adawy

For more information about **Specialty & Resume** of the Department Members, see **Annex 1**



□ Role and Responsibilities

- **Oversee the health of fish populations, encompassing both farmed species in Aquaculture and those in Natural water bodies.**
- **conducting regular health assessments, identifying potential threats, and taking preventive measures**
- **Preparedness and epidemiological surveillance to emergent aquatic diseases ;and applying of value-chain biosecurity measurements**





□ Capacity Building and Training

- We provide specialized training to **veterinarians and aquatic animal health professionals** to enhance their skills and knowledge in fish health management.
- Through **workshops, seminars, and hands-on training**, participants gain valuable insights into disease prevention, diagnostic techniques, and effective treatment methods.





CAPACITY BUILDING AND TRAINING FOR REGIONAL AND AFRICAN PARTNERS





❑ Diagnosis of Fish Diseases

- Studying **Zoonosis and AMR** as well as **climate change impact in aquaculture**, with considering to **"One Health"** concept through human, aquatic animal, environment interface.
- The department is equipped with **advanced laboratory facilities and expertise** to diagnose fish diseases accurately.





LABORATORIES FOR DIAGNOSIS OF AQUATIC DISEASES



Bacteriology Lab.

Bacterial isolation, culturing and identification

Available equipment

1. Microscopes
2. Incubators
3. Autoclave
4. Petri Dishes & Agar Plates
5. Bunsen Burner
6. Inoculation Loop or Needle
7. Gram Staining Kit
8. Microbiological Pipettes
9. Safety Cabinets or Hoods
10. Refrigerator
11. Digital Sensitive balance





Virology Lab.

VIRAL ISOLATION AND IDENTIFICATION

Available equipment

1. Microscopes
2. PCR Machine
3. ELISA reader
4. Nano drop Spectrophotometer
5. Vortex
6. Viral RNA/DNA Extraction Kits
7. Homogenizer
8. Safety Cabinets or Hoods
9. Centrifuges
10. Gel Electrophoresis Equipment
11. Deep Freezer





Histopathology Lab.

Available equipment:

1. Microtome
2. Camera Microscopes
3. Staining Equipment
4. Embedding Station
5. Cryostat: For cutting frozen tissue sections.
6. Tissue Processing Equipment
7. Slide Stainers
8. Histology Brushes and Knives: For handling and cutting tissue samples.
9. Safety Cabinets or Hoods.
10. Digital Imaging System: For capturing and analyzing histopathological images.





Sampling Lab

Available equipment:

- 1. Water Quality Testing:** For assessing water parameters like pH, temperature, DO, etc.
- 2. Atomic absorption spectroscopy**
- 3. Nets and Traps:**
- 4. Sampling Containers:**
- 5. Sediment Sampling Equipment:** For analyzing substrate quality.
- 6. Thermometers:**
- 7. Water Sampling Bottles**
- 8. Field Microscopes:**
- 9. Safety Equipment**





❑ Participation in Projects

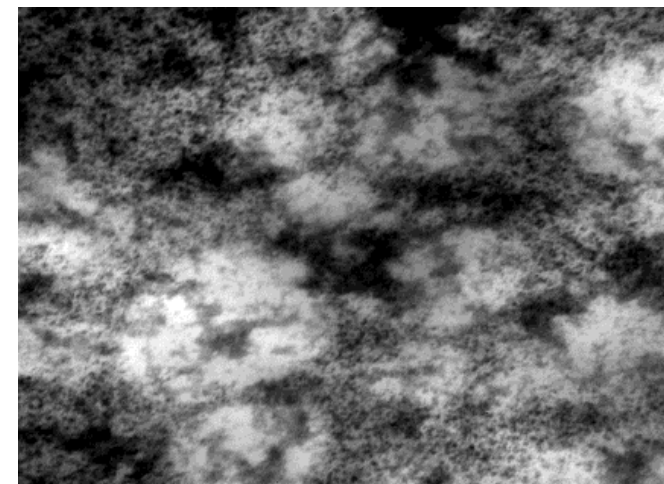
- The **FHM** department actively participates in **various research projects** aimed at addressing fish health challenges.
- we collaborate with researchers and scientists in the investigation of the **emergent new diseases** for example:

- ❑ Project funded from **FAO** (Viral and microbial diagnosis of tilapia summer mass mortality).

May 2017 – December 2018.

- ❑ Project funded from **STDF** (Bring next generation breeding from tilapia into aquaculture resist summer mass mortality).

June 2019 and continue



500 nm
TEM Mag = 50000x





❑ Mentorship and Academic Support

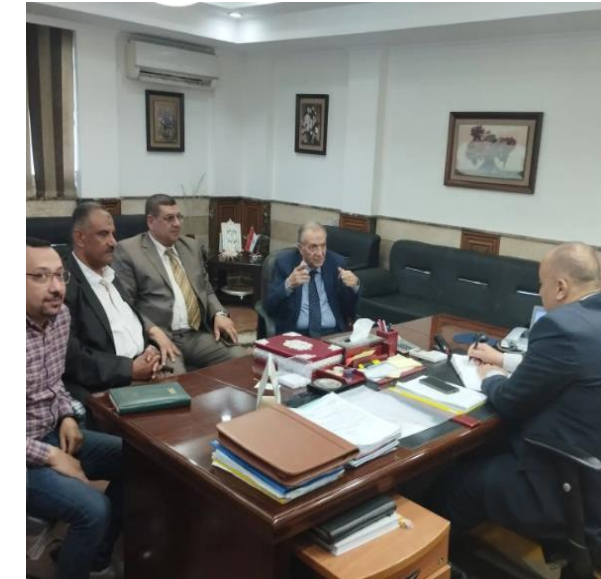
- The department play a **significant role in mentoring postgraduate students** pursuing master's and PhD degrees in fish health-related fields.
- By providing **academic support and research opportunities**, they nurture the next generation of fish health professionals.





