Darwin Initiative Annual Report

Important note:

To be completed with reference to the Reporting Guidance Notes for Project Leaders – it is expected that this report will be about 10 pages in length, excluding annexes

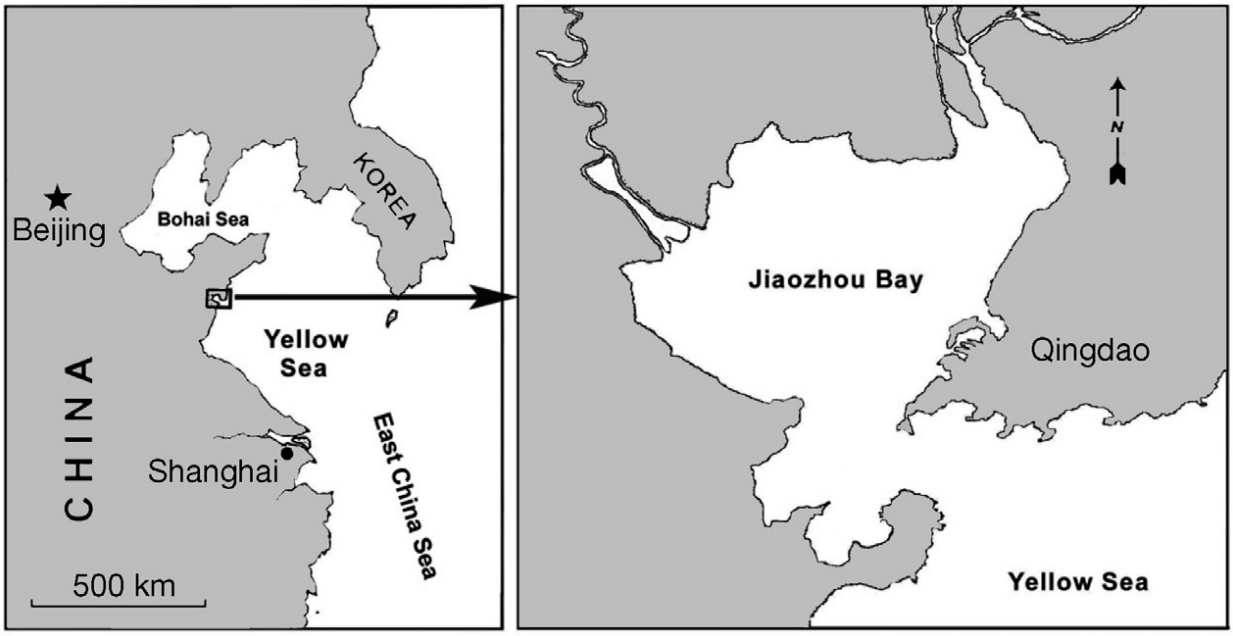
Submission deadline 30 April 2008

Darwin Project Information

Project Ref Number	14-015
Project Title	Conservation of Jiaozhou Bay: biodiversity assessment and biomonitoring using ciliates
Country(ies)	China
UK Contract Holder Institution	The Natural History Museum
UK Partner Institution(s)	
Host country Partner Institution(s)	Ocean University of China
Darwin Grant Value	£137,897
Start/End dates of Project	1/11/05 – 30/09/09
Reporting period (1 Apr 200x to 31 Mar 200y) and annual report number (1,2,3..)	1 Apr 2007 to 31 Mar 2008 Annual report no. 3
Project Leader Name	Dr Alan Warren
Project website	
Author(s), date	Dr Alan Warren; Professor Weibo Song 25 April 2008

1. Project Background

Jiaozhou Bay is located near Qingdao on the NE coast of China (see map) and is a major centre for fisheries and mariculture industries, including fish, molluscs and crustaceans. It is also identified in China`s Biodiversity Action Plan (BCAP) as a potential nature reserve due to its high species richness. The environmental quality of the water in Jiaozhou Bay is therefore of immense significance for: (i) the maintenance of fisheries stock; (ii) successful mariculture, and (iii) biodiversity conservation. Increased industrial activity and inadequate wastewater treatment in the area surrounding the Bay, however, is compromising the marine water quality. Consequently Jiaozhou Bay is one of only seven estuarine wetland ecosystems listed in the BCAP as requiring priority conservation attention. This project aims to help address the problems of biodiversity conservation and fisheries protection.



