20 years of official sanitary control in the field of LBM export: Tunisia's experience and perspectives

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General Directorate of Veterinary Services
TUNISIA

History of LBM field

- Started since 1993
- Upgrade programs in the fishing field: fleets, establishments, fishing ports, purification and dispatch centres, harvesting areas
- Tunisia became an export athorized country of the LBM to the EU since 1996

Specie

Clams « *Tapes decussatus* »

Caught quantities

Campaign 2009/2010	Campaign 2010/2011	Campaign 2011/2012	Campaign 2012/2013
502041	725558	614904	925670

Official sanitary control

- General Directorate of Veterinary Services: competent authority (CA)
- Partner institutions: General directorate of fishing and fish farming, regional Veterinary Services, laboratories
- Aimed at the different parts of the production chain: harvesting areas, carrying, purification and dispatch centres, commercial processing, end product controls, conditioning

Exported quantities

Campaign 2009/2010	Campaign 2010/2011	Campaign 2011/2012	Campaign 2012/2013
406980	620571	555517	865543

- 95% of caught quantities are exported
- 90% of exported quantities are oriented to italy

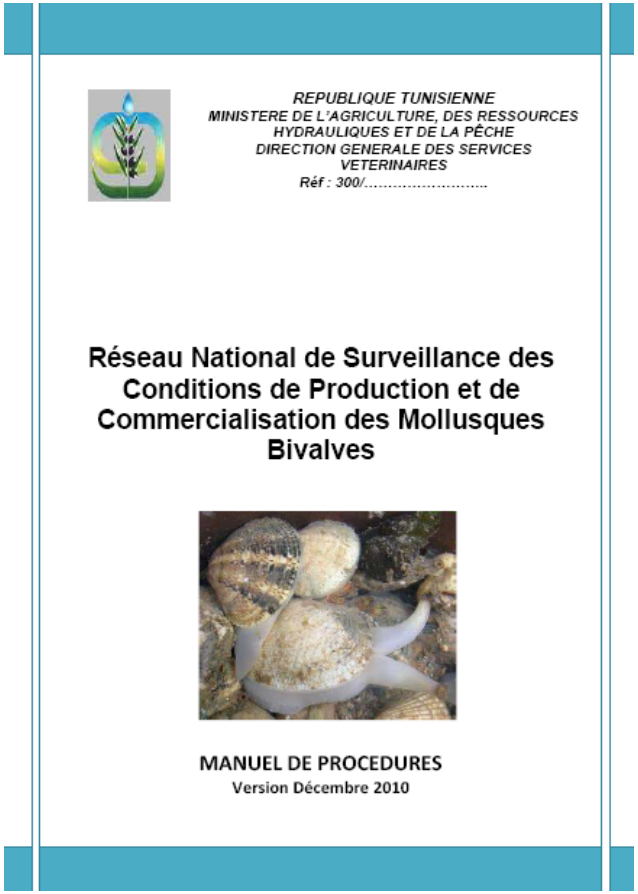
Economic and social importance

Official sanitary control

- CA: update of legislation

Same regulation as the EU législation

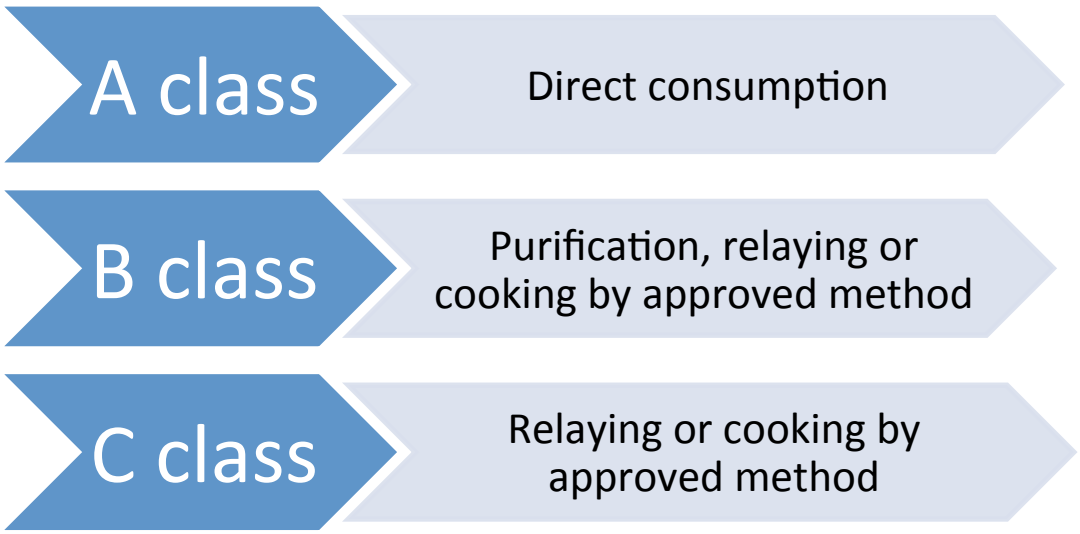
- development memos and procedures manuals



