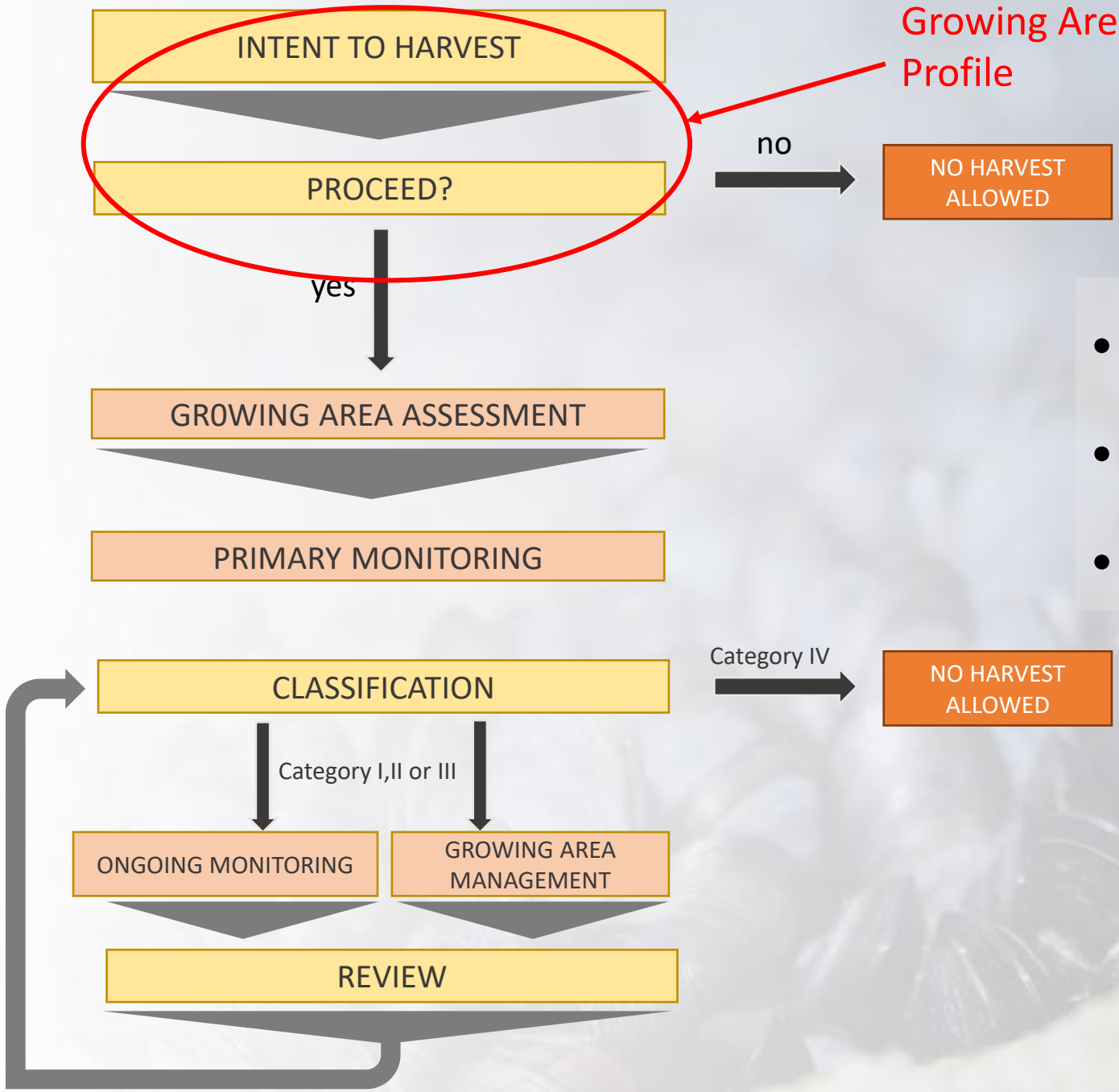
Growing Area Risk Profile and Assessments

Michelle Price-Hayward and Andy Younger

Cefas



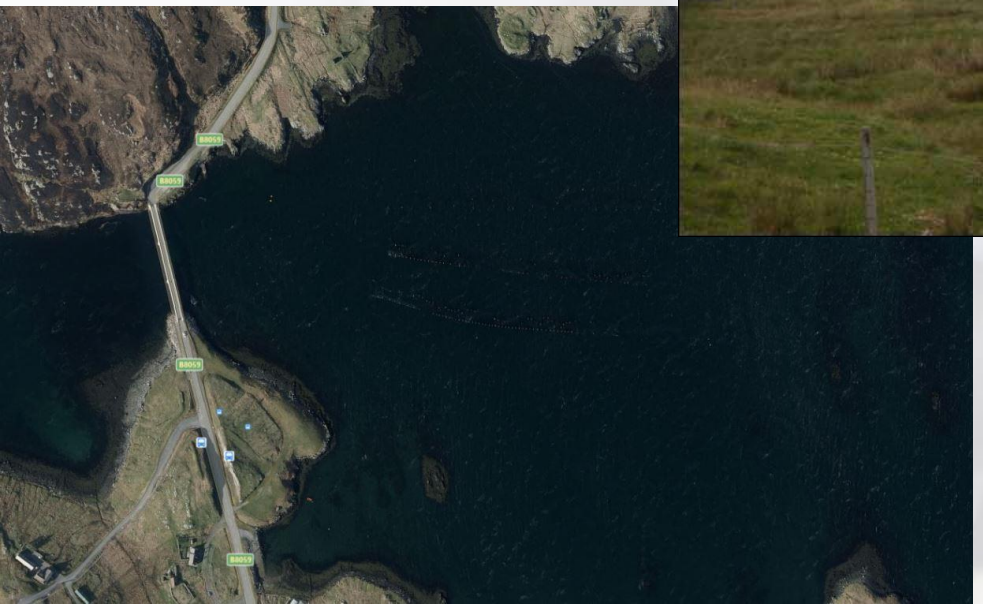
- **First stage of process**
- **Initial assessment**
- **Results in Go/No Go Decision**

