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for Animal Health
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وزارة البيئة والمياه والزراعة
Ministry of Environment Water & Agriculture



Emerging initiatives and opportunities for integrating aquatic animal welfare considerations

Kingdom of Saudi Arabia



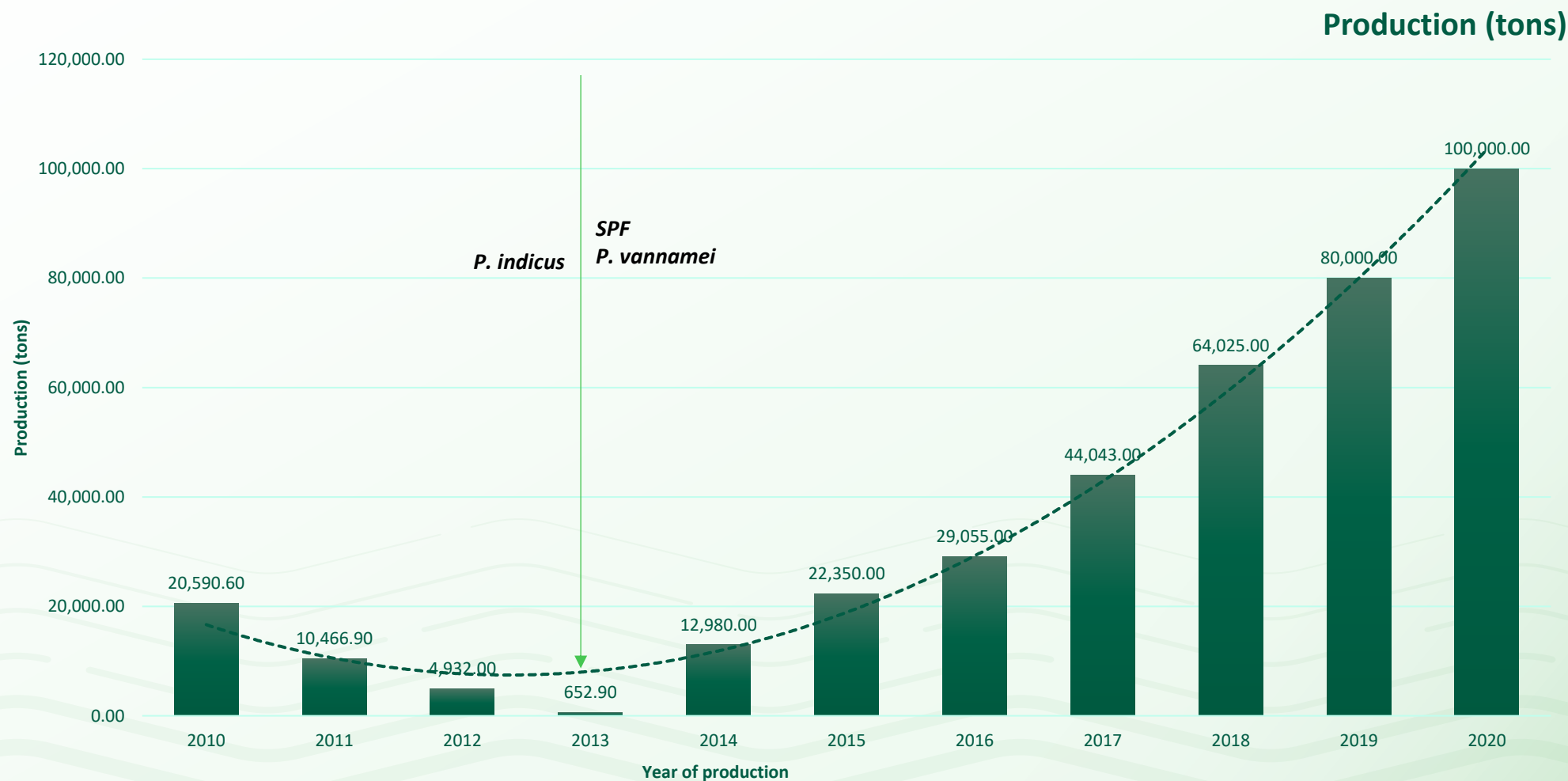
Aquaculture in the Kingdom of Saudi Arabia

- The Kingdom of Saudi Arabia occupies 80% of the Arabian Peninsula and is surrounded on two sides by water, the Red Sea to the west and the Arabian Gulf to the east.
- The Kingdom of Saudi Arabia has a unique geographical location, with the length of its coastal belt 2640 km, along the Red Sea and the Arabian Gulf making it an ideal location for aquaculture development.
- Around 2,400 km coastal length is available for aquaculture development along the Red Sea in the west and the Arabian Gulf in the east.
- After 2010-12 WSSV outbreak, KSA aquaculture biosecurity reviewed to avoid such outbreaks in future. KSA came up with a new National Aquaculture Biosecurity Plan and regained its aquaculture potential by using proactive biosecurity approach with 12 strategic points for the prevention and control of diseases in aquaculture industry.