Official sanitary control

- CA: Classification of harvesting areas (natural deposits)

10 classified as « B » areas
3 classified as « C » areas



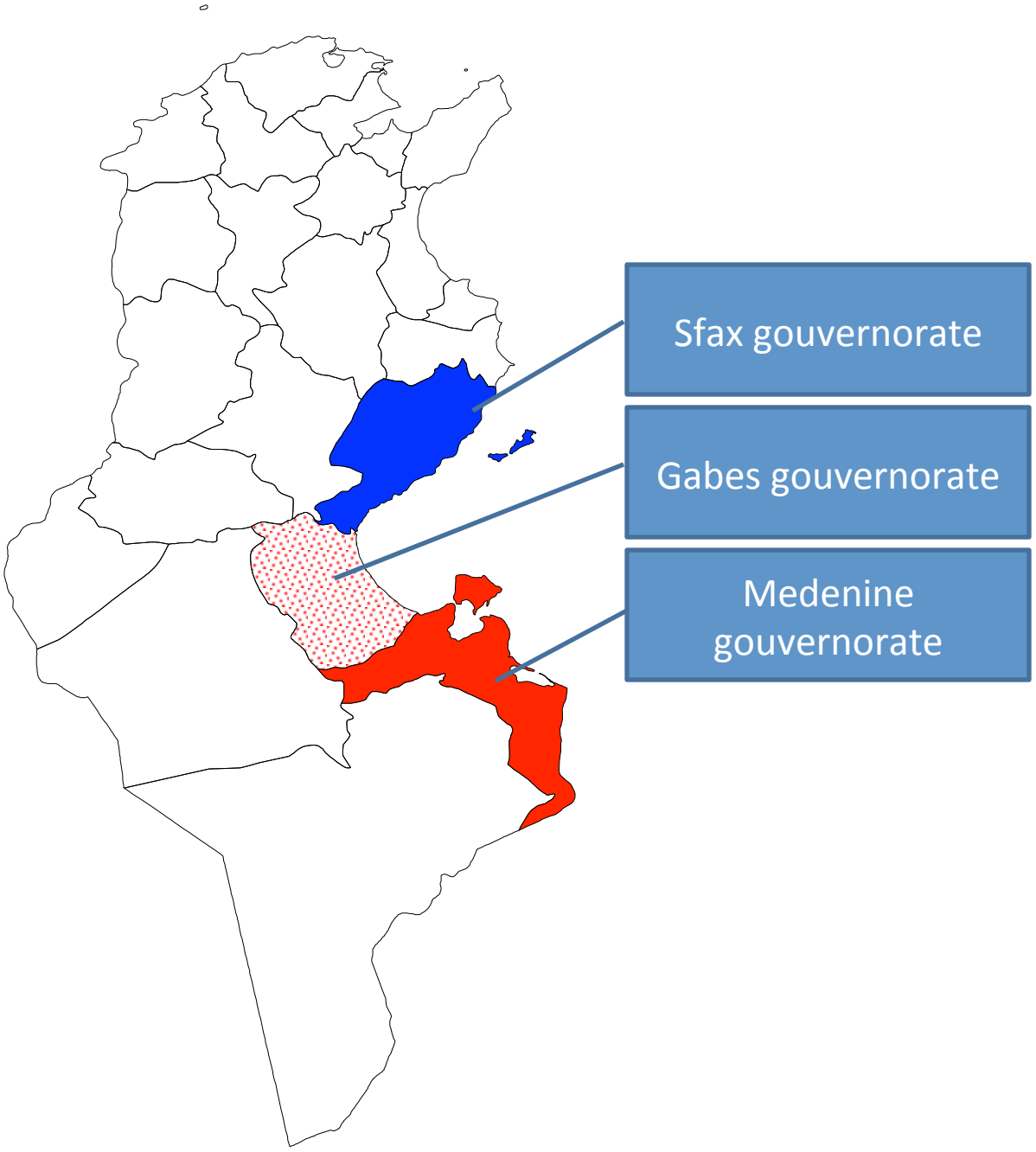
Official sanitary control
Classification of harvesting areas