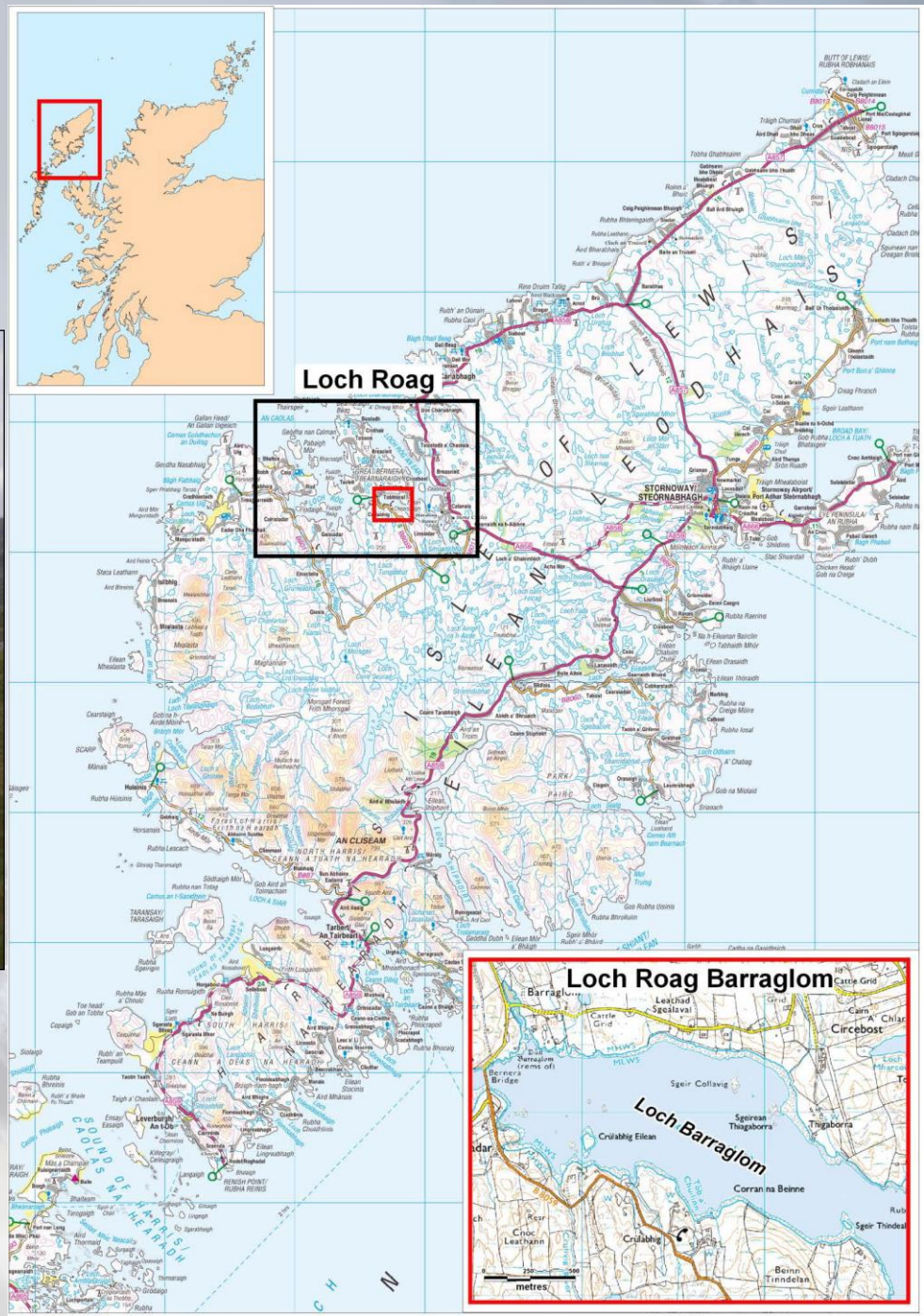
Key Parts of a Growing Area Risk Profile

1. Area overview
2. Scope
3. Existing legal framework
4. Current Industry
5. Extent of area
6. Epidemiological and public health data
7. Intended use and consumers
8. Other relevant information
9. Hazards to be considered
10. Programme capabilities
11. Cost benefit analysis
12. Conclusions and Recommendation
13. Documentation

1. Area Overview

Describes the geographic location and sets context



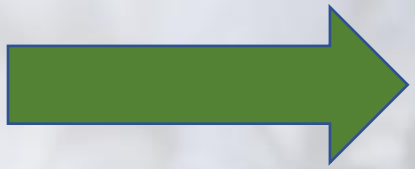


2. Scope of Risk Profile

Casual gathering for consumption by individuals at home

Domestic commercial sale

International trade



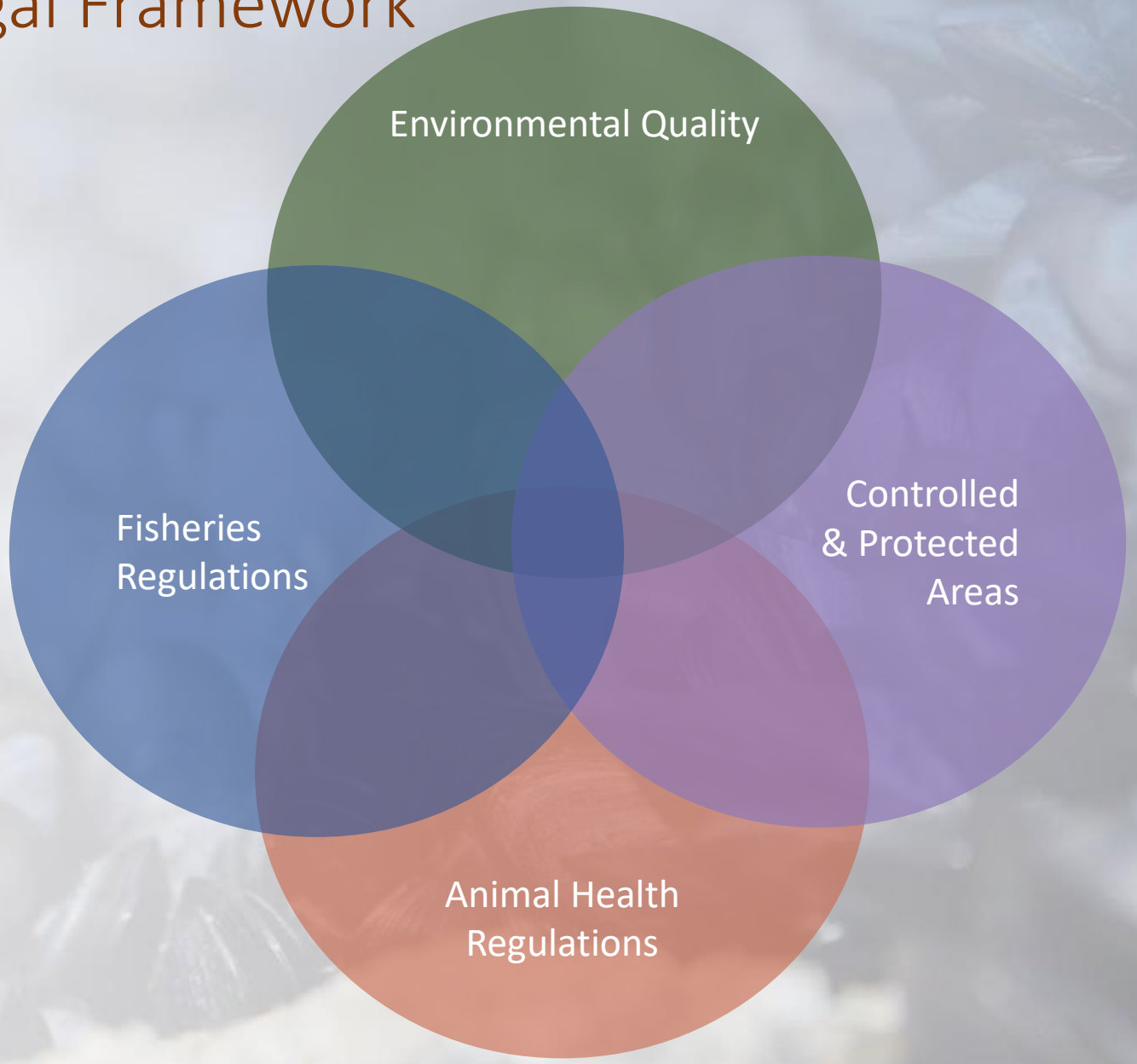
Local rules

Domestic regulations

Relevant regulations or requirements for trade in target market

3. Existing Legal Framework

- Current relevant food safety regulations, standards and other requirements
- Jurisdictions and responsible authorities
- Other official bodies with responsibilities relating to growing areas
- Interactions between Food Safety authorities and other responsible bodies