Case study WSSV outbreak 2010-2012





National Aquaculture Biosecurity Plan

- Switch to Specific Pathogen Free (SPF) and Specific Pathogen Tolerant (SPT) stocks
- National Reference Diagnostic Laboratory
- KSA listed pathogens
- National surveillance program
- Health certificate for animal movement
- National Zoning and Compartmentalization
- Aquaculture Production Unit zoning
- Compulsory reporting of disease outbreaks
- Emergency response and contingency plan
- Control of importation of live shrimp
- Ban on the use of wild broodstock
- Restriction on aquatic products based on the SPS agreement of the WTO.





KSA Advanced Biosecurity Measures

Saudi aquaculture industry is no more facing the issues of mass mortality due to availability of:

- SPF+SPT animals
- Advanced biosecurity measures
- Surveillance program in place for early detection
- 100% BAP implementation to all farms in KSA

KSA is the only shrimp producing country that has controlled WSSV and is free from any primary pathogens





Aquaculture Biosecurity & Health Management in KSA

GDA-MEWA

(Competent Authority)

- Issue aquaculture license
- Aquaculture Regulations
- Inspection of production facilities
- Aquaculture Biosecurity
- Quarterly technical and high-level meetings
- Inspection of local and foreign establishments
- Import control
- Health Certificates for animal movement and products export
- Contingency plan

SAS

(Saudi Aquaculture Society)

- Communication link between MEWA and production facilities
- Sample & data collection for routine surveillance and emergency cases
- Third Party Auditing for biosecurity (pre-stocking and quarterly audit)
- Communication for reporting and emergency response
- Biosecurity trainings and workshops
- Quarterly Biosecurity and SABTG meetings

JFHSL

(National Reference Lab.)

- National Reference Diagnostic Laboratory
- Auditing (onsite) and reporting
- Diagnostic services (PCR, histology, microbiology and parasitology)
- Carry out the surveillance samples and emergency samples analysis



Disease Reporting and Response

Establishment/Farm responsibility:

Awareness of the industry in:

- Reporting of abnormal mortality
- The industry needs to feel that reporting is useful
- Mortality data should be properly recorded and reported

Competent Authority

MEWA and SAS visit within the shortest possible time.

- A team to be deployed to the site within 24h for assessment of culture conditions and sample collection
- Collection of samples for PCR and histology
- Emergency diagnosis (PCR and histology within 24h)
- Investigation and data collection through a standard protocols.
- On site assessment of biosecurity measures in place and their effectiveness.
- Contingency plan previously agreed with the industry

Public Private Partnership (PPP)





National Aquaculture Biosecurity Program Activities

Surveillance Sampling

- Aquaculture Projects.
- Local and Commodity Markets.
- Anti Microbial Resistance (AMR) Analysis.
- Imported Fish and Shrimp Sampling.

Biosecurity Auditing

- Monthly auditing to ensure the implementation of SOPs in aquaculture projects.

Emergency Response

- Contingency plan in case of sudden mortalities.



Contingency plan

Objective: Minimize the economic impact of the disease outbreak and recover production as soon as possible

- ❖ Affected stock will be harvested / eliminated (SOP. 8, National Biosecurity Manual)
- ❖ Decision will be based on:
 - ☐ Stage affected
 - ☐ Value of the affected stocks
 - ☐ Sanitary status of the farm/industry
 - ☐ Risk to the rest of the industry
 - ☐ Season and weather forecast etc.
- ❖ If, not culled, increased monitoring of Animal Health and mortality on affected ponds kept in production
- ❖ Infected farms shall be followed after emptying, cleaned and disinfected.
- ❖ Biosecurity measures of farms will be audited prior approval for stocking again



SOP 8. Contingency plan

Upon presence of any of the GDF-MEWA listed diseases in the category C1 in Quarantine, breeding program, commercial broodstock, post larva and nursery or massive mortality in grow-out ponds, the affected stock will be harvested or eliminated depending on the economic value. See table below.