Map showing the location of Jiaozhou Bay, NE China. Area of Jiaozhou Bay is ca. 400 km^2

2. Project Partnerships

Project partnership: The partnership between the NHM and OUC has continued to flourish thanks largely to frequent, open communication, principally via e-mail but also during: the visits to the UK by five OUC personnel; visits to OUC by two UK personnel; joint attendance by the UK and China project leaders at an international symposium. The success of the collaboration may be judged by the number of jointly authored articles that were published/submitted throughout the year. Many of these were initially drafted by students at OUC and brought to publication standard under the guidance of the UK partners. In this way the students have developed their capacity to deal with all aspects of the publication process.

The capacity of the OUC to meet CBD commitments was further enhanced by the provision of advanced training for OUC personnel during their visits to the UK, and for attendance of a number of OUC staff and students at conferences in China and elsewhere where the results of the DI project were presented. On-the-job training was also given to a number of students, partly during the visit to OUC by the UK personnel.

Other collaborations: During the year the UK and China project leaders attended a workshop in Riyadh, Saudi Arabia, which saw the establishment of the Center of Excellence of Biodiversity Research (CEBR) at the King Saud University (KSU). One presentation was given describing the ciliate biodiversity research being carried out at Jiaozhou Bay. It was agreed in principle that a collaborative project involving the NHM, OUC and KSU to investigate the ciliate biodiversity in coastal waters of Saudi Arabia should be established once formal approval of the CEBR has been given by the Saudi government. This work will compliment that in Jiaozhou Bay and will provide a contrasting (tropical) marine habitat with which to compare with the temperate one in NE China. In anticipation of this initiative protozoologists at KSU collaborated on a number of joint NHM/OUC publications during 2007/08.

CBD focal point: The project has the support of the CBD focal point in China, Professor Da-Wei Huang (Global Taxonomy Initiative Co-ordinator, Institute of Zoology, Chinese Academy of Sciences, Beijing) and other interested groups such as the Yellow Sea Fisheries Institute and CAB International, China (see letters of support submitted with original application).

3. Project progress

3.1 Progress in carrying out project activities

Biodiversity Assessment. Data for the description of the ciliate biodiversity of Jiaozhou Bay continued as 29 species were described or redescribed. The total number of ciliate species isolated from Jiaozhou Bay now stands at 485, which is over 25% of the global marine ciliate biodiversity. In addition the morphogenesis of six species was investigated and gene sequences for 24 species were determined and submitted to the GenBank database. Forty microscope slide specimens were added to the OUC slide collection. Work continued on the guide to the identification of marine ciliates with one chapter completed, two at an advanced stage of completion and drafting of another five begun.

Ciliate-based water quality assessment method. Regular monitoring at five sampling sites representing different levels of water pollution within Jiaozhou Bay will end in August 2008. At each site samples were collected every two weeks in order to investigate the ciliate communities present, including their species diversity, evenness and richness. Also for each sample, water was analysed for the following parameters: pH, temperature, salinity, turbidity, dissolved oxygen concentration, chlorophyll a, soluble reactive sulphate and dissolved inorganic nitrogen. Analysis of these data will be undertaken upon completion of the monitoring programme.

Training and advocacy. A total of 18 postgraduate and one undergraduate students worked on the project during the year and all received some level of on-the-job training with five receiving extensive training both in the UK and during the visits to OUC made by UK personnel. In addition, the results of the project so far were presented at four international and one national scientific conferences with seven oral and seven poster presentations made in total.

3.2 Progress towards Project Outputs

Biodiversity assessment. Excellent progress has been achieved towards the description of the ciliate biodiversity of Jiaozhou Bay with 20 papers published and/or submitted, 10 describing new or poorly known species, eight dealing with morphogenetic and/or molecular phylogeny and two dealing with ecology. We are confident that all of the most commonly encountered, the most abundant, the most cosmopolitan and (therefore) the ecologically most significant species will have been described by the end of the project. Any that remain undescribed are likely to be cryptic and/or occur in low number. The guide to the identification of marine ciliates has fallen slightly behind schedule, partly because our efforts have focused on the publication of peer-reviewed articles and on the deposition of gene sequences in publicly available databases and partly because several members of the OUC team who are helping to draft various chapters relocated to other laboratories for postdoctoral or postgraduate positions. We anticipate that the latter phenomenon will result in the delay (but not prevention) of the completion of the guide, possibly beyond the end date of the project. Until the essential groundwork of describing the ciliate fauna and assembling these descriptions in the identification guide has been completed, it is very difficult to assess how much importance will be afforded to ciliate biodiversity by stakeholders and others.