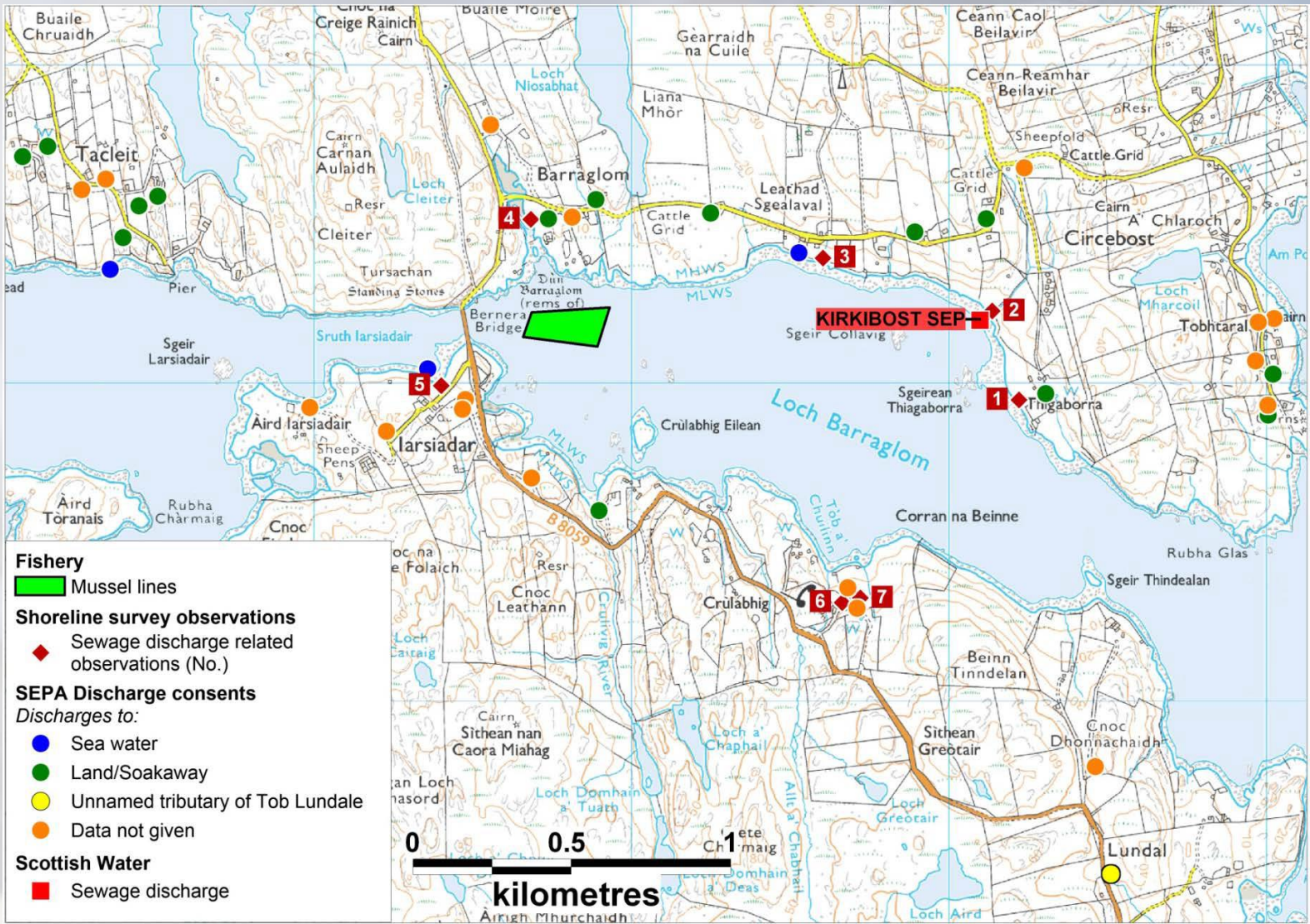


4. Current Industry and Resources

Who?	What?	Where?	How?	When?
Casual gatherers Aquaculture business Industry capability	Species to be harvested Biomass available Industry capability	Location and Extent Where in the water column Distance to landing site	Cultivation method Harvesting methods Relay or storage	Seasonality of harvest Seasonal variations in water and air temp

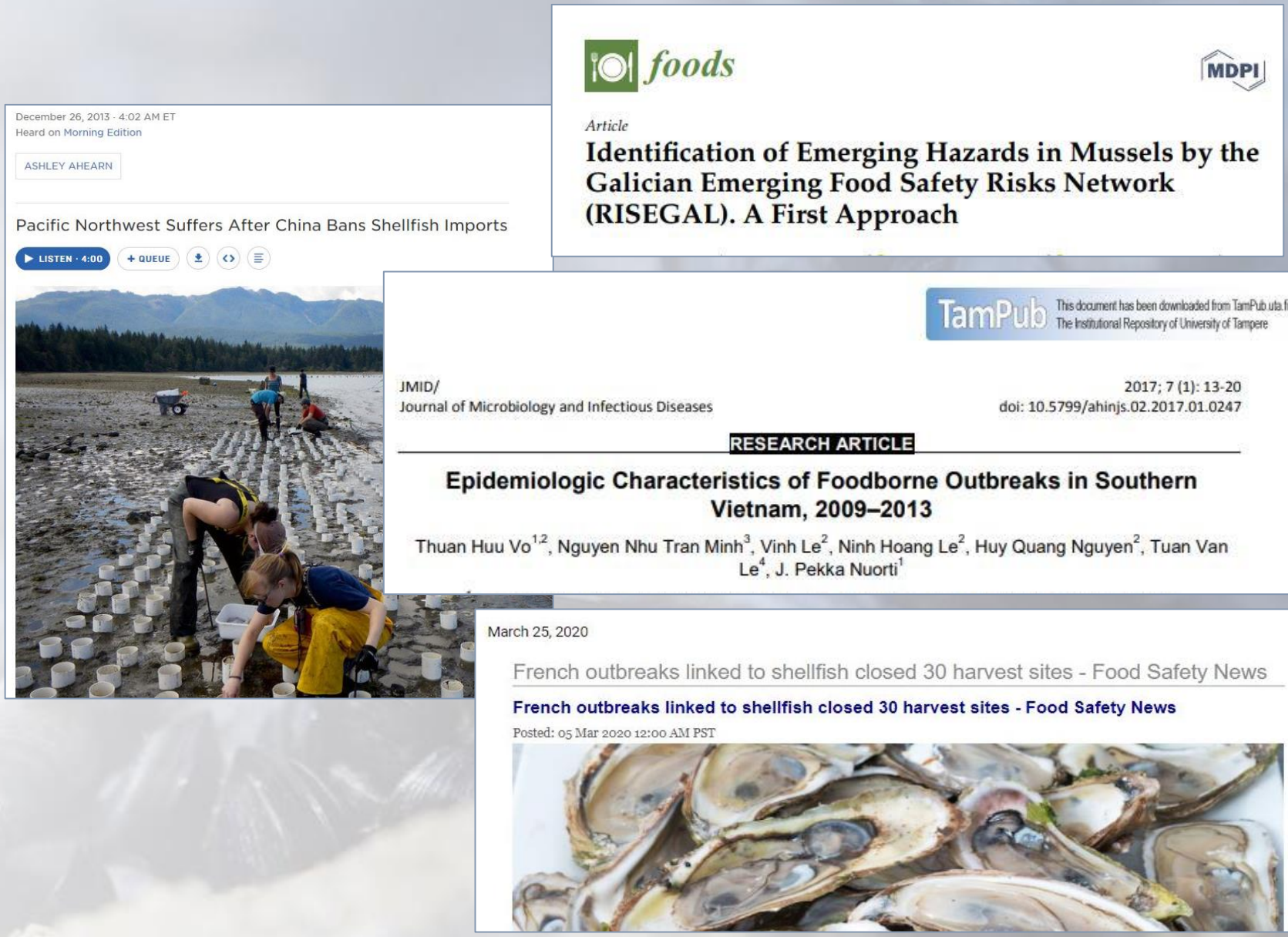
5. Extent of area for risk profiling

- Extends beyond area of intended harvest
- Determines area for which data is sought
- Depends on sources and transport of contamination
- May change as further information is gathered