Interpretation of ongoing monitoring data in each harvesting area

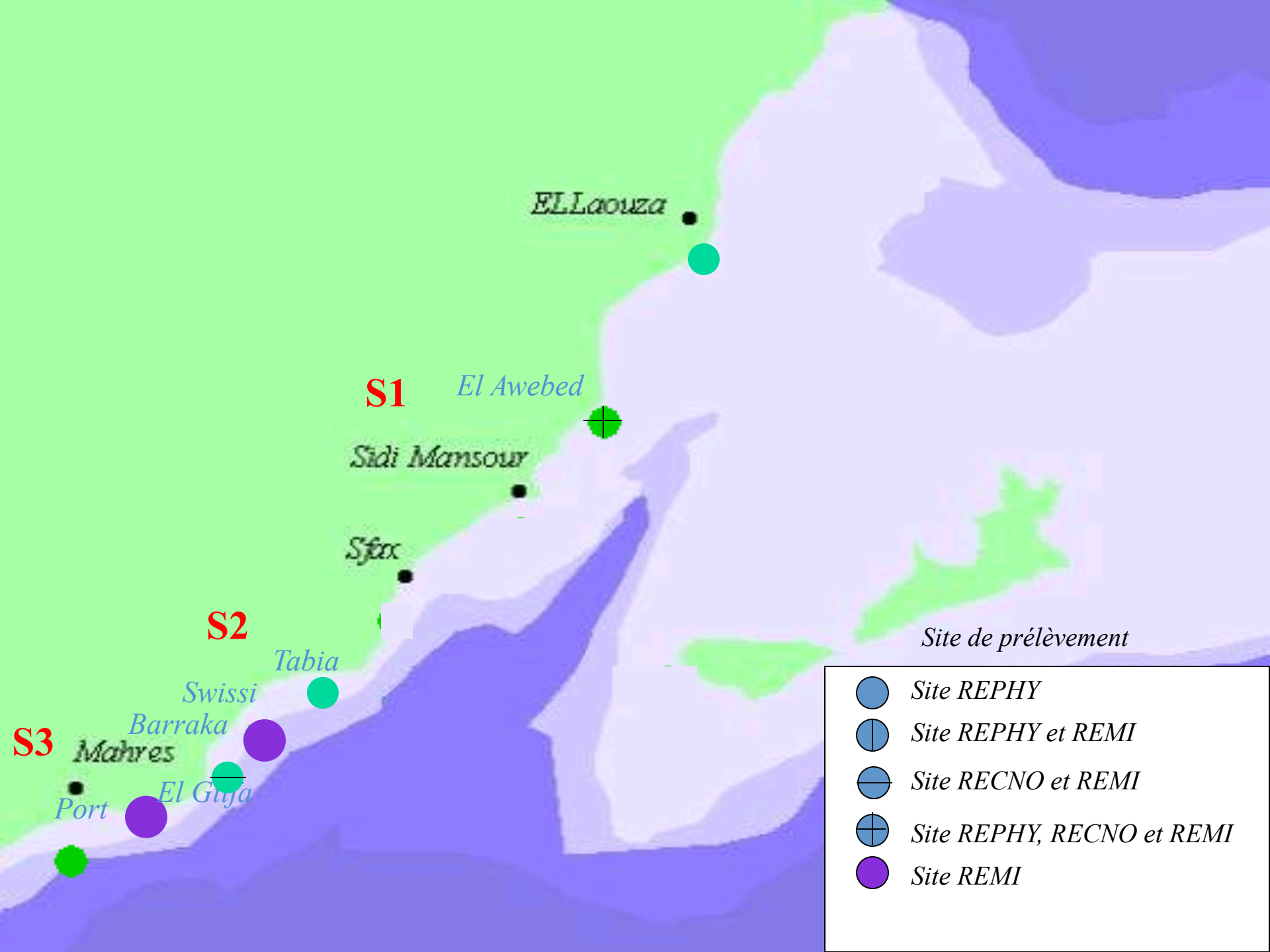
- Annually (≥ 24 results/ area)
- The result fron each area should be assessed separately
- The classification should be based on the most contaminated sampling point

Classification criteria				
Class	Number of E coli / 100g of F.I.L			
	230	4600	46000	
A	100%			
B	90%		10%	
C	100%			