Ciliate-based water quality assessment method. The fieldwork component of the development of a ciliate-based tool for water quality assessment and monitoring is now almost completed. Data analysis will then commence and only when this has been completed will we know precisely which of the environmental parameters can be assessed and monitored using ciliated protozoa. Based on these findings the ciliate-based protocol for biomonitoring marine water will be developed and refined. The success of the protocol, and its adoption for marine management, remains dependent on the assumption that ciliates will prove to be reliable indicators of marine water quality.

Training and advocacy. Training of OUC staff and students remains on target with five having received extensive training. In addition four newly recruited students receiving some level of on-the-job training during 2007/08, bringing the total to 28 (out of a target of 30 for the life of the project). Training of other stakeholders is not due to take place until after completion of the ciliate identification guide and of the ciliate-based biomonitoring protocol.

3.3 Standard Measures

Table 1 Project Standard Output Measures

Code No.	Description	Year 1 Total	Year 2 Total	Year 3 Total	Year 4 Total	Total to date	Total planned from application
Established codes							
4C	OUC personnel receiving training in advanced methods in UK	5	0	5		10	13
5	OUC postgrad. students receiving training in ciliate identification (number newly recruited onto the project each year)	16	8	4		28	30 (Note: 16 students in post: turnover of 4 per year)
8	UK staff visits to OUC	2	1	2		5	5
11A	Papers published in peer-reviewed journals	0	11	8		19	14
11B	Papers submitted to peer-reviewed journals (Note: some of these papers were also published)	5	10	15		30	21
14B	Papers presented at national and international conferences	1	7	14		22	11
20	Estimated value of equipment acquired by OUC	£21.5 k	£3k	0		£24.5k	£24.5k
New - Project specific measures	Number of species for which gene sequences have been deposited in publicly available databases	8	45	24		77	9
	Number of		40	40			

	microscope slides specimens added to slide collection at OUC						

In Table 2, provide full details of all publications and material produced over the last year that can be publicly accessed, eg title, name of publisher, contact details, cost. Mark (*) all publications and other material that you have included with this report.

Table 2 Publications

Type * (eg journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (eg contact address, website)	Cost £
Journal	Song W, Wilbert N, Al-Rasheid K, Warren A, Shao C, Long H, Yi Z, Li L. 2007. Rededescriptions of two marine hypotrichous ciliates, *Diophrys irmgard* and *D. hystrix* (Ciliophora, Euplotida), with a brief revision of the genus *Diophrys Journal of Eukaryotic Microbiology* 54: 283-296.	Blackwell Publishing, Oxford	http://www.blackwellpublishing.com/journal.asp?ref=1066-5234	n/a
Journal	Wang R, Qiu Z, Chen J, Warren A, Song W. 2007. Morphogenesis of the freshwater ciliate *Neokeronopsis spectabilis* (Kahl 1932) Warren et al., 2002, based on a China population (Ciliophora : Urostylidae) . *Journal of Eukaryotic Microbiology* 54: 184-190	Blackwell Publishing, Oxford	http://www.blackwellpublishing.com/journal.asp?ref=1066-5234	n/a
Journal	Gong J, Song W, Warren A. Lin X, Roberts D.McL. 2007. Microscopical observations on four marine *Dysteria* species (Ciliophora, Cyrtophorida). *European Journal of Protistology* 43: 147-161	Elsevier, Amsterdam	www.sciencedirect.com	n/a
Journal	Shao C, Hu X, Song W, Warren A, Al-Rasheid K. 2007. Morphogenesis in the marine spirotrichous ciliate *Apokeronopsis crassa* (Claarède & Lachmann, 1858) n. comb. (Ciliophora: Stichotrichia), with the establishment of a new genus *Apokeronopsis* n. g., and redefinition of the genus *Thigmokeronopsis. Journal of Eukaryotic Microbiology* 54: 392-401.	Blackwell Publishing, Oxford	http://www.blackwellpublishing.com/journal.asp?ref=1066-5234	n/a
Journal	Long H, Song W, Warren A, Al-	Jagiellonian	www.eko.uj.edu.pl/ap/	n/a