6. Epidemiological and Public Health Data

- Useful to identify and rank hazards
- International data
  - Global Health Observatory (who.int)
- Occurrence of illnesses in population
- Growing area specific data
- Evidence of previous outbreaks
  - Root cause investigations



December 26, 2013 · 4:02 AM ET
Heard on Morning Edition

ASHLEY AHEARN

Pacific Northwest Suffers After China Bans Shellfish Imports

LISTEN · 4:00 + QUEUE

foods

MDPI

Article

Identification of Emerging Hazards in Mussels by the Galician Emerging Food Safety Risks Network (RISEGAL). A First Approach

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JMID/
Journal of Microbiology and Infectious Diseases

2017; 7 (1): 13-20
doi: 10.5799/ahinjs.02.2017.01.0247

RESEARCH ARTICLE

Epidemiologic Characteristics of Foodborne Outbreaks in Southern Vietnam, 2009–2013

Thuan Huu Vo[1,2], Nguyen Nhu Tran Minh[3], Vinh Le[2], Ninh Hoang Le[2], Huy Quang Nguyen[2], Tuan Van Le[4], J. Pekka Nuorti[1]

March 25, 2020

French outbreaks linked to shellfish closed 30 harvest sites - Food Safety News

French outbreaks linked to shellfish closed 30 harvest sites - Food Safety News

Posted: 05 Mar 2020 12:00 AM PST

7. Intended Use and Consumers

- Societal consumption patterns, considering likely consuming population
  - FAO provide guidance on consumption studies
- Presentation, processing and/or preparation
- Identify high risk consumers

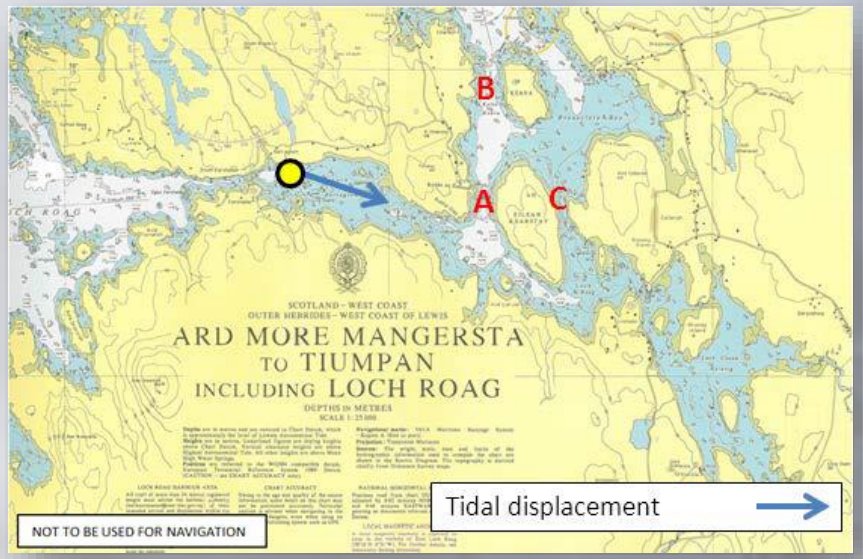
8. Other Relevant Information

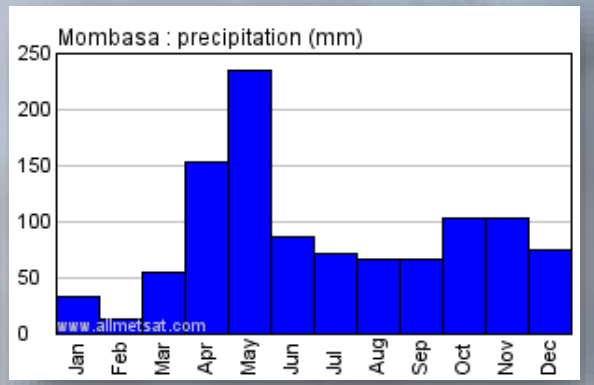
- Aspects related to contamination sources
  - Human activity
    - Land-based
    - Water-based
  - Sewage disposal
  - Areas with many farm animals
  - Areas with large wildlife populations
  - Watercourses
  - Geology – naturally occurring contaminants

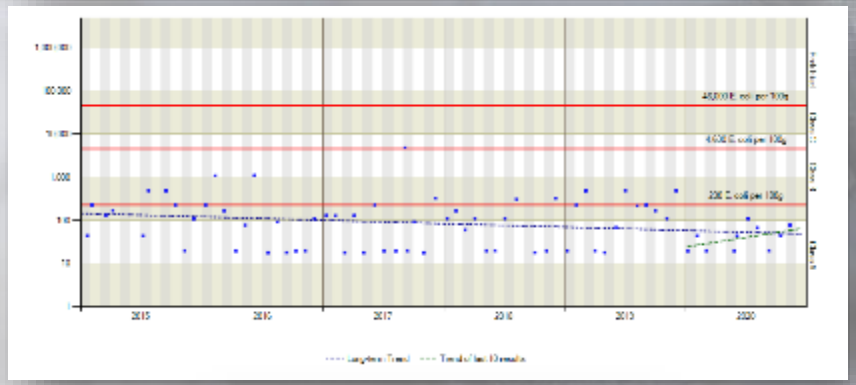
9. Hazards to be Considered

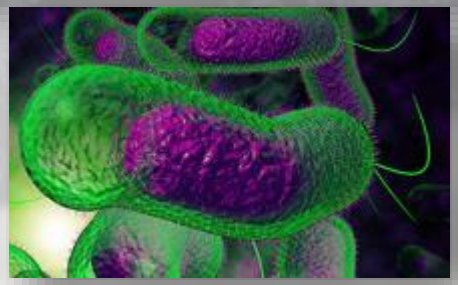
- Which hazards to consider?
  - Microbial, chemical, biotoxin, radiological

  Guided by:
  - Regulatory requirements and risks
  - end use of product
  - resources available (prioritise?)
- Aspects affecting hazard impact
  - Topography
  - Water depth and movement
  - Rainfall and river flow
  - Seawater temperature and salinity
  - Existing monitoring data
  - Vibrio spp. – whether these could multiply in harvested product









10. Programme Capability and Capacity

Key needs:

- Relevant authority
- Appropriate budgetary resources
- Suitably qualified staff
- Ability to provide appropriate training
- Relevant and sufficient equipment, computers, software
- One or more laboratories with relevant expertise, capacity and location

11. Cost Benefit Analysis

- Estimate of overall medium-term cost for the programme for a growing area should be determined
  - Growing area assessment
  - Primary monitoring
  - Initial review
  - First 3 years ongoing monitoring