Pathogen	Category	Quarantine	Breeding program	Commercial broodstock	Post larvae & nursery	Grow out
High risk						
EMS	C1	Eliminate	Cleaning	Eliminate	Eliminate	Harvest/eliminate
WSSV	C1	Eliminate	Cleaning	Eliminate	Eliminate	AM Temperature $\geq 30^{\circ}\text{C}$: Monitor*
						AM Temperature $\leq 30^{\circ}\text{C}$: Harvest /Eliminate
IMNV	C1	Eliminate	Cleaning	Eliminate	Eliminate	Harvest/eliminate
TSV	C1	Eliminate	Cleaning	Eliminate	Eliminate	Harvest/eliminate
YHV	C1	Eliminate	Cleaning	Eliminate	Eliminate	Harvest/eliminate
Moderate risk						
EHP	C2	Eliminate	Cleaning	Eliminate	Eliminate	Eliminate /harvest if severe
NHP	C2	Eliminate	Cleaning	Eliminate	Eliminate	Eliminate /harvest if severe
Low risk						
IHHNV	C3	Eliminate	Cleaning	Individual selection	-	-
BP	C3	Individual selection	Cleaning	Individual selection	Eliminate severe	if -
MBV	C3	Individual selection	Cleaning	Individual selection	Eliminate severe	if -

* Increase monitoring of Animal Health and mortality on affected ponds kept in production

* Improve management of ponds to minimize stress that may trigger an increase in mortalities

*Increase aeration

*Increase water exchange to improve water quality



Quarterly Aquaculture Biosecurity Workshop and Saudi Aquaculture Biosecurity Technical Group (SABTG) Meeting

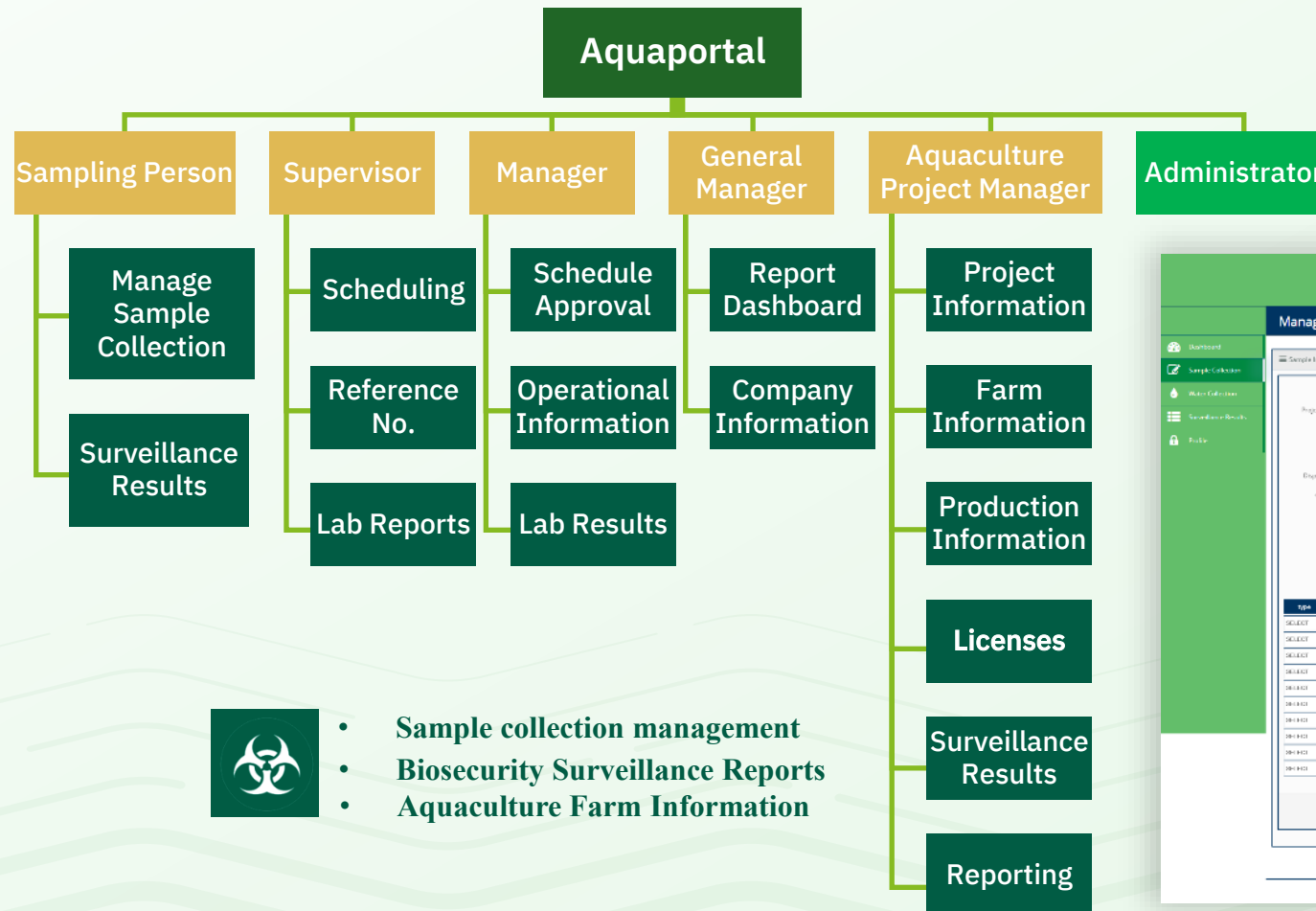
Under the patronage of General Directorate of Aquaculture, Ministry of Environment, Water & Agriculture (GDA-MEWA), Saudi Aquaculture Society has the mandate to quarterly arrange a national level Aquaculture Biosecurity Workshop and SABTG meeting with the following activities;