	Rasheid K, Gong J, Chen X. 2007. Two new ciliates from the north China seas, *Schizocalyptra aeschtae* nov. spec. and *Sathrophilus holtae* nov. spec., with new definition of the genus *Sathrophilus* (Ciliophora, Oligohymenophora). *Acta Protozoologica* 46: 229-245	University Press, Krakow		
Journal	Chen X, Song W, Al-Rasheid K A S, Warren A, Long H, Shao C, Al-Farraj S A, Hu X. 2007. The morphology of three heterotrichous ciliates, *Condylostentor auriculatus* (Kahl, 1932) Jankowski 1978, *Condylostoma minutum* Bullington, 1940 and *C. spatiosum* Ozaki & Yagiu in Yagiu, 1944 (Ciliophora: heterotrichida). *Acta Protozoologica* 46: 289-309.	Jagiellonian University Press, Krakow	www.eko.uj.edu.pl/ap/	n/a
Journal	Yi Z, Song W, Warren A, Roberts D. McL. Al-Rasheid K A S, Chen Z, Al-Farraj S A, Hu X. 2007. A molecular phylogenetic investigation of *Pseudoamphisiella* and *Parabirojimia* (Protozoa, Ciliophora, Spirotrichea), two genera with ambiguous systematic positions. *European Journal of Protistology* 44: 45-53.	Elsevier, Amsterdam	www.sciencedirect.com	n/a
Journal	Hu X, Warren A, Song W. 2008. Stomatogenesis and morphological re-description of the marine ciliate, *Philasterides armatalis* (Protozoa: Ciliophora: Scuticociliatida). *Journal of the Marine Biological Association of the UK* 88: 29-34.	CUP, Cambridge	http://www.cambridge.org/journals/journal_catalogue.asp?historylinks=ALPHA&mnemonic=MBI	n/a

3.4 Progress towards the project purpose and outcomes

It will be impossible to determine the capacity of stakeholders to utilise ciliates in biodiversity assessments and as bioindicators of marine water quality in Jiaozhou Bay until after the mechanisms and protocols for utilising ciliates for these purposes have been developed. We do not anticipate this happening until the final year of the project. We therefore have no evidence to suppose that the purpose level assumptions are incorrect or that the indicators for measuring the outcomes are inadequate, or for the contrary.

3.5 Progress towards impact on biodiversity, sustainable use or equitable sharing of biodiversity benefits

A project-specific final goal statement was included when the Logframe was revised last year (see Annex 2). This statement, however, is an indication of a long-term aspiration deriving (at least in part) from the current project rather than a specific aim to be achieved as a direct result of this project alone. Since we are still at the data-gathering stage it is impossible to estimate the project's impact on biodiversity and neither do we anticipate seeing a measurable impact within the life of this project.

4. Monitoring, evaluation and lessons

At this stage of the project, monitoring and evaluation is determined by the quality and quantity of the data produced and assembled. Measuring of output-, purpose- and final goal indicators will need to await the completion of the ciliate identification guide and the development of the ciliate-based biomonitoring protocol. The description of ciliate diversity is exceeding our target with more papers being published and many more gene sequences determined than anticipated (see sections 3.1 to 3.3).

5. Actions taken in response to previous reviews (if applicable)

The only specific recommendation made in the last review was that the revised Project Implementation Timetable should be supplied in tabular format. A copy of the table is included with this report, revised in the light of the subsequent approval of a 6-month extension of the project end date (see Annex 3).

6. Other comments on progress not covered elsewhere

Approval for a six-month extension of the project (with no additional funding) was granted in May 2008. The main reason for this is the anticipated delay in completion of the ciliate guide, which a key output and one of which other outputs of the project also depend. The Project Implementation Timetable has been amended accordingly and the revised version is given in Annex 3.

7. Sustainability

The results of work carried out on the project were presented at one scientific conference within China (see section 8 for details). The role of the DI in funding this work was acknowledged in all 10 presentations made at this conference.

The legacy of this project will include:

A user-friendly guide to the identification of marine ciliates (hard copy and web-based versions);

A ciliate-based protocol for biomonitoring marine water quality;

A slide collection of ciliate specimens at OUC that will be available for reference;

A large cohort of well-trained postgraduates and postdoctorates who will be available to continue work on ciliate biodiversity and to train others

A cohort of local stakeholders who will have been trained in the basic techniques for identifying ciliates and in their use for biomonitoring water quality.

