# Overview of Growing Area Assessments
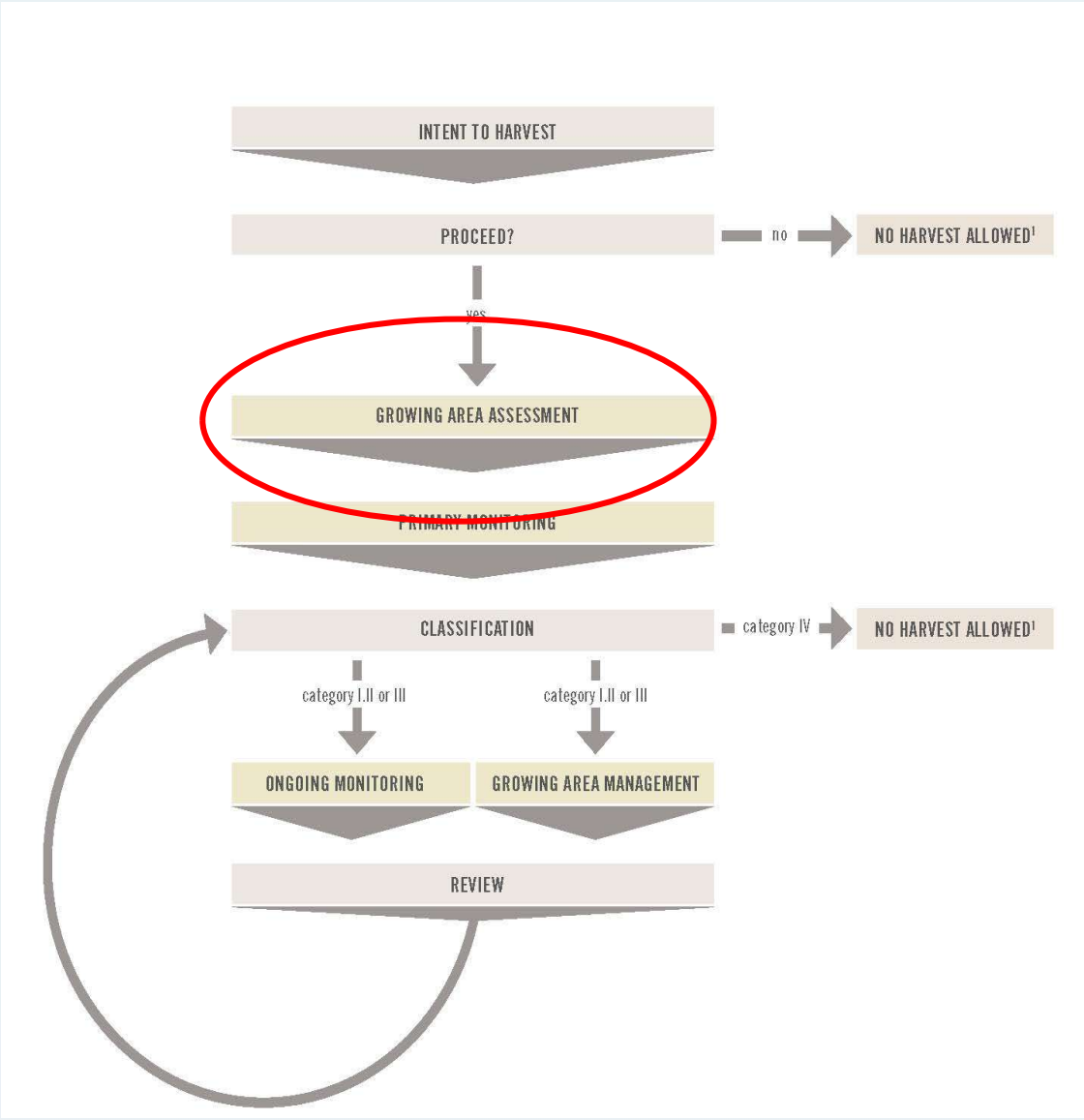
INTENT TO HARVEST

PROCEED? → no → NO HARVEST ALLOWED[1]

yes

GROWING AREA ASSESSMENT

PRIMARY MONITORING

CLASSIFICATION → category IV → NO HARVEST ALLOWED[1]

category I,II or III          category I,II or III

ONGOING MONITORING          GROWING AREA MANAGEMENT

REVIEW

Centre for Environment
Fisheries & Aquaculture
Science

Cefas

# 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
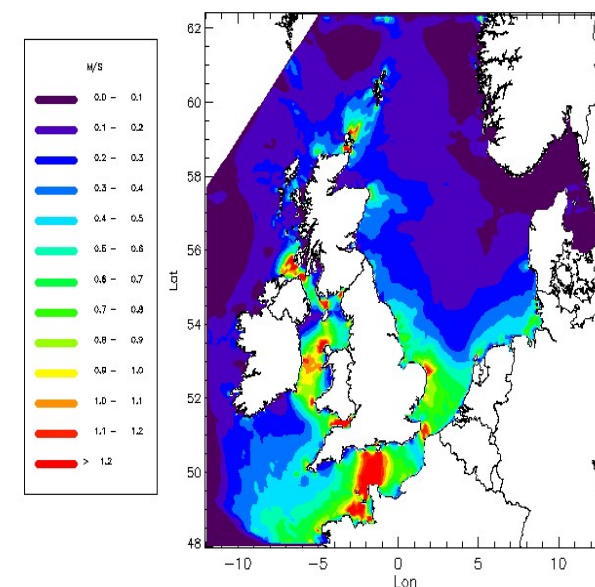
# Additional Data Gathering