- National and international experts are invited as guest speakers to share their experience with other stakeholders.
- All aquaculture establishments are required to present quarterly production and biosecurity status of the aquaculture units.
- Quarterly sampling and analysis data from National Aquaculture Lab is shared with all the participants.
- Farmers are invited to share their views and to discuss issues regarding industry.
- Suggestions from SABTG members are forwarded to the High Level Committee for consideration and necessary action.





Aquaculture Portal (Aquaportal)



Aquaculture Portal

[Select Language](#)
[Account](#)

Dashboard
Sample Collection
Water Collection
Seawater Results
Profile

Manage Sample Collection

Sample Info List
Add Sample Info

Region: Madia

Project / Worked Name: Farm - MATONAL AQACULTURE

Emergency: Mar 2021

Sampling Date: 08/10/2020

Equipment Used (ID):

Sampling Person:

☐ Omer Alkhatir
☐ Saad Alkhatir
☐ Ibrahim Alkhatir
☐ Shaden Alkhatir
☐ Mohamed Alkhatir
☐ Omer Alkhatir
☐ Ali Alkhatir
☐ Mohamed Alkhatir
☐ Thamer Alkhatir

Type	Species Name	Order	Source	Country Of Origin	Case	Analyst	Remarks	GAS Ref No.	
SELECT		SELECT			SELECT	SELECT		2021/05/01	X Choose File No file chosen
SELECT		SELECT			SELECT	SELECT		2021/05/01	X Choose File No file chosen
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Add Sample Collection

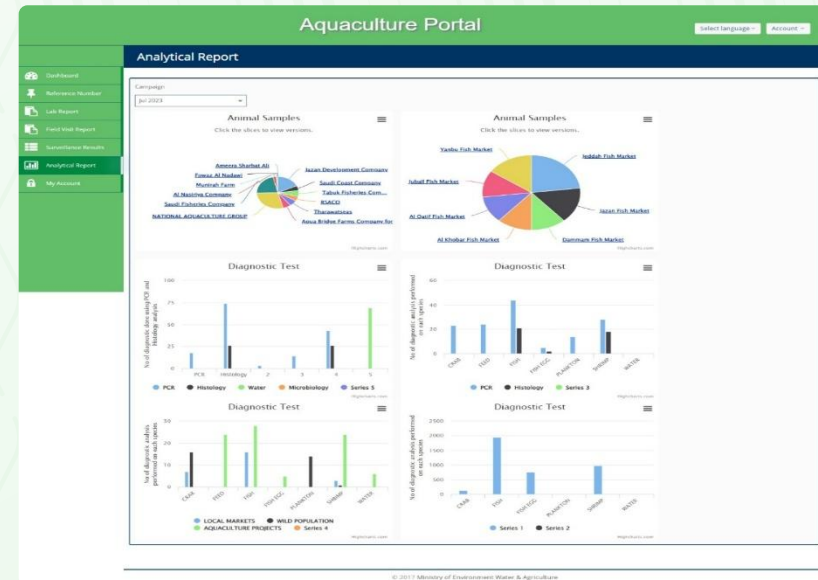
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Aquaculture Portal (Aquaportal)

Real time information is available on Aquaportal.

- Access to SAS/ MEWA/ & Industry stakeholders
- All the relevant sample information
 - Sample type
 - Sample collection date
 - Country of origin (imports)
 - Tests to be conducted
 - Current status
 - Reports etc.





Animal welfare

- Implement strict biosecurity protocols in hatcheries and farms.
- Maintain optimal stocking densities to reduce stress.
- Ensure proper oxygenation, temperature, and salinity control.
- Minimize physical stress during grading, harvesting, and transport.
- Regular health checks by certified veterinarians and aquaculture specialists.