It is intended that the NHM and OUC will continue their collaborative studies on the biodiversity of marine ciliates after the current project ends. Two new specialist ciliate laboratories have already been established at universities in China by former OUC postdoctoral workers who have contributed to the DI project and who will continue the work on ciliate biodiversity. These are at Yantai University, Yantai and at South China Normal University, Guangzhou. It is intended that future collaborative studies in China between the OUC and NHM will also include at least one of these groups. In addition, a collaboration is being established by OUC and NHM with researchers at the King Saud University (Saudi Arabia) with funding being sought from the Center of Excellence in Biodiversity Research (see section 2).

8. Dissemination

Dissemination of results in China has taken place mainly via presentations at 1 scientific conferences:

The 14th Symposium of the Chinese Protozoological Society, Kunming, 11 – 14 October 2007, at which 10 papers were presented;

The target audience was specialists and students of protozoology.

Other dissemination activities include presentations made at scientific conferences in St. Petersburg, Russia (two presentations), Cairo, Egypt (one presentation), and in Riyadh, Saudi Arabia (one presentation), and in the form of publications in peer-reviewed journals (see Section 3.3, Table 2).

9. Project Expenditure

Table 3 Project expenditure <u>during the reporting period</u> (Defra Financial Year 01 April to 31 March)

Item	Budget (please indicate which document you refer to if other than your project application)	Expenditure	Balance
Rent, rates, heating, overheads etc			
Office costs (eg postage, telephone, stationery)			
Travel and subsistence			
Printing			
Conferences, seminars, etc			
Capital items/equipment			
Others Audit Overhead			
Salaries (specify)			
TOTAL			

Highlight any agreed changes to the budget and explain any variation in expenditure where this is +/- 10% of the budget.

10. OPTIONAL: Outstanding achievements of your project during the reporting period (300-400 words maximum). This section may be used for publicity purposes

I agree for ECTF and the Darwin Secretariat to publish the content of this section (please leave this line in to indicate your agreement to use any material you provide here)

Annex 1 Report of progress and achievements against Logical Framework for Financial Year: 2007/08

Project summary	Measurable Indicators	Progress and Achievements April 2007 - March 2008	Actions required/planned for next period
Goal: *To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but constrained in resources to achieve* *The conservation of biological diversity,* *The sustainable use of its components, and* *The fair and equitable sharing of the benefits arising out of the utilisation of genetic resources*		*No progress to report at impact level at this stage in the project, and none is likely until after the end of the project*	*(do not fill not applicable)*
Purpose Capacity of Jiaozhou Bay stakeholders to understand and use ciliated protozoa for assessing biodiversity status and ecosystem health in management decision-making increased	1. Principle of including ciliate-based methods for assessing and monitoring biodiversity and ecosystem health adopted by management decision-makers 2. Ciliate-based methods for biodiversity conservation and ecosystem protection included in China's BCAP and/or local coastal management plan.	Progress towards achieving the project purpose detailed below under individual activities	1. Continue data-gathering for describing ciliate biodiversity. 2. Complete drafting of remaining chapters for ciliate identification guide. 3. Complete analysis of results of ciliate communities and environmental variables and develop ciliate-based biomonitoring protocol. 4. Continue on-the-job training of OUC personnel in China and deliver advanced training for at least 5 OUC personnel in NHM.
Output 1. Biodiversity assessment programme established and functioning	1. Ciliate biodiversity better known amongst academics and other stakeholders.	The number of publications has exceeded the target for the year, likewise the number of gene sequences deposited in databases. The preparation of the ciliate identification guide is on schedule. Neither indicator can be assessed until the final year of the project or perhaps after.	

