WorkPackage 5

- Task Allocation - personnel involved in the work package and their designated tasks
- Task Schedule - timetable of events within work package (ie timing of fieldwork)
- Task Strategy - techniques and methods utilised during work package.

Participants in WP5

* is this list correct or do we need to revise it?

Partner #	Participant name	Country
1	Scottish Association for Marine Science	UK
3	Napier University	UK
4	National Institute of Biology	Slovenia
5	Leibniz-Institute of Marine Science	Germany
6	Akvaplan Niva	Norway
7	University of Haifa	Israel
8	University of Crete	Greece
9	Plymouth Marine Laboratory	UK
10	Institute of Marine Research	Portugal
11	Central Institute for Marine Research	Italy
12	Institut Français de Recherche pour l'Exploitation de la Mer	France
13	Instituto Tecnológico Pesquero y Alimentario	Spain
14	University of Venice	Italy
15	Rudjer Boskovic Institute	Croatia

WP5 **Objectives**

- To establish robust site selection criteria to maximise the utility of the work package.
- To select suitable study sites for testing of the tools and indicators that are chosen in WP4
- To carry out a series of field sampling campaigns that will generate a database of information that will enable evaluation of the tools and indicators by means of appropriate predictive models.

Deliverables

- Selection and description of study sites with existing background information (need to finalize list; background information needed? driven by models.)
- Handbook of protocols for field studies (still need to decide on indicators.)
- Report on results of field studies

WP5 Worktasks & Timetable

- Establish list of European aquaculture sites that could serve as study sites for WP5 - Oct 2005
- Interaction with team from WP4 to determine practicality of the indicators and models selected for the project - ongoing work in subgroups
- Selection of "most-representative" or most "suitable" study sites - SSG - today?
- Collection and organization of all necessary background/ preliminary data for the selected study sites - Jan 2006 ?
- Preparation of detailed "cookbook" of protocols to be employed in the field excursions with emphasis on quality assurance and uniform procedures to allow for cross-comparisons - waiting for WP4

WP5 Worktasks & Timetable (cont)

- Preparation of standard format for data entry so that it is easy to manage and analyze (statistics) and incorporate into the selected models - partner 7 - TBD
- Hold workshop to review methods to be employed at each of the study sites and to ensure that each host partner has necessary facilities and gear for this - all partners - TBD
- Brief (< 1 week), yet intense, field investigations (EIA-style) will be undertaken to allow testing of selected tools and indicators at study sites - all partners - May - Aug 2006
- Data entry into the project database and uploading of data onto the website - partner 7 - Oct 2006

Some WP5 Issues:

- need to go through each of the study sites & verify that all of these fulfill the site selection criteria
- the number of study sites we will manage to cover in WP5 depends on the site-visit strategy we employ... how strictly do we adhere to the 1-week (EIA-style) time limit?
- the data gathered in the course of an EIA should be fairly easy (and quick) to collect... data processing (and subsequent analyses) to serve the variety of models we want to test, should be more flexible to enable us to evaluate different indicators

More WP5 Issues:

- need to compile (and start generating) preliminary data for each study site on hydrography, bathmetry, fish farm impacts, other stakeholders, etc.
- analyses of samples should be shared by experts from different countries
- Quality control: who will be visiting each of the study sites?
  If we hold workshop where we cover all details of protocols for sampling/ measurements for WP5, is it possible that local teams will be able to do most/all of the work on their own? I can go to some, but not all, of the sites...
  Another option - create a small field team (3 or 4 people) and a representative will go to each of the sites to assure quality control since we will not have another opportunity to go out into the field to re-do WP5 measurements.

Study Site Criteria

- good representative of EU aquaculture: culture method, species, geographical features
- existing background data
- study site is readily accessible from partner's institute
- partner has all necessary field equipment and lab gear