Animal welfare

National Initiatives:

- ✓ Capacity-building programs for officials and farmers.
- ✓ Participation in international proficiency testing for welfare standards.
- ✓ Regional Center for Aquaculture Excellence

Regulatory Framework

- ✓ Alignment with WOAH Aquatic Animal Health Code.
- ✓ Oversight by MEWA for compliance and certification.



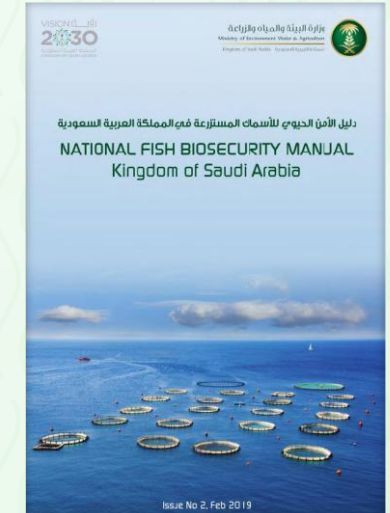
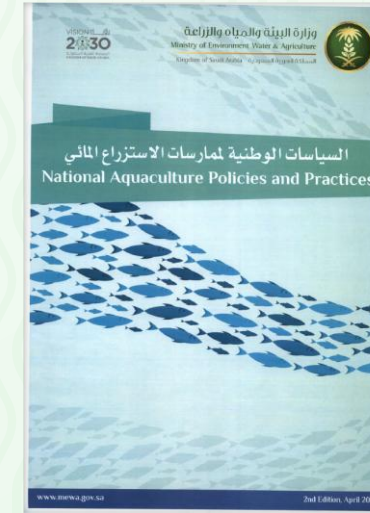
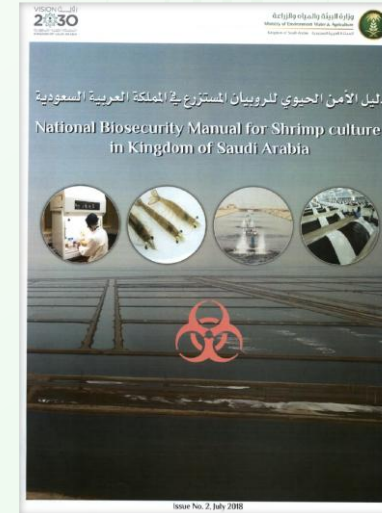
Regulations, Technical Support & Services

Technical information is disseminated to farmers and aquaculture establishments in the form of

- Regulations
- SOPs
- Farming booklets
- Biosecurity sampling handbook
- Biosecurity workshops
- Aquaportal
- And circulars etc.

Aquaculture Regulations based on the “Agriculture Law” in the Kingdom

- National Aquaculture Import Manual
- National Aquaculture Policies and Practices
- National Aquaculture Product Export Manual
- National Biosecurity Manual for Shrimp Culture
- National Fish Biosecurity Manual
- Regulation on Commercial Fisheries