Clams harvesting areas




Oued Ketatna
El Bsama
Oued Hagouna
S1
Port
El Awebed
Ville
de Sfax
Port
de Sfax
Oued Gargour
Kerkennah
Tabia
Village Gargour
Oued Chaffar
Sidi Farah
S2
Village de Chaffar
Nord Ras Bourmeda
Ville de Mahrès
Port Mahrès
S3
Sud Ras
Barkallah
Oued Malline
Oued El Kebir
Hachichina
Sud Ras Youngha
S4
Ilots Kneis
Port de
Zaboussa
S5
Port Skhira
Bousaid
Oued Melha
S6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Sfax
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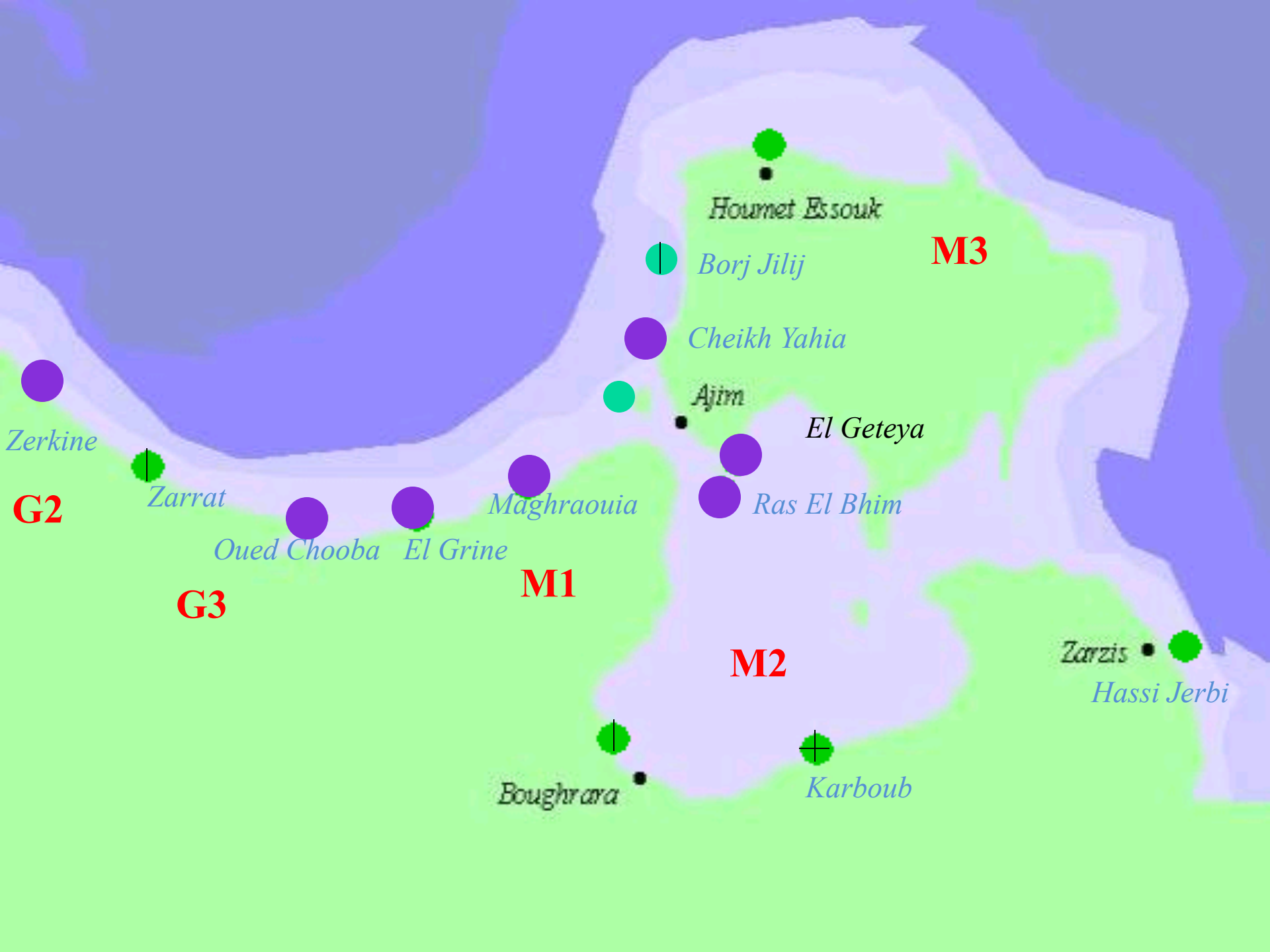
Tabia
Swissi
Barraka
S3
Mahres
El Gtija
Port
Site de prélèvement
Site REPHY
Site REPHY et REMI
Site RECNO et REMI
Site REPHY, RECNO et REMI
Site REMI


