

# **Workshop sui METODI PER IL MONITORAGGIO DEI CETACEI:**

*Standardizzazione dei metodi di raccolta ed elaborazione dei dati per la stima dell'abbondanza ed il monitoraggio dei trend delle popolazioni di cetacei dei mari italiani*

*Workshop - Roma, 21-22 aprile 2008*

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**- DRAFT -**

## **Standard methods for data collection and estimation of cetacean abundance in Italian waters**

### **1. General introduction: rationale for a monitoring plan of spatial and temporal trends in cetacean abundance**

- 1.1. Relevance of international and national regulations on Cetaceans**
- 1.2. Cetacean species in Italian waters**

### **2. Standardising protocols of data collection**

#### **2.1 Introduction**

##### **2.1.2. Absolute abundance vs. relative abundance**

#### **2.2 Available methods for estimating abundance and research issues**

##### **2.2.1 Visual and acoustic line-transect surveys from dedicated platforms**

###### **2.2.1.1 Design-based method (classic)**

###### **2.2.1.1.1 Visual survey methodology**

###### **2.2.1.1.1.1 Survey blocks, seasonal effort stratification and coverage**

###### **2.2.1.1.1.2 Tracklines for ship-based surveys**

###### **2.2.1.1.1.3 Tracklines for aerial surveys**

###### **2.2.1.1.1.4 Equipment**

###### **2.2.1.1.1.5 Observation protocol**

###### **2.2.1.1.1.6 Observers characteristics**

###### **2.2.1.1.1.6.1 Experienced and inexperienced observers**

###### **2.2.1.1.1.7 Review of required platform characteristics**

###### **2.2.1.1.1.8 Potential methodological conflicts and solutions**

###### **2.2.1.1.1.8.1 Additional data**

###### **2.2.1.1.1.8.2 Stock identity (study area vs. population range)**

###### **2.2.1.1.1.8.3 Species characteristics (e.g. dive times)**

###### **2.2.1.1.1.9 Data organisation**

###### **2.2.1.1.1.10 Data analysis**

###### **2.2.1.1.1.10.1 Bootstrapping**

###### **2.2.1.1.1.10.2 Data Pooling**

###### **2.2.1.1.2 Acoustic survey methodology**

###### **2.2.1.1.2.1 Survey blocks, seasonal effort stratification and coverage**

###### **2.2.1.1.2.2 Tracklines**

###### **2.2.1.1.2.3 Night surveys**

###### **2.2.1.1.2.4 Equipment**

###### **2.2.1.1.2.5 Data recordings protocol**

###### **2.2.1.1.2.6 Review of required platform characteristics**

###### **2.2.1.1.2.7 Potential methodological conflicts and solutions**

###### **2.2.1.1.2.7.1 Additional data**

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- 2.2.1.1.2.7.2 Stock identity (study area vs. population range)
- 2.2.1.1.2.7.3 Species recognition
- 2.2.1.1.2.8 Data organisation
- 2.2.1.1.2.9 Data analysis
  - 2.2.1.1.2.9.1 Bootstrapping
  - 2.2.1.1.2.9.2 Data Pooling
- 2.2.1.3 Model-based method (GAMs, GLMs)
  - 2.2.1.3.1 Data collection (requirements for spatial analysis)
    - 2.2.1.2.1.1 Additional data
  - 2.2.1.3.2 Potential methodological conflicts and solutions
  - 2.2.1.3.3 Data organisation
  - 2.2.1.3.4 Data analysis
- 2.2.2 Mark-recapture**
  - 2.2.2.1 Photo-identification
    - 2.2.2.1.1 Data collection
      - 2.2.2.1.1.1 Materials & methods
      - 2.2.2.1.1.2 Potential methodological conflicts and solutions
    - 2.2.2.1.3 Data organisation
    - 2.2.2.1.4 Data analysis
      - 2.2.2.1.4.1 Single site
      - 2.2.2.1.4.2 Multisite
      - 2.2.2.1.4.3 Additional output (e.g., population dynamics and structure, PVA)
  - 2.2.2.2 Genetics
- 2.2.3 Platforms of opportunity**
  - 2.2.3.1 Visual survey methodology
    - 2.2.3.1.1 Survey blocks, seasonal effort stratification and coverage
    - 2.2.3.1.2 Tracklines for ship-based surveys
    - 2.2.3.1.3 Tracklines for aerial surveys
    - 2.2.3.1.4 Equipment
    - 2.2.3.1.5 Observation protocol
    - 2.2.3.1.6 Observers characteristics
      - 2.2.3.1.6.1 Experienced and inexperienced observers
    - 2.2.3.1.7 Potential methodological conflicts and or problems and solutions
      - 2.2.1.3.7.1 Limitations (e.g. almost never double platform)
      - 2.2.1.3.7.2 Additional data
      - 2.2.1.3.7.3 Stock identity (study area vs. population range)
    - 2.2.3.1.8 Data organisation
    - 2.2.3.1.9 Data analysis
  - 2.2.3.2 Acoustic survey methodology
    - 2.2.3.2.1 Survey blocks, seasonal effort stratification and coverage
    - 2.2.3.2.2 Tracklines
    - 2.2.3.2.3 Night surveys
    - 2.2.3.2.4 Equipment
    - 2.2.3.2.5 Data recordings protocol
    - 2.2.3.2.6 Review of required platform characteristics
    - 2.2.3.2.7 Potential methodological conflicts and solutions

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2.2.3.2.7.1 Additional data

2.2.3.2.7.2 Stock identity (study area vs. population range)

2.2.3.2.7.3 Species recognition

2.2.3.2.8 Data organisation

2.2.3.2.9 Data analysis

#### **2.2.4 Indexes or relative abundance**

#### **2.3 Most appropriate methods for priority species**

#### **2.4 Most appropriate methods for different observation platforms**

### **3. Reference material**

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