	2. Ciliate biodiversity data included in coastal marine management decision-making process	
Activity 1.1 Describe new and poorly known ciliates; determine morphogenetic processes of selected species; analyze gene sequences of selected taxa and deposit in publicly available databases		Eight papers published including: detailed descriptions and redescriptions of 15 species; morphogenetical processes of 1 species; molecular phylogeny of 3 species. Twelve additional papers submitted for publication. Gene sequences of 24 species were deposited in publicly available databases. This work will continue throughout 2008/09.
Activity 1.2 Produce user-friendly guide to the identification of marine ciliates		One chapter completed. Drafting of all remaining chapters begun, eight of which are at an advanced stage of completion. In 2008/09 drafting of all remaining chapters to be completed.
Activity 1.3 Establish reference collection of ciliates at OUC and make available		40 slides added to OUC collection. During 2008/09 at least one slide of each taxon described will be deposited in the collection.
Output 2. Ciliate-based tool for water quality assessment and monitoring developed and used	System adopted for monitoring marine water quality	Data-gathering 95% completed. Data-analysis to be completed by January 2009. Results to be used for the development of a ciliate-based biomonitoring protocol.
Activity 2.1. Monitor ciliate communities at selected sampling sites on a regular basis for a minimum of 12 months.		Ciliates in each sample identified and enumerated providing 24 months worth of data.
Activity 2.2. Monitor water samples for a range of physico-chemical parameters on a regular basis for a minimum of 12 months.		Physico-chemical parameters monitoring carried out giving a total of 24 months worth of data.
Activity 2.3 Analyze data and develop protocol for biomonitoring marine water quality		Data analysis begun. During 2008/09 data analysis to be completed and biomonitoring protocol to be developed.
Output 3. Training and advocacy for OUC personnel, decision makers and for stakeholders delivered in the contribution of ciliate monitoring to ecosystem management	Minimum of 30 personnel at OUC and at stakeholder institutions trained Advocacy event(s) held	Training of OUC personnel is ahead of target. Training of other stakeholders and advocacy event(s) are not due to take place until the final year of the project.

Activity 3.1 Training of OUC personnel carried in the form of on-the-job training at OUC and training in advanced techniques at NHM	18 OUC students received on-the-job training at OUC. Of these 4 were newly recruited in 2007/08 and 5 received extensive training. During 2008/09 further students will receive this training and at least 5 OUC personnel will receive training in advanced techniques at NHM
Activity 3.2 Advocacy event(s) held	Advocacy event(s) are not scheduled to be held until the final year of the project

Annex 2 Project’s full current logframe

LOGICAL FRAMEWORK

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Goal Biodiversity conservation and sustainable use of Jiaozhou Bay enhanced	Levels of biodiversity (e.g. species diversity) and water quality (e.g. concentrations of pollutants)	Biodiversity loss and degradation of water quality both reduced	Those responsible for coastal management agree to implement assessment and monitoring programmes and take remedial action when necessary
Purpose Capacity of Jiaozhou Bay stakeholders to understand and use ciliated protozoa for assessing biodiversity status and ecosystem health in management decision-making increased	Principle of including ciliate-based methods for assessing/monitoring biodiversity and ecosystem health adopted by management decision-makers Ciliate-based methods for biodiversity conservation and ecosystem protection	Questionnaire/interviews with decision makers Review of plans	Decision-makers agree that assessment/monitoring of coastal marine biodiversity and ecosystem health should be carried out and that ciliate based methods are appropriate/useful

	included in China's BCAP and/or local coastal marine management plan		
Outputs 1. Biodiversity assessment programme established and functioning	Ciliate biodiversity better known amongst academics and other stakeholders	Review of minutes and reports, papers, biodiversity action plan	Priority is given to biodiversity conservation in management of coastal marine environments by stakeholders
2. Ciliate-based tool for water quality assessment and monitoring developed and being used	Ciliate biodiversity data included in coastal marine management decision-making process	Interview/reports by teachers	Ciliates prove to be reliable bioindicators of marine water quality; stakeholders adopt the ciliate-based monitoring system
	System adopted for monitoring and training purposes	Training reports and attendance lists	Active participation of stakeholders in training; OUC staff and students free to attend UK-based training
3. Training and advocacy for OUC personnel,	Minimum of 30 staff		

decision makers and for stakeholders delivered in the contribution of ciliate monitoring to ecosystem management	and students at OUC and stakeholder institutes trained Advocacy event(s) held		

Activities

Output 1. Ciliate biodiversity assessment programme established and functioning

Describe new and poorly known ciliates; determine morphogenetic processes of selected species; analyze gene sequences of selected taxa and deposit in publicly available databases

Produce user-friendly guide to the identification of marine ciliates

Establish reference collection of ciliates at OUC and make available

Output 2. Ciliate-based tool for water quality assessment and monitoring developed and being used