Oued Om Laghram
El Mida
G1
Oued Laakarite
Ouedhref
Tarf El Maa
El Mettouia
Ghannouch
Port de
Gabès
Gabès
El Medou
G2
Oued El Hchen
Kettana
Oued Zarkine
Port de
Zarrat
G3
Ezzerkine
Oued Om El Abéir
Ezzarat
Marreth
Oued Chooba


Oued El kbir
S4
Ras Younga
Maouma
Borj Younga
S5
Zaboussa
S6
Skhira
Nadhour Boussaid
Skhira
G1
Akarit
El hicha
Tarf El Ma
Ghannouche
Gabes
Port de Gabes
G2


Port Houmet souk
Houmet souk
M3
Ile de Jerba
Midoun
Port Aghir
Port Ajim
Gallala
Zone Bin El Ouediane
Abri El Grine
M1
Bou El Kastil
El Kantra
Sabkha Mezessar
Tarf Jorf
El Jorf
Lagune Bou Ghrara
Port Hassi Jellaba
Port Bou Ghrara
M2
Karbour
Port de Zarzis
Lamsa
M4
Jdaria


Houmet Essouk
M3
Borj Jilij
Cheikh Yahia
Ajim
El Geteya
Zerkine
Zarrat
G2
Maghraouia
Ras El Bhim
Oued Chooba
El Grine
M1
G3
M2
Zarzis
Hassi Jerbi
Boughrara
Karboub

Official sanitary control
Supervising of harvesting areas

- 3 monitoring networks :
  - « REMI »: Microbiological network (Bacterial research of E coli and salmonella in the clams)
  - « REPHY »: Phytoplanktonic network (identification and quantification of potentially toxic phytoplanktons in seawater + research of biotoxins in the clams)
  - « RECNO »: harmful or chemical contaminants network (research of heavy metals and hydrocarbons in the clams + research of heavy metals in the sediments)

Official sanitary control
Supervising of harvesting areas

- Samples frequency :
  - « REMI »: one sample every 15 days
  - « REPHY »: one sample every week (phytoplankton and biotoxins)
  - « RECNO »:
    - Clams: one sample every year
    - Sediments: one sample every 2 years

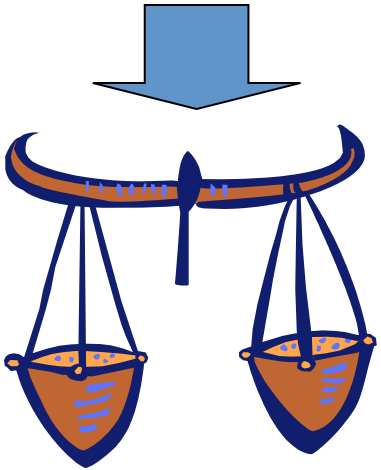
Official sanitary control Supervising of harvesting areas

- Testing methods: EU recognised testing methods
  - Biotoxins methods:
    - PSP toxins (STX-group): Biological method/Mouse bioassay (AOAC 959.08)
    - ASP toxins (domoic acid): chimical method/ HPLC
    - Lipophilic toxins DSP (OA group, PTX group, AZA group, YTX group)
    - : Biological method/Mouse bioassay (Yasumoto 1978-1984)

Official sanitary control
Supervising of harvesting areas

- Testing methods: EU recognised testing methods
  - Phytoplankton method: microscope
  - Bacteria method:
    - E coli: ISO 16649-3 (2005)(MPN: Most Probable Number)
    - Salmonella: EN ISO 6579 (2002)
  - Chemical contaminants method:Atomic Absorption Spectrometry

Official sanitary control
Supervising of harvesting areas



Official sanitary control
Supervising of harvesting areas

REPUBLIQUE TUNISIENNE
MINISTERE DE L'AGRICULTURE
ET DES RESSOURCES HYDRAULIQUES
Commissariat Régional au Developpement Agricole
de .....

الجمهورية التونسية
وزارة الفلاحة والموارد المائية
المندوبية الجهوية للتنمية الفلاحية
.....ب

وصل لنقل قوقعيات
Bon de transport de coquillages

N° № 004918 رقم

عدد الطرود Nobre de colis	الوزن الصافي بالحروف Poids net en toutes lettres	الصنف Espèce :
.....	.....	.....

اسم ممثل مركز التنقية ولقبه Nom et prénom du représentant du centre de purification	اسم منطقة الصيد ورقمها Nom et n° de la zone de pêche
.....	.....

صلاحية الوصل Validité du bon	الوجهة Destination	رقم عربة النقل N° du véhicule de transport
.....	.....	.....