- Estimate of overall benefits over the same period of time should be determined
  - Value at first sale
  - Value to local community
  - Access to markets (if applicable)
  - Public health protection

12. Conclusions and Recommendations

Outcome of Growing Area Risk Profile:

- Summary of key features
- Knowledge gaps identified
- What is needed to fill gaps?
- Decision to proceed? Yes/No

No?:

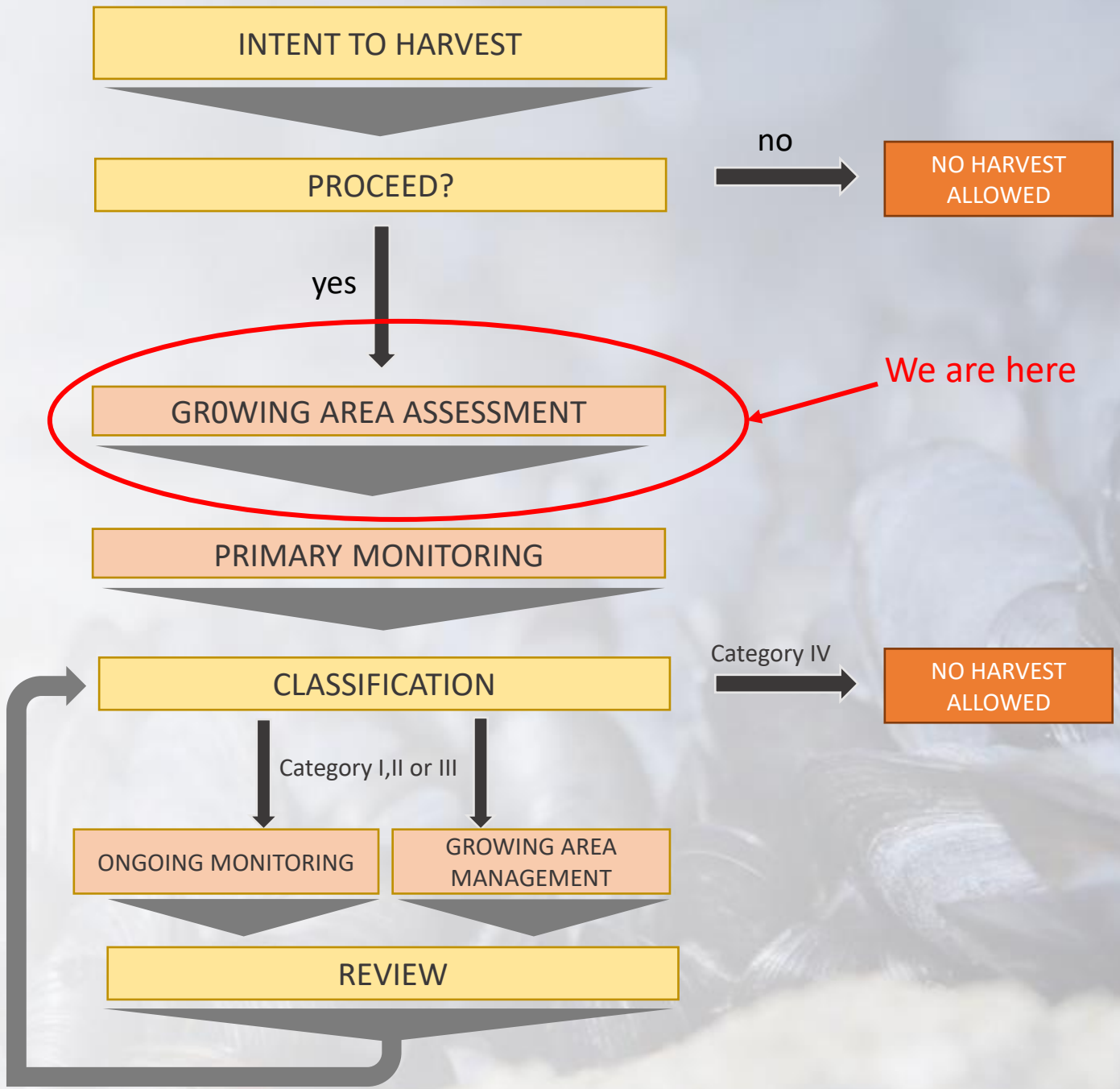
- Gaps in knowledge too great
- Level of faecal pollution likely to be unacceptable
- Post harvest treatment will not reduce risks to acceptable levels
- If biotoxins, chemical contaminants, or radionuclides likely to be above acceptable limits most, or all, of time

13. Documenting GARP

- Conclusions and recommendations **documented** with clear link to supporting information (i.e. traceability)
- Documentation should be available to responsible authority and stakeholders
- Provides basis for subsequent reviews and Growing Area Assessment if application proceeds…

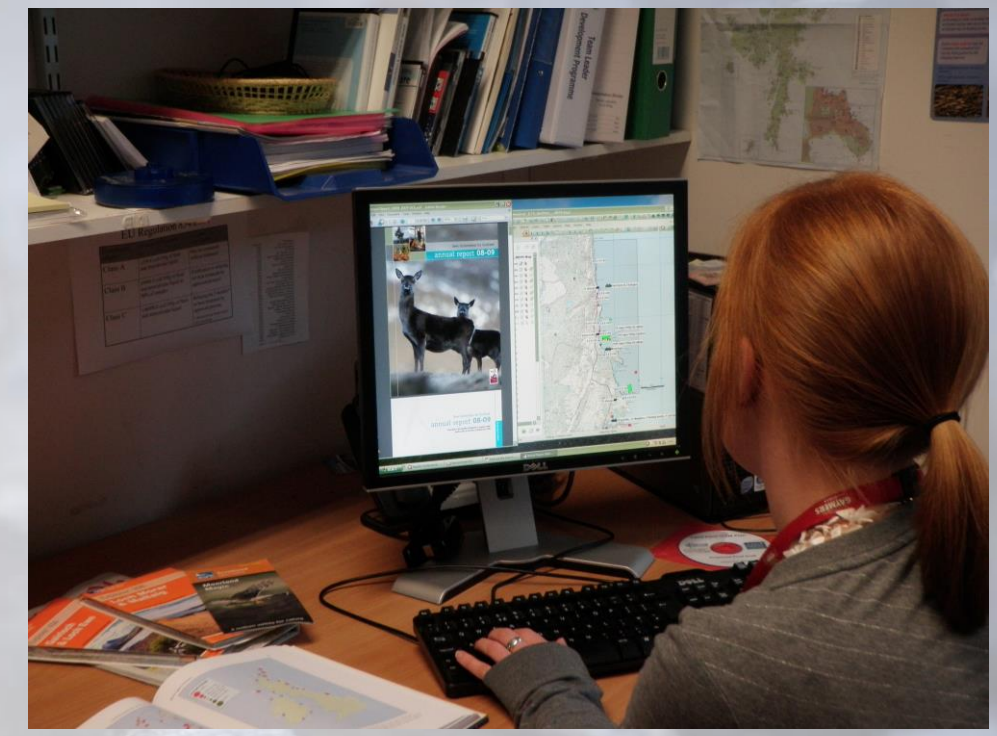
CONCLUSIONS AND RECOMMENDATIONS	> Should assessment and monitoring be progressed (go/no go)? > If yes: > Hazards to be considered > Boundaries of assessment area > Capability/capacity requirements

- The inclusion of relevant maps will assist the verification and assessment of the information and data.