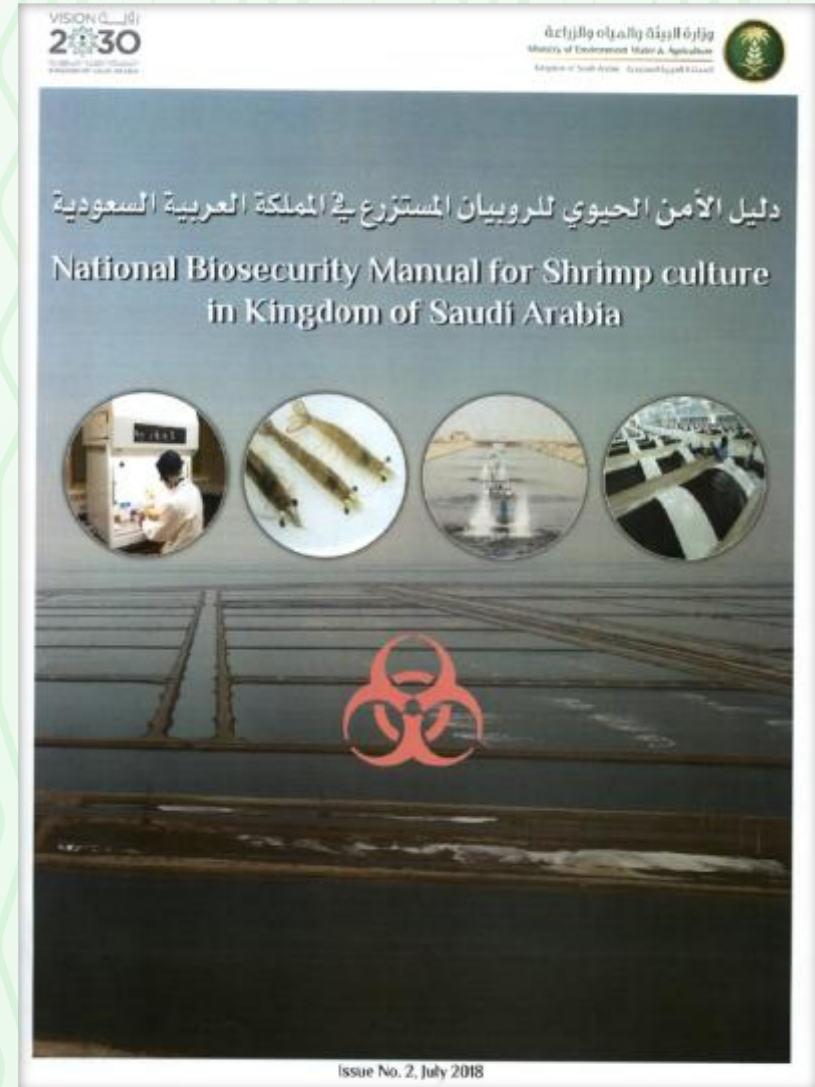


Regulations, Technical Support & Services

National Biosecurity Manual for Shrimp Culture

This National Aquaculture Biosecurity Manual stipulates the official regulation and procedures concerned with Biosecurity and Aquatic animal health management for shrimp culture in Saudi Arabia and covers;

- General Biosecurity Management Procedures
- Health Certificate & Movement Control
- National Surveillance Program
- Aquaculture Zoning & Compartmentalization
- Aquatic production unit zoning
- Biosecurity Protocols
- Emergency response and contingency plan and related
- Requirements for farm, hatchery, broodstock production units and breeding centers etc.



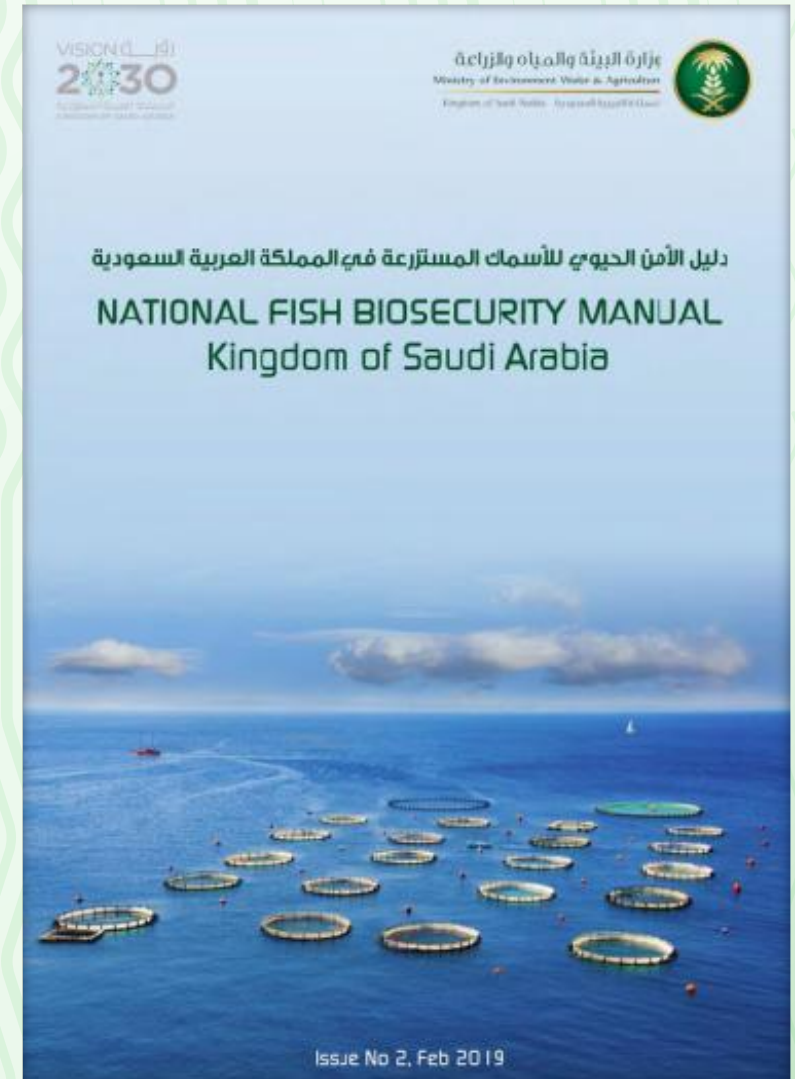


Regulations, Technical Support & Services

National Fish Biosecurity Manual

This National Aquaculture Biosecurity Manual is officially declared the guideline for all kind of matters linked with Fish production in the Kingdom of Saudi Arabia. It gives information about;