❑ Scientific consultations to National organizations and Agencies

- CLAR Director **Dr. Refaat El-Gamal** is Board member of Lakes and Fish Resources Protection and Development Agency (LFRPDA).
- The department has conducted **assessments of fish health status in Egyptian lakes.**
- We collaborate with **GOVS** in establish **Zoning area for Aquaculture** and we have conducted **Aquatic Disease List** all over the country





Knowledge Sharing and Outreach

- The department is committed to **sharing knowledge beyond academic circles.**
- We engage with the wider community through **social media, TV shows, articles in magazines, and other platforms** to disseminate information on fish health management best practices.





Articles Published in Peer-reviewed Journals



EXAMPLES OF SUCH ACTIVITIES IN VRAL DISEASES

Title	Authors
Viral Investigation in the Mass Mortality Phenomenon Occurred During Summer Season in Cultured Tilapia Fish	Ammar A.A.; Sakr S.F.; Abdel Wahab A.M.; Ahmed A.A.; Eladwey M.M. and T.M. Nageeb (2021)
Development of A continuous Cell Line from Tilapia Liver	Ayman A. Ammar and Ahmed M. Abdel Wahab (2019).
Viral studies on diseased Penaeid collected from Suez governorate.	Ahmed M. Abdel-Wahab (2018).
In vitro studies on antiviral effects of Galaxaura elongata marine algae on white spot syndrome virus	Ahmed M. Abdel-Wahab (2018)
Establishment primary tissue culture from Nile tilapia and used for tilapian viruses isolation.	A. M. Abdel-Wahab; A. M. Ali and M.M. El – Adway (2016).
Detection of white spot syndrome in cultured penaeid shrimp in Egypt: histopathological observation and PCR	Mohamed S. El-Shahidy, Refaat M. El-Gamal, Amina A. Dessouki, Randa Y. Thabet, Shahira A. Abdelwahab, Mohamed M. Abd-Eldaim (2015)

Title	Authors
Evaluation of different RT-PCR assays for diagnosis of carrier infection of nodavirus (MrNV) and extra small virus (XSV) in <i>Macrobrachium rosenbergii</i> in Egypt	Eissa I. A. M, Diab A. S., Ahmed A. A. and Mona Zaki. (2014)
Diagnosis of white tail disease in <i>Macrobrachium rosenbergii</i>.	Eissa, I. A. M, A. S. Diab, S. F.M. Saker and A. A. Ahmed. (2013).
Effect of green tea, <i>Camellia sinensis</i>, and licorice extracts, <i>Glycyrrhiza glabra</i>, on H5N1 avian flu virus neuraminidase in vitro.	Sameh A. Metwaly, Dowidar M. F., (2013)
Diagnosis of white spot syndrome virus (WSSV) among shrimp.	Eissa, I. A. M, A. F. H. Badran, A. S. Diab, S. F.M. Saker and A. A. Ahmed. (2009).
Improving Isolation of White Spot Syndrome Virus on Mammalian Cell Lines.	Salama A.A, Diab A.S, Abd El-Samie A.H and Abdel-Wahab A.M (2009).
Isolation and Identification of White Spot Syndrome Virus.	Salama A.A, Diab A.S, Abd El-Samie A.H and Abdel-Wahab A.M (2008).

For more information about Publications of the department members, see **Annex 2**



MAIN FOCUS AREA FOR **FHM** DEPARTMENT



1. Disease diagnosis, risk analysis, & preparedness planning

1.1. Establish diagnostic capabilities and conduct surveillance for key Epizootic endemic diseases like **Gyrodactylus salaris** and **epizootic ulcerative syndrome (EUS)**.

1.2. Assess risk factors and transmission pathways for emerging diseases such as **acute hepatopancreatic necrosis disease (AHPND)** in shrimp.

1.3. Develop preparedness plans for prompt detection and response to high priority diseases incursions like **tilapia lake virus, shrimp white tail disease and shrimp white spot syndrome virus**.





1.4. Provide training on aquatic animal disease diagnosis, surveillance, and emergency preparedness for national veterinary services in the region.

Rural aquaculture development	Uganda
Aquaculture development training program (in cooperation with World Fish)	14 African countries
Diseases and health management of farmed fish	Sudan
Fish culture development On-line training (in cooperation with JICA)	9 different African countries
A Hands-On Approach to Identifying and Managing Common Fish Diseases (in cooperation with World Fish)	8 different countries from Africa and Middle East





2. Biosecurity programs for aquaculture

2.1. Research **disinfection protocols** and procedures to prevent pathogen spread at **hatcheries and aquaculture facilities** and in transport.

2.2. Provide **training and guidelines for biosecurity implementation** at tilapia hatcheries.

2.3. Develop **biosecurity protocols and manuals on disinfection, water quality management, and fallowing/rotation** for key aquaculture value chains like tilapia, catfish, and shrimp farming.

2.4. **Pilot certification programs** for biosecure aquaculture facilities and value chains.





3. Early detection and rapid response:

3.1. Contribute experts and assist national authorities like **GOVS, LFRPDA** in containment, control, and eradication responses for disease incursions.





4. Surveillance, epidemiology, and modelling:

4.1. Conduct **epidemiological investigations of disease outbreaks to identify risk factors.**

4.2. Share **techniques, protocols, and information resources** throughout the region.

4.3. Provide **hands-on training for aquatic animal health professionals** in the region.





THANK YOU