INTENT TO HARVEST
PROCEED?
no
NO HARVEST ALLOWED
yes
We are here
GR0WING AREA ASSESSMENT
PRIMARY MONITORING
CLASSIFICATION
Category IV
NO HARVEST ALLOWED
Category I,II or III
ONGOING MONITORING
GROWING AREA MANAGEMENT
REVIEW

Components of a Growing Area Assessment

- Additional data gathering
- Shoreline survey
- Indicator/hazard survey
- Data analysis and assessment
- Outcomes
  - Extent of classified growing area
  - Recommendations for primary monitoring
  - Risk management plan
  - Documentation

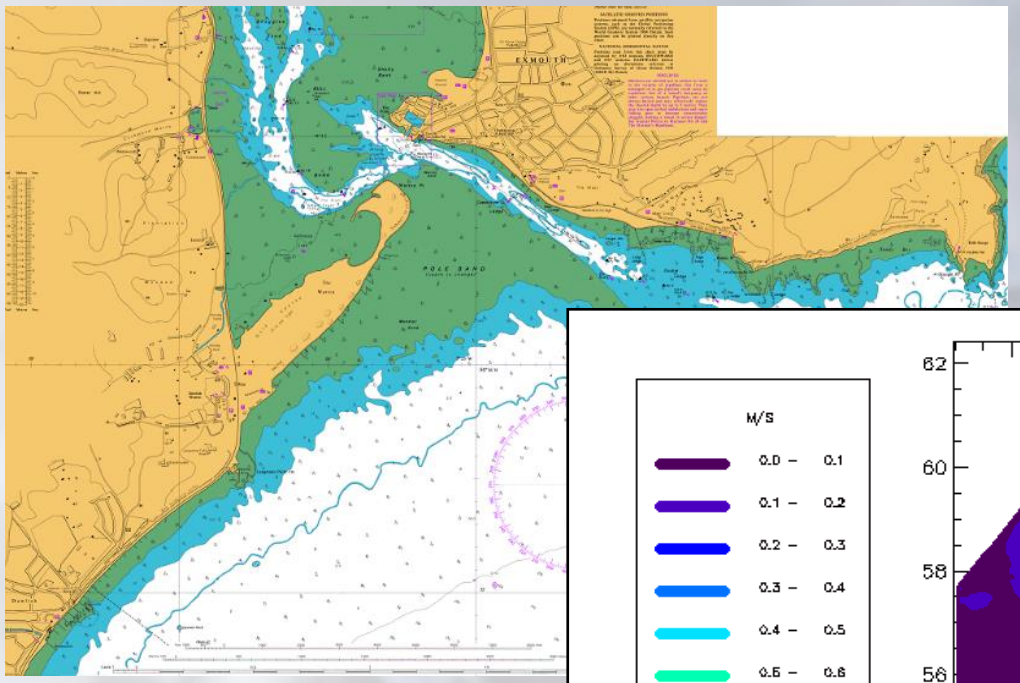


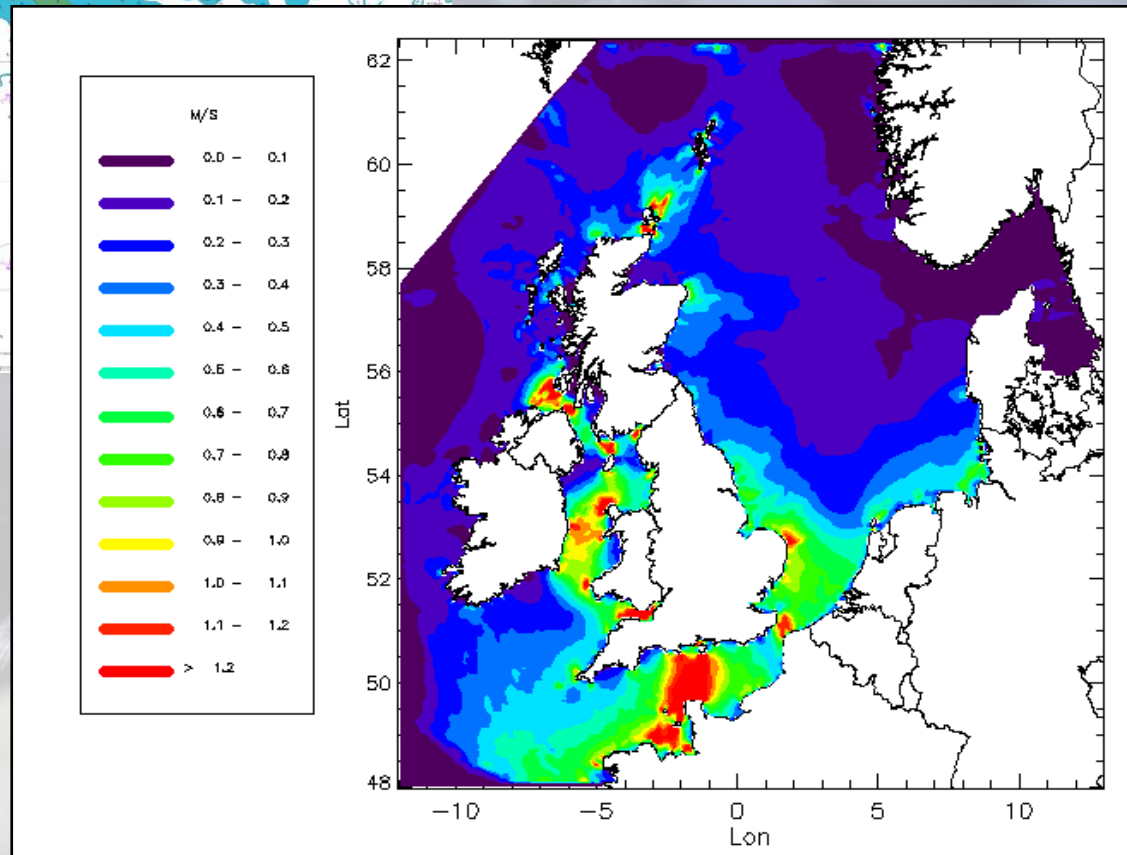
Data Gathering 1– Human Impacts

- Sources of contamination
  - Human sewage
    - Treatment works
    - Sewerage systems
    - Sludge handling
    - Direct defaecation
    - Shipping/boating
  - Land use
    - Mining and waste disposal
    - Livestock farming
    - Grazing
    - Animal slaughter facilities and wastes
    - Animal slurry spreading
    - Fertilizer application
    - External medical treatments
  - Other human activities
    - Industrial waste
    - Refuse sites

Data Gathering 2 - Environment

- Wild animals/birds
- Watercourses
- Geology
- Topography
- Hydrography
  - Depth areas
  - Tides
  - Water movement
- Meteorology
  - Rainfall
  - Wind
  - Severe storms
  - Solar radiation
- Seawater salinity and temperature





Shoreline Survey

PLAN

- Health and Safety
- Access
- Tides
- Daylight
- Weather
- Seasonality

CONDUCT

- Seek and record information
- Locate relevant features
- Confirm data gathering
- Fill in data gaps
- Note differences
- Photograph
- Measure