2.1 Monitor ciliate communities at selected sampling sites on a regular basis for a minimum of 24 months.

2.2 Monitor water samples for a range of physico-chemical parameters on a regular basis for a minimum of 24 months.

2.3 Analyze data and develop protocol for biomonitoring marine water quality

Output 3. Training and advocacy for OUC personnel, decision makers and for stakeholders delivered in the contribution of ciliate monitoring to ecosystem management

3.1 Training of OUC personnel carried in the form of on-the-job training at OUC and training in advanced techniques at NHM

3.2 Advocacy event(s) held

Activity Milestones (Summary of Project Implementation Timetable)

Guide guide submitted for publication (by 01/09) and mounted on OUC website (by 09/09)

Ciliate community data and water quality data gathered (by 08/08); assessment tool developed and functionality of assessment tool verified (by 01/09); submitted to publisher (by 03/09).

Training of OUC students ongoing throughout project; training given in UK for a total of ca. 15 staff and students from OUC amounting to ca. 20 man-months (by 09/08); training course (3 days) given at OUC for ca. 20 Jiaozhou Bay stakeholders (by 09/09)

Annex 3 onwards – supplementary material (optional)

Project Implementation Timetable, revised April 2007.

Project implementation timetable		
Date	Financial year	Key milestones
	Apr-Mar 2005/6 Apr-Mar 2006/7 Apr-Mar 2007/8 Apr-Mar 2008/9 Apr-Mar 2009/10	Ciliate biodiversity characterization (CBC); ciliate identification guide (CIG); water quality assessment tool (WQAT); training (T)
	2005/2006	
May 05		OUC personnel selected for advanced training in UK (T)
November 05		Protocols for collection and analysis of field samples established (CBC; WQAT)
February 06		Advanced training in UK given to OUC personnel (T)
	2006/2007	
April 06		Data collection throughout year (CBC; WQAT)
April 06		Training of OUC postgraduate students throughout year (T)
June 06		Papers presented at Asian Ciliate Conference in China (CBC)
November 06		Manuscripts of peer-reviewed papers submitted (CBC)
November 06		Data for ciliate identification guide assembled and gaps identified (CIG)
February 07		Papers presented at International Symposium on Ciliate Biology, India (CBC)
	2007/2008	
April 07		Data collection throughout year (CBC; WQAT)
April 07		Training of OUC postgraduate students throughout year (T)
July 07		Papers presented at 5th European Congress of Protistology, St Petersburg, Russia (CBC)

August 07		Advanced training in UK given to OUC personnel (T)
November07		Gene sequences deposited in gene bank (CBC)
March 08		Manuscripts of peer-reviewed papers submitted (CBC)
	2008/2009	
		Training of OUC postgraduate students continues (T)
April 08		Data collection continues (CBC; WQAT)
April 08		Advanced training in UK given to OUC personnel (T)
August 08		Draft ciliate identification guide completed and submitted for publication (CIG)
January 09		Prototype ciliate-based tool for water quality assessment developed for testing (WQAT)
October 08		Papers presented at scientific and conservation meetings in China (CBC)
November 08		Ciliate identification guide submitted for publication (CIG)
January 09		Reliability of ciliate-based tool for water quality assessment verified; submitted for publication and made available to stakeholders (WQAT)
March 09		
	2009/2010	Training of OUC postgraduate students continues (T)
April 09		Paper(s) presented at 13th International Congress of Protozoology, Brazil (CBC)
August 09		Training course for stakeholders on ciliate identification and use of ciliates for water quality assessment (T)
Sept 09		Slide collection at OUC to become locally accessible reference collection
Sept 09		Ciliate identification guide mounted on OUC website (CIG)
Sept 09		Gene sequences deposited in gene bank (CBC)
Sept 09		Manuscripts of peer-reviewed papers submitted (CBC)
Sept 09		Final report drafted and sent to CBD National Focal Point and to DI
November 09		

Checklist for submission

	Check
Is the report less than 5MB? If so, please email to Darwin-Projects@ectf-ed.org.uk putting the project number in the Subject line.	Yes
Is your report more than 5MB? If so, please advise Darwin-Projects@ectf-ed.org.uk that the report will be send by post on CD, putting the project number in the Subject line.	No
Do you have hard copies of material you want to submit with the report? If so, please make this clear in the covering email and ensure all material is marked with the project number.	No
Have you completed the Project Expenditure table?	Yes
Do not include claim forms or communications for Defra with this report.	OK