- 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





Centre for Environment
Fisheries & Aquaculture
Science

Cefas

# Additional Data Gathering 2

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



Centre for Environment
Fisheries & Aquaculture
Science

Cefas

# Shoreline Survey



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

- Conducting
  - Seek and record information
  - Location of relevant features
  - Confirm data gathering
  - Fill in data gaps
  - Note differences
  - Photographs
  - Measurements

# Indicator/Hazard Survey

- General microbiological
    - 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

Centre for Environment Fisheries & Aquaculture Science

Cefas

# 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
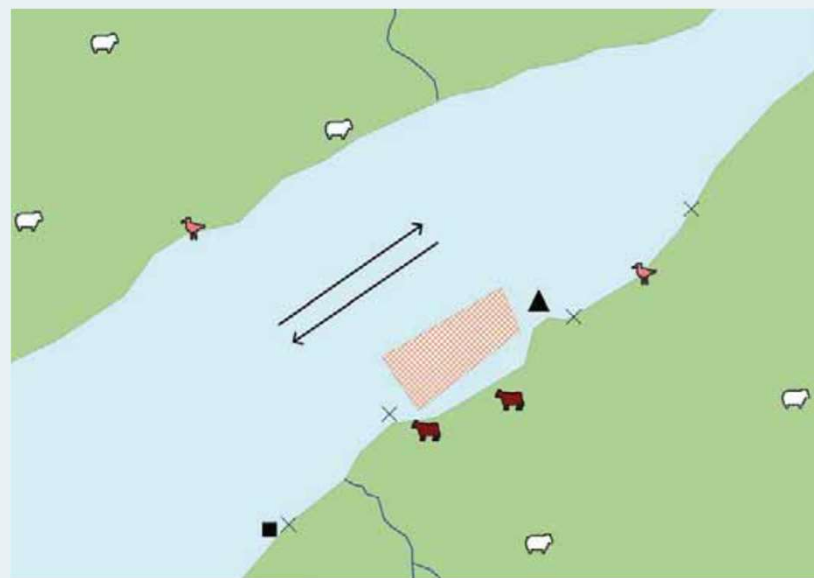


ASSESSMENT POINT 1

| 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 |

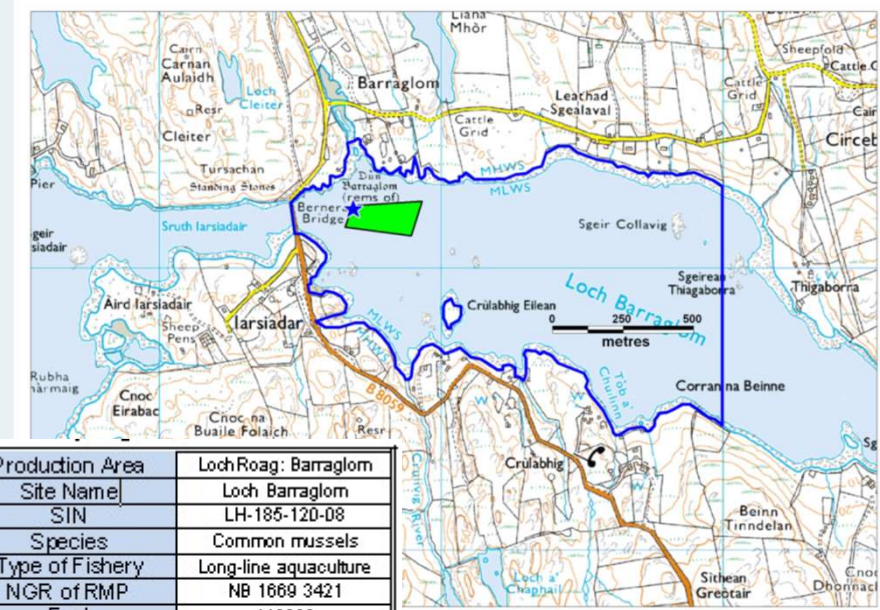Centre for Environment Fisheries & Aquaculture Science

Cefas

# 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

Centre for Environment
Fisheries & Aquaculture
Science

Cefas

# Outcomes



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

| Production Area | Loch Roag: Barraglom |
|---|---|
| Site Name | Loch Barraglom |
| SIN | LH-185-120-08 |
| Species | Common mussels |
| Type of Fishery | Long-line aquaculture |
| NGR of RMP | NB 1669 3421 |
| East | 116690 |
| North | 934210 |
| Tolerance (m) | 40 m |
| Depth (m) | Not specified |
| Method of Sampling | Hand |
| Frequency of Sampling | Monthly |
| Local Authority | CnES |
| Authorised Sampler(s) | Paul Tyler |
| Local Authority Liaison Officer | Colm Fraser |
| Recommended Production Area | The area bounded by lines drawn from NB 1800 3429 to NB 1800 3344 and from NB 1667 3444 to NB 1669 3445, extending to MHWS, and from NB 1647 3423 to NB 1648 3412 (the line of the B8059). |