Indicator/Hazard Survey

General microbiological hazards

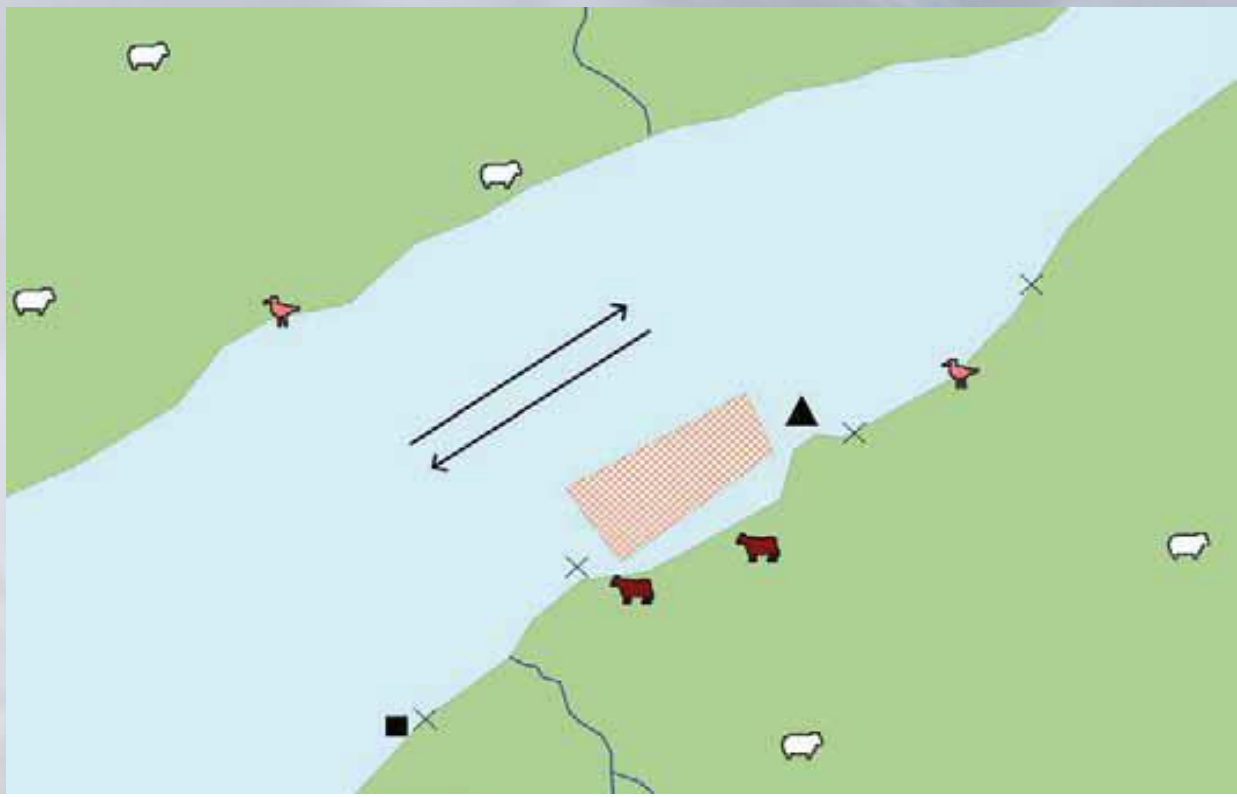
- Sample on at least 3 occasions
- At least 2 weeks apart
- Target sampling
- Where possible, at least one sample should coincide with shoreline survey

Assessing treatment efficiency of sewage works

- Paired samples
- Influent and effluent
- Average estimation

Data Analysis and Assessment

- Analytical approaches
  - Descriptive/Qualitative
    - Simplest means of assessment
    - Uses descriptive information
    - Relies on expert judgement
    - May be dictated by lack of data
  - Semi-quantitative
    - Uses ranking with loading score
    - Based on level of risk