- Fish species allowed to culture in the Kingdom
- Fish Farm Biosecurity guidelines and requirements
- Sampling and analysis protocols
- Details of National Reference Laboratory (JFHSL)
- Use of SPF Broodstock
- Geographical Zoning
- Risk Ranking Levels
- Diseases reporting, emergency response and contingency plan
- And related annexures and procedures concerning to Fish production





Regulations, Technical Support & Services

National Aquaculture Product Export Manual

This manual stipulates the official regulation and procedures concerned with aquaculture products export from the Kingdom of Saudi Arabia, including;

- Details of Competent Authority and linked Agencies/Departments and functions in detail
- Authorization Systems
- Procedural approvals of aquaculture establishments
- Rapid Alert System
- Conditions and Procedures for export
- National Sampling and Inspection Plan
- Aquaculture Products export Certification System and other related annexures and procedures



الدليل الوطني لتصدير منتجات الأحياء المائية **National Aquaculture Products Export Manual**



Revision 3
May 2018

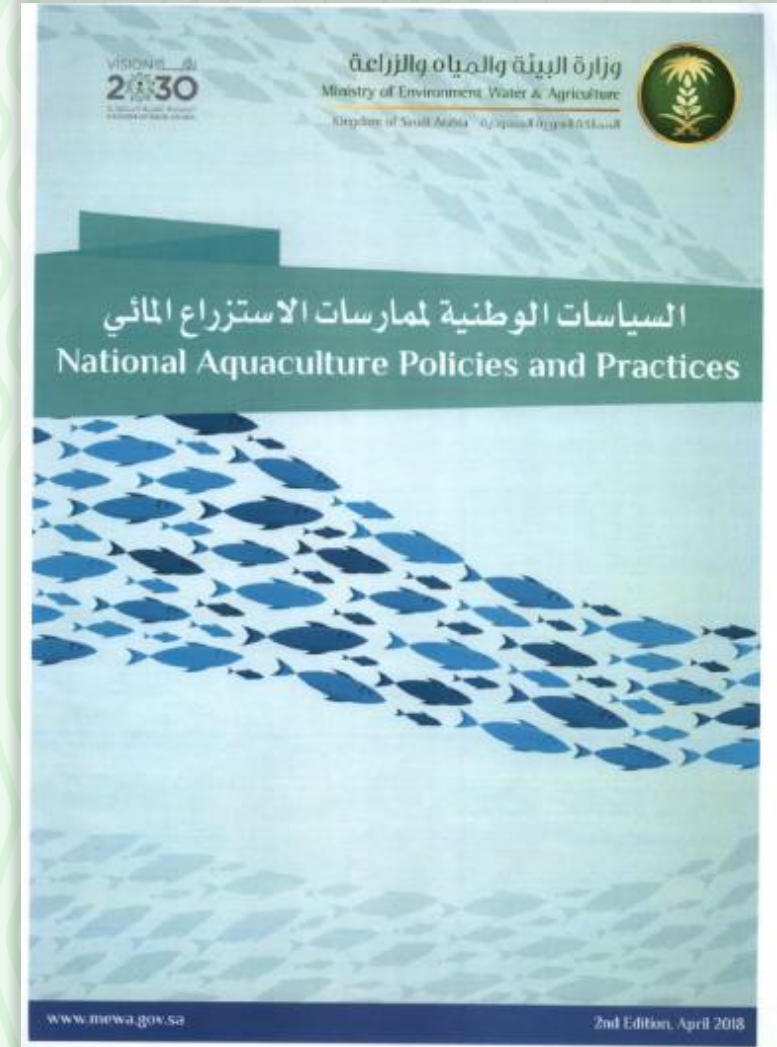


Regulations, Technical Support & Services

National Aquaculture Policies & Practices

National Aquaculture Policies and Practices Manual is the official regulation to be followed in all matters related to aquaculture practices in the Kingdom of Saudi Arabia. It provides details on;

- Infrastructure facilities in the Kingdom
- Aquaculture Policy including environment protection, licensing and monitoring of aquaculture units, Biodiversity and genetic conservation policy, movement control, aquaculture drug policy, research and development policy and policy on legal action on violations
- Responsible Aquaculture Practices (Code of Conduct)
- National Aquaculture Drug Control Program
- National Residue Control & Monitoring Program etc.