....., le : ..... فيه .....
Signature et cachet* الإمضاء و الختم*

* Mentionner le nom, le prénom du garde pêche * مع ذكر اسم حرس الصيد البحري ولقبه

الجمهورية التونسية
وزارة الفلاحة والموارد المائية
المندوبية الجهوية للتنمية الفلاحية
CRDA de .....

وصل لنقل قوقعيات
Bon de transport de coquillages

N° № 004918 رقم

Espèce : ..... الصنف :
Poids net : ..... الوزن الصافي :
Nombre de colis : ..... عدد الطرود :
N° de la Z.P ..... رقم منطقة الصيد :
Représentant du centre de purification ممثل مركز التنقية :
.....
N° du véhicule ..... رقم العربة :
Destination : ..... الوجهة :
Validité du bon : صلاحية الوصل
.....
....., le ..... في .....
الإمضاء و الختم *
Signature et cachet*

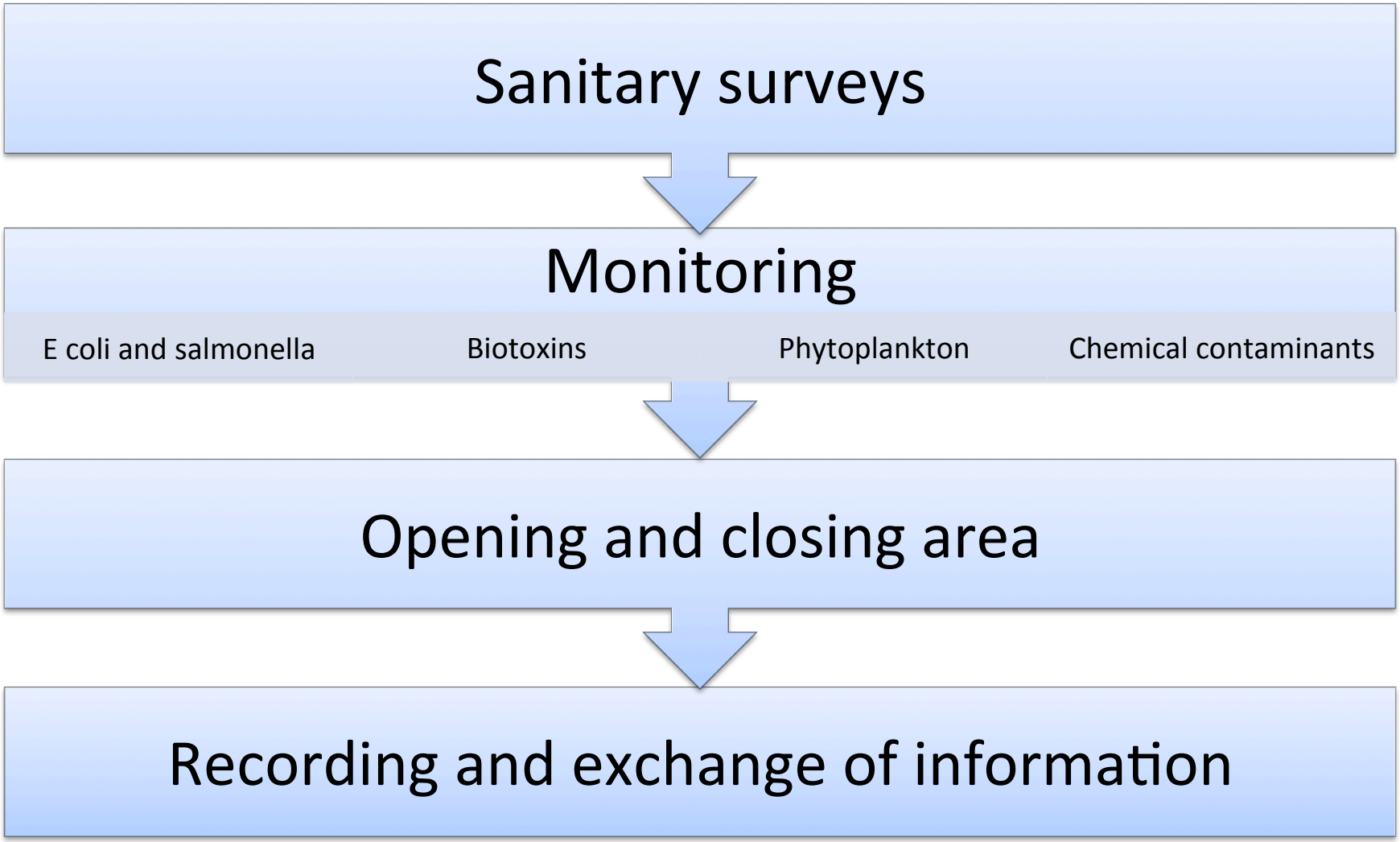
* مع ذكر اسم حرس الصيد البحري ولقبه
Mentionner le nom, le prénom du garde pêche.