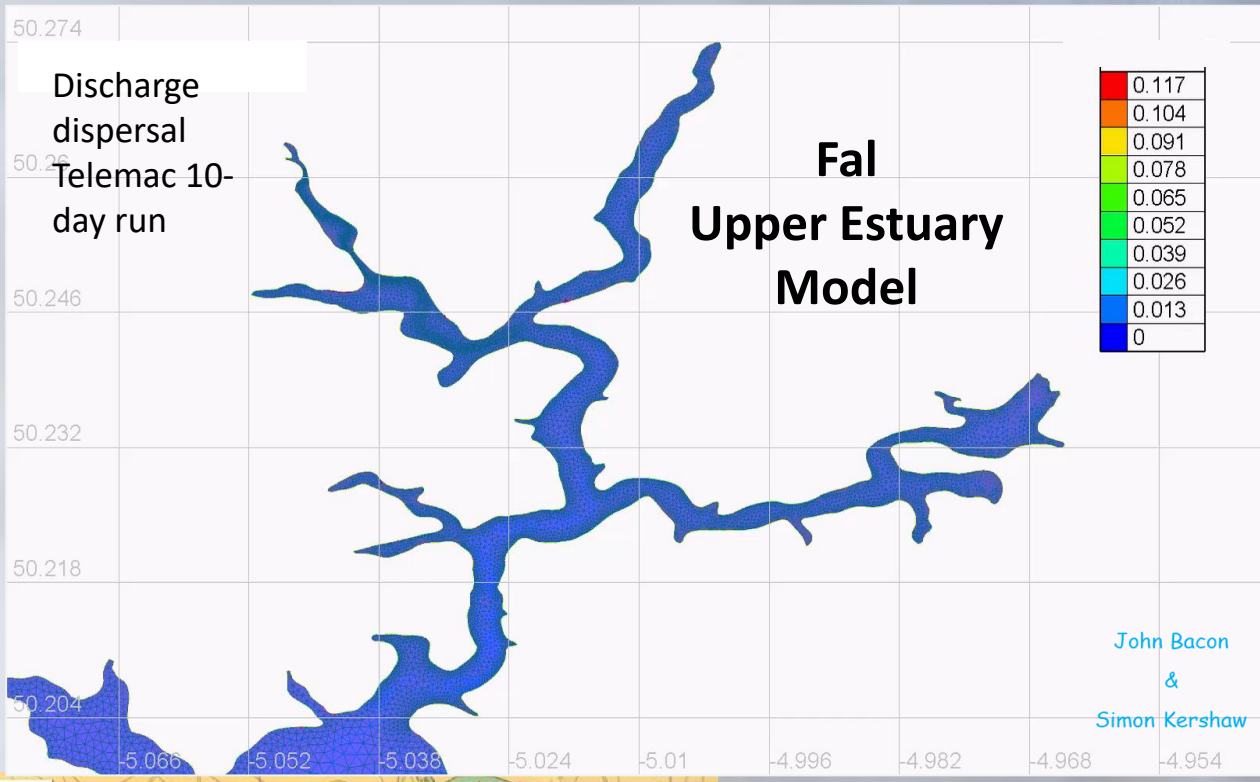


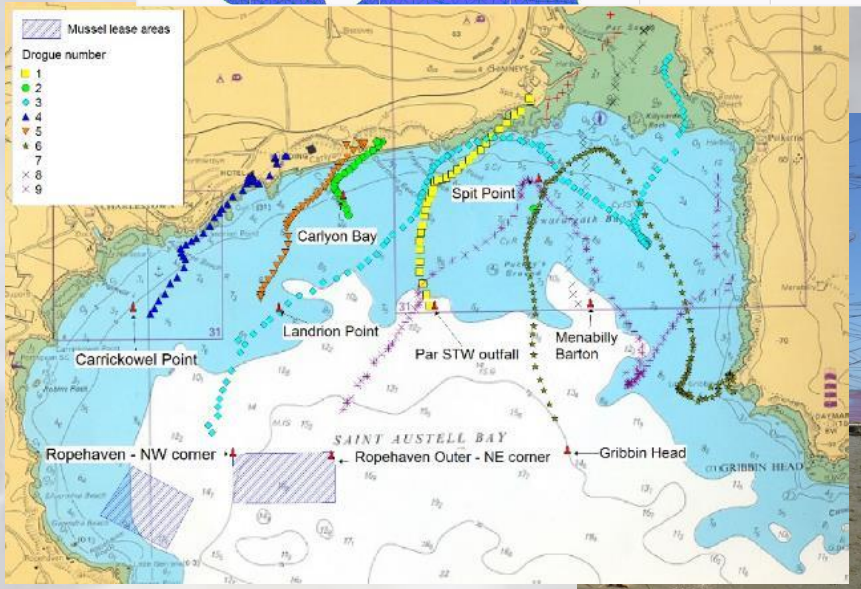
ASSESSMENT POINT 1

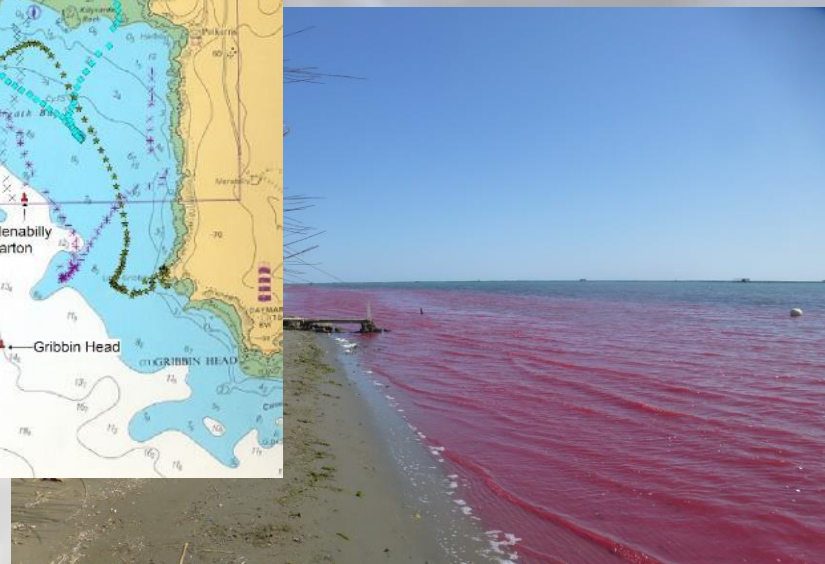
SOURCE	RELATIVE LOADING	OCCURRENCE	PROXIMITY	IMPACT
Continuous discharge	2	3	3	18
Intermittent discharge	3	1	5	15
Cattle farm 1	1	1	5	5
Cattle farm 2	1	2	4	8
Total				41

Quantitative Assessment

- Quantitative source estimation
  - Use common metric
  - Variability in hazard content, rate of input
  - Estimate uncertainties
- Quantitative transport estimation
  - Dilution calculations based on simple volume
  - Calculations of dilution based on salinity reduction
  - Tidal stream estimations
  - Tracer studies
  - Hydrodynamic modelling

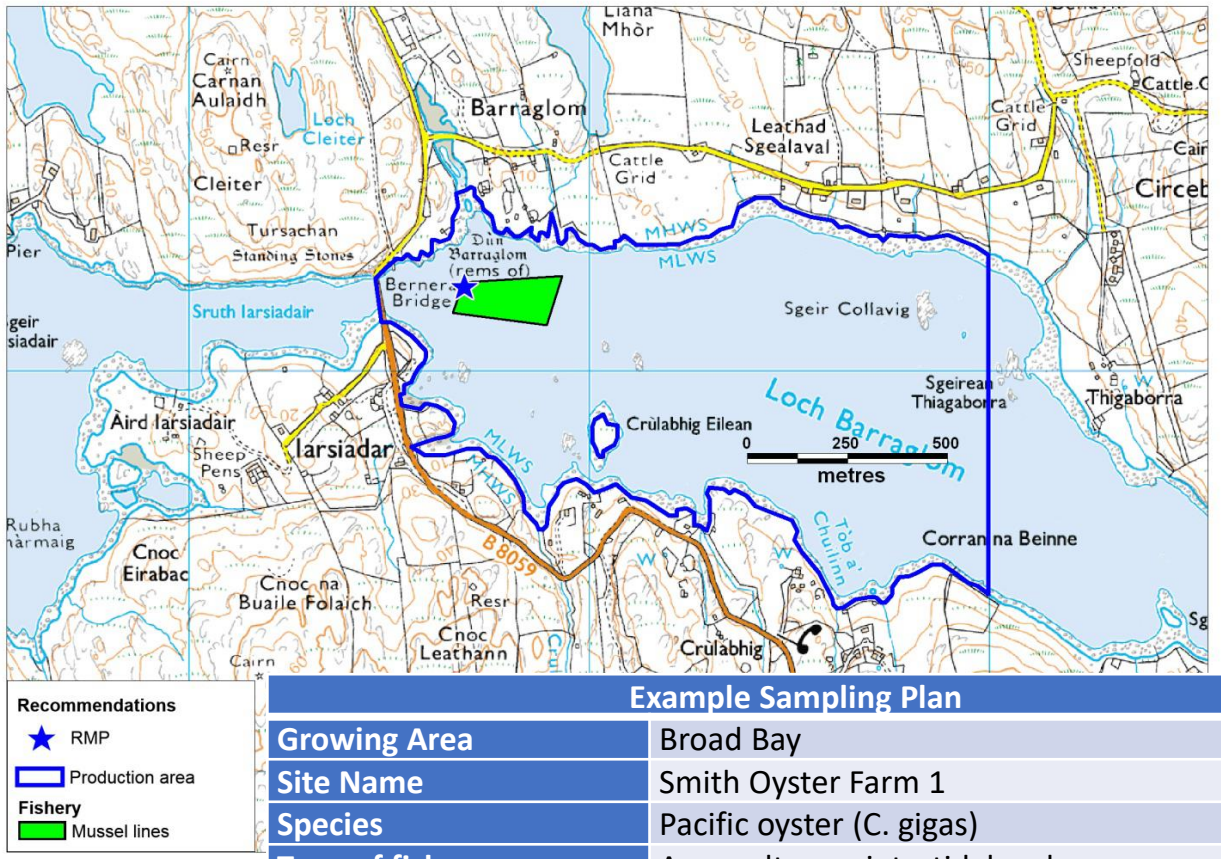






Outcomes

- Extent of classified growing area
- Recommendations for primary monitoring
- Risk management planning
  - If conditional criteria apply
- Documentation



Example Sampling Plan	
Growing Area	Broad Bay
Site Name	Smith Oyster Farm 1
Species	Pacific oyster (C. gigas)
Type of fishery	Aquaculture – intertidal racks
Method of sampling	Hand
Monitoring point	Sample Point A
Latitude	55.25819
Longitude	-4.86718
Tolerance	20 m
Depth	Not applicable
Frequency	Monthly
Authorised samplers	J. James, A. Norton
Growing area boundaries	Area bounded by a line drawn from 56.11290, -4.88736 to 54.99450, -4.85814 and extending to MHWS within the bay.