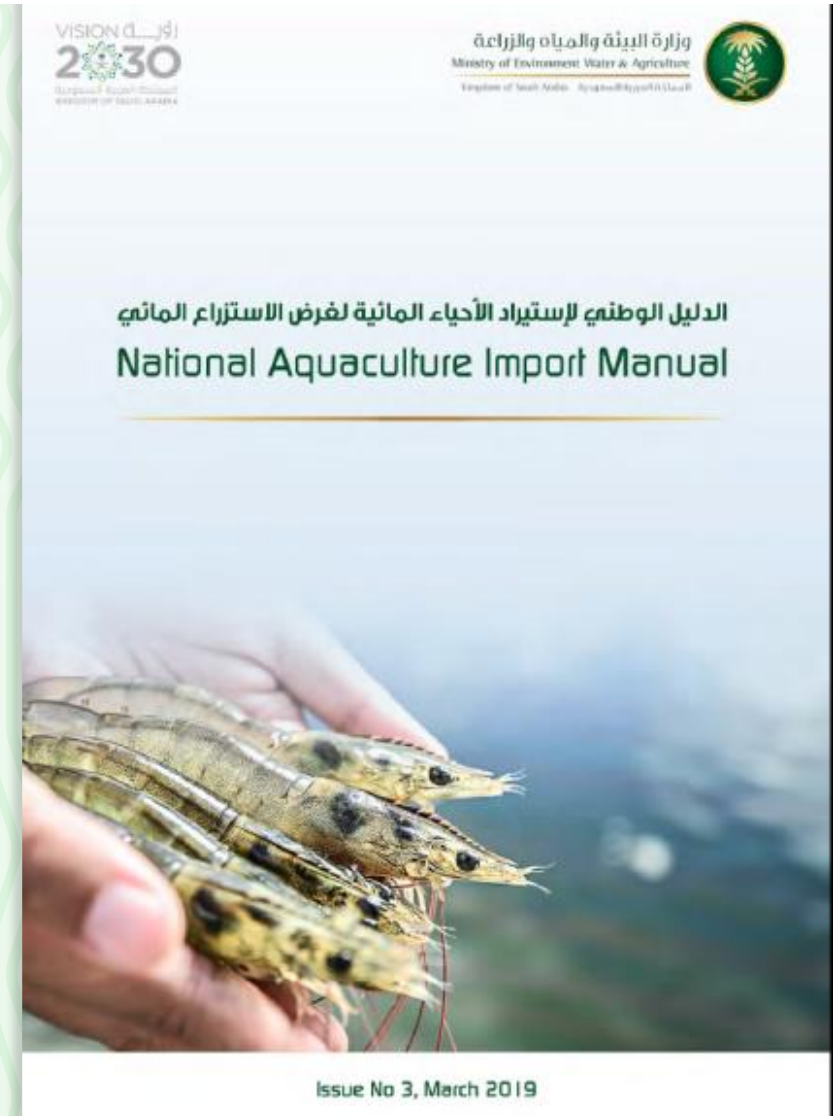


Regulations, Technical Support & Services

National Aquaculture Import Manual

This manual stipulates the official regulations and procedures concerned with live fish import for aquaculture purpose in the Kingdom of Saudi Arabia. It is a complete guide on;

- Approval of live aquatic species for importation
- Aquaculture species currently approved for importation to KSA
- Regulations to import live fish species
- KSA listed diseases
- Foreign hatcheries approved to export live fish to KSA
- Details of diagnostic reference laboratories etc.





Regulations, Technical Support & Services

Biosecurity Sampling Handbook

This manual stipulates the official regulations and procedures concerned with live fish import for aquaculture purpose in Kingdom of Saudi Arabia. It is a complete guide on;

- Fish and crustacean pathogens
- Fish stages, sampling details and fixatives
- List of fish pathogens and targeted organs
- Shrimp stages, sampling details and fixatives
- List of Crustacean pathogens and their targeted organs



Biosecurity Project

Sampling Handbook





Strengths and Risks

Strengths

- Industry stakeholders are working parallel to government machinery
- Any establishments may raise any concern during the SABTG meetings.
- Regional designated teams to support aquaculture activities
- Every agency is given a mandate to implement
- Technical support and services
- Round the clock emergency services
- Research and development along with capacity building

Risks

- Disease introduction through imports
- New emerging diseases

Thank You