Traceability document

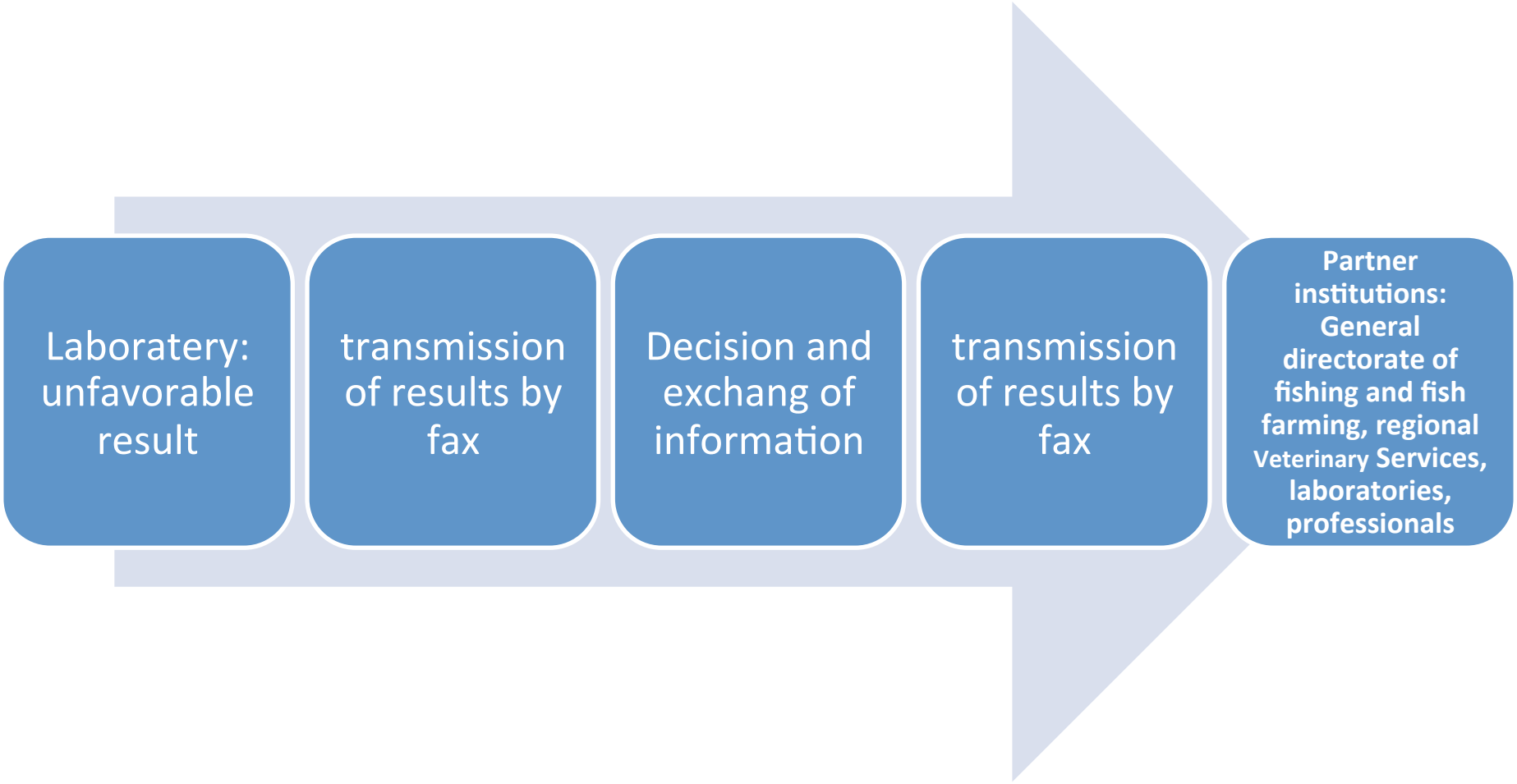
Means of transport approved by CA

purification and dispatch centres

Official sanitary control
Supervising of harvesting areas



Official sanitary control
Supervising of harvesting areas

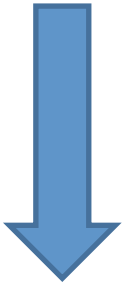


Official sanitary control
Transport

- Transport to a dispatch, purification centre or to a processing establishement
- Means of transport must permit adequate drainage, be equipped to ensure the best survival conditions possible, provide efficient protection against contamination and avoid temperature sudden changes
- So the charge compartment:
  - Must be made of corrosion-resistant material, easy to clean and desinfect
  - Should achieve a uniform temperature and assure suitable temperature also for long travel time, avoiding thermel shocks that could affect the vitality and safety of molluscs
  - In the case of product to be subjected to purification, the transport température should allow the molluscs to quickly resume filtration in the dépuration tank (process T° = 10-15°C)