Study Sites- 1

variable	Chioggia Venice Italy	Loch Creran Scotland UK	Vidlin voe, Shetland UK	San Pedro del Pinatar (Murcia) Spain	Ria Formosa Portugal	Sagres Portugal	Bisceglie Italy	Portoroz, Slovenia
environment	offshore	coastal	coastal	offshore	coastal	offshore	offshore	coastal
WFD ecoregion, type	Mediterranean, coastal	N Atlantic, coastal	N Atlantic, coastal	Mediterranean, offshore	N Atlantic, coastal	N Atlantic, coastal (exposed)	Mediterranean, CW – M3	Mediterranean, CW
features	Adriatic	sea loch	voe			exposed		bay
water conditions	mainly calm	calm/sheltered	calm - rough	calm	very sheltered	rough	rough	calm - rough
water temps	6-25	5-15	7 - 12	14-28	7-31	13-24	12-26	6.5-27.8
salinity (psu)	35-37.5	**28-32.5**	35	37-38	34.6-36.6	35-37	37-38	31-38.7
ave depth (m)	25 m	20-30 m	15-35	30-50 m	2 m	25 - 35	18-25 m	13 m
cult. spp	mussels	salmon	Atlantic Cod (*Gadhus morhua*)	seabass, seabream, red tuna	manila clam	Eur flat oyster, Pacific oyster	sea bass, seabream, pandora	mussels
annual production	600 MT	2,000 MT	100-500 MT	2,000 MT S&S,800MT Tuna	8,000 MT	500 MT	700 MT	135 MT
available facilities	ICRAM Chioggia	SAMS, excellent	Vessel & local workshops	boat, other?	boats	IMAR, boat,lab	boat	MBS, excellent
map	yes	no	yes	yes	yes	yes	yes	no
existent WQ data	yes	yes	no	yes	yes	yes	yes	yes

Study Sites - 2

variable	Portoroz, Slovenia	Marennes Pertuis Breton France	Krka estuary, Croatia	Sylt Island, Germany	Rhodos East coast	Siteia	Norway TBA-A Tromsø	Norway TBA-B Brønnøy-sund
environment	coastal	coastal	estuarine	coastal	coastal	coastal	coastal	coastal
WFD ecoregion, type	Mediterranean, CW	N Atlantic, coastal protected	Mediterranean, CW	Wadden Sea	Mediterranean	Mediterranean	N Atlantic	N Atlantic
features	bay	variable!	sheltered	island	Semi-exposed	Semi-exposed	exposed	exposed
water conditions	calm - rough	protected	calm	sheltered	sheltered	calm/sheltered	rough	sheltered
water temps	6.5-27.8	8-20	12-20	0 - 21	12-26	12-26	4-16	6-18
salinity (psu)	31-38.7	26.7-34.4	??	26-31	38.5	38.5	35	35
ave depth (m)	14 m	variable!	20-40 m	2.5-10	40	13-20	70	40
cult. spp	sea bass, seabream	oysters, mussels	sea bass, seabream, oysters, mussels	blue mussel	seabass, seabream	seabass, seabream	salmon	cod
annual production	71 MT	O 45,000 M 10,000	M 400 T O 10,000 T fish 20 T	8,000- 25,000 MT	500 MT	1000 MT	3600 MT	1000 MT
available facilities	MBS, excellent	Ifremer, excellent	MRS, yes	boat& lab on land	Boat/land based facilities	?	Boat, landbase, U Tromsø	Boat, landbase
map	no	no	no	yes	yes	?	yes	yes
existent WQ data	yes	yes	yes	yes	no	yes	yes	yes

Finfish Farm Site Selection Criteria (Beveridge 1996)

- weather (probability of severe storms)
- wind and waves
- currents: velocity, direction
- "water quality"
- temperature
- salinity
- dissolved oxygen
- pH
- turbidity
- "pollution" (organic: sewage, oil spills, etc)
- phytoplankton blooms
- disease
- water exchange (residence time, flushing rate)
- fouling
- seafloor depth
- composition of the seafloor

Shellfish Farm Site Selection Criteria (after *Environment Canada* 2003)

- areas of known or suspected contamination
- land-based point and non-point source pollution
- proximity to other aquaculture operations
- sites for disposal at sea
- ice conditions
- wind
- wave height climatology
- water temperature
- water quality and productivity
- water movement (current data) - food availability for shellfish growth
- carrying capacity for shellfish
- phytoplankton abundance
- salinity
- pH
- dissolved oxygen
- metals and toxic chemicals
- bacterial water quality and biotoxins
- migratory birds
- endangered species
- alteration of wildlife habitats

Milestones

1. delivery of a report describing each of the study sites + list of information needed for modelling.
2. delivery of a handbook of methods (for quality assurance) to be employed in the field.
3. web-based publication of data sets from the field studies; to enable data analyses, decision support system development, model testing and evaluation of indicators.