Official sanitary control
Transport

Refrigerated shipment



Control of temperature during transport
Control of molluscs and package's integrity
Control of cleaning and disinfection of the loading van at each shipement

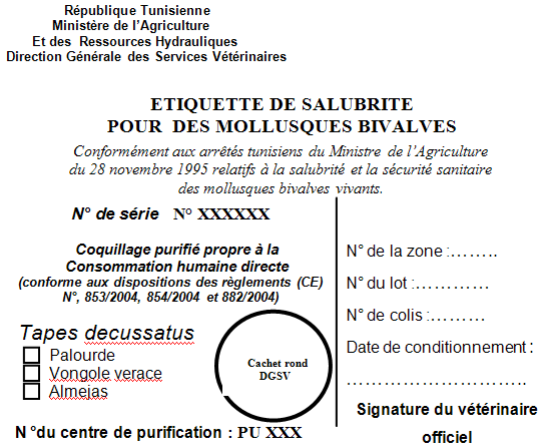
Official sanitary control
Purification and dispatch centres

Official analysis and self control:
bacteria, phytoplankton, biotoxins,
chemical contaminants

Favorable result

Unfavorable result

In order by CA



République Tunisienne
Ministère de l'Agriculture
Et des Ressources Hydrauliques
Direction Générale des Services Vétérinaires

ETIQUETTE DE SALUBRITE
POUR DES MOLLUSQUES BIVALVES

Conformément aux arrêtés tunisiens du Ministre de l'Agriculture du 28 novembre 1995 relatifs à la salubrité et la sécurité sanitaire des mollusques bivalves vivants.

N° de série **N° XXXXXX**

Coquillage purifié propre à la Consommation humaine directe
(conforme aux dispositions des règlements (CE) N°, 853/2004, 854/2004 et 882/2004)

Tapes decussatus
- ☐ Palourde
- ☐ Vongole verace
- ☐ Almejas

Cachet rond DGSV

N° de la zone :……..
N° du lot :……
N° de colis :……
Date de conditionnement :
……

Signature du vétérinaire officiel

N °du centre de purification : PU XXX

Destruction by RCA

Official sanitary control
Purification and dispatch centres

- 14 centres are approved in Tunisia
- The approvement is renewed at the beginning of each compaign or after an inactiity period of the centre
- The approement renewal is based on three steps:
  - 1- compliance audit: the purpose is to check proper maintenance of local, the proper functioning of equipment and the successful implementation of hygiene rules

Official sanitary control
Purification and dispatch centres

- 2- validation of the efficiency of the purification system
- 3- check of the self control program application

RCA

- Activity period of the centre: monthly audit and check of self control execution

Official sanitary control
Purification and dispatch centers

- Minimum self control program: fixed by CA

Section	frequency	Analysis type
Sea water	-Microbiolgy: Monthly -Phytoplankton: weekly for open circuit center and after each felling for closed circuit center	- Mentioned in legislation -identification and quantification of potentially toxic phytoplanktons
Treated sea water	3 times/month (microbiology)	- Mentioned in legislation
LBM	-Microbiolgy: 3 batch /month before and after purification -Bitoxins: twice/ month	Methods mentioned in legislation
Clean water	Once/ year for each water point	- Mentioned in legislation
Surface tests	One test/ actiity month (rotating)	Flore total a 30°C E Coli
Swabs hands	Once/year (for each staff member	Flore total a 30°C, E Coli, Staphylocoque a coagulase positve

Perspectives

- Establishment of monitoring network to research « NOROVIRUS »
- No sanitary alert for exported batchs
- Labratory accreditation
- Establishment of new methods for analysis
  (example: DSP/ LC-MSMS from January 2015)
- Development of LBM processing (cooking)
- Use of modern communication methods (network results: SMS, mail...)
- Development of shellfish hygiene system database to allow real time results dissemination
- Increase the clams fished quantities (stock: 1600 T)

Conclusions

- Certainly this sanitary control program has been developing for 20 years with the development of CE legislation
- Many European expertises (FVO audits): acceptable results but weakness points exist (laboratory, materials,...)

Need to Foster links with other enforcement bodies that have responsabilities in this sector

Thank you for your attention