



Submit by 13 January 2006

DARWIN INITIATIVE APPLICATION FOR GRANT ROUND 14 COMPETITION:STAGE 2

Please read the Guidance Notes before completing this form. Applications will be considered on the basis of information submitted on this form and you should give a full answer to each question. Please do not cross-refer to information in separate documents except where invited on this form. The space provided indicates the level of detail required. Please do not reduce the font size below 11pt or alter the paragraph spacing. Keep within word limits.

1. Name and address of organisation

Name: University of Wales Swansea School of the Environment & Society Department of Biological Sciences	Address: Singleton Park Swansea, SA2 8PP, UK
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2. Project title (not exceeding 10 words)

Reducing the Impact of Exotic Aquaculture on Chilean Aquatic biodiversity
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3. Project dates, duration and total Darwin Initiative Grant requested

Proposed start date: 1 Oct 2006	Duration of project: 36 months	End date: 30 Sep 2009			
Darwin funding requested	Total	2006/07	2007/08	2008/09	2009/2010
	£193,844	£59,048	£51,065	£49,728	£34,003

4. Define the purpose of the project in line with the logical framework

To reduce, in collaboration with stakeholders, the impact of exotic aquaculture on Chilean aquatic biodiversity by: <ol style="list-style-type: none"> 1. Establishing the capacity of Chilean researchers to monitor the origin, distribution, and effects of exotic salmonids escaping from fish farms and to recognize other future, potential non-native threats 2. Assessing the prevalence of exotic and naturalized salmonids in Chilean watersheds, and their likely effects upon local wildlife 3. Developing a Management Action Plan (MAP) and a Code of Best Practices (CBP) in relation to non-indigenous fish species and the protection of native aquatic biodiversity 4. Raising public awareness on the need to protect key Andean aquatic habitats and species from foreign introductions 5. Developing an education program designed to make aquaculture more sustainable

5. Principals in project. Please provide a one page CV for each of these named individuals

Details	Project Leader	Other UK personnel (working more than 50% of their time on project)	Main project partner or co-ordinator in host country
Surname	Garcia de Leaniz	Beardmore* (<50% of time but senior role in project)	Gajardo
Forename (s)	Carlos	John A.	Gonzalo M.
Post held	Lecturer in Aquaculture	Emeritus Professor of Genetics in Aquaculture	Head of Laboratory Genetics & Aquaculture (full professor)
Institution	University of Wales Swansea (UWS)	University of Wales Swansea (UWS)	University of Los Lagos (ULL)
Department	Biological Sciences	Biological Sciences	Basic Sciences

6. Has your organisation received funding under the Darwin Initiative before? If so, give details

DETR 1998-2002: Assessing the status of Ascension Island green turtles (£144,005). PI: Graeme Hays
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7. IF YOU ANSWERED NO TO QUESTION 6 describe briefly the aims, activities and achievements of your organisation. (Large institutions please note that this should describe your unit or department)

Aims (50 words)

Activities (50 words)

Achievements (50 words)

8. Please list the UK (where there are partners in addition to the applicant organisation) and host country partners that will be involved in their project and explain their roles and responsibilities in the project. Describe the extent of their involvement at all stages, including project development. What steps have been taken to ensure the benefits of the project will continue despite any staff changes in these organisations? Please provide written evidence of partnerships.

<p>UK: Dr. Garcia de Leaniz and Prof Beardmore (UWS) will coordinate the overall project, overseeing the training of staff, the research program and the curriculum development. Dr. Consuegra (GML) will help to develop the microsatellite DNA toolkit and will provide training on genetic stock identification (GSI) and on assignment methods (in collaboration with Dr. Gajardo and Prof Allendorf). Dr. Carss (CEH) will lead the assessment of fish farm impacts on local wildlife, particularly on mammalian and piscivorous birds, and will provide training on methods for assessing and reducing wildlife interactions. Chile (host country): Dr. Gajardo will be the principal partner in Chile, will arrange logistic support and will coordinate the laboratory and training programs. He will also help develop the molecular toolkit for stock identification. Dr. Orellana (ULL) will coordinate the field work, and will liaise with the aquaculture industry and other stakeholders, assisting with the implementation of the education program. A Chilean fish biologist and research assistant, to be appointed, will carry out the monitoring and diagnostic work (after appropriate training) with assistance from 2 MSc students. Canada, USA & New Zealand: Dr. Volpe (UVic, Canada) and Prof Allendorf (U. of Wellington, New Zealand) will lead the research on the impact of exotic salmonids upon native fish species, building upon their ongoing work in British Columbia and New Zealand, two situations with some similarities to the Chilean scenario. Dr. Giannico (OSU, USA) and Dr. Dunham (US Geological Survey) will lead the biodiversity impact assessment and the development of the public awareness and education programs. All partners will contribute to the workshops, the dissemination and publication of results, and the formulation of the MAP and CBP. Written evidence of the various partnerships is provided in the accompanying letters, including the enthusiastic endorsement of the Rector of University of Los Lagos. The two principal partners, UWS and ULL, have pledged continuing support to ensure the continuation of the project after the Darwin initiative ends. Project principals are full-time, permanent members of staff with an established track-record of joint collaboration that is robust to staff changes.</p>
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9. What other consultation or co-operation will take place or has taken place already with other stakeholders such as local communities? Please include details of any contact with the government not already provided.

<p>In addition to the support committed by participating Universities and Research Institutions, essential co-operation has been gained from several NGO's (letters attached). The Genetics Society of Chile has been campaigning for a national database of native and naturalized genomes that could help monitor, and eventually reduce, the effects of anthropogenic disturbances. They have thus pledged full support to our project. Southern Rivers (SR) and Rio CONTACO are associations of sport fishermen, conservationists, and riparian owners that also see the project's aims very much in line with their own interests. Members of SR know the rivers in the region well, and have gathered useful information on the distribution and relative abundance of native and exotic species. They regard scientific information essential for the sustainable development of the region, and will assist during all stages of the field work. Because exotic fish species (mostly salmonids) have often been introduced in Chile (and continue to be introduced) in response to pressure from anglers, we consider it essential that anglers and government officials alike participate at all stages of the project, and that any MAP and CBP are developed in full consultation with all stakeholders. We have thus planned the organization of various seminars and workshops, and secured the full support of both Regional (Regional Council of Cleaner Production - Regional Government of Los Lagos) and Central Government (SubPesca - Fisheries, Ministry of Economy; CONAMA - National Commission for the Environment. Full endorsement has also been obtained from conservation organizations such as NASCO and The Atlantic Salmon Trust, as well as from leading salmon farming companies (Salmones MultiExport, Piscicultura Huillilco) committed to the development of sustainable aquaculture in the Region. Further support is also being sought from extensive local and international contacts being made by all associated partners.</p>

PROJECT DETAILS

10. Is this a new initiative or a development of existing work (funded through any source)? Are you aware of any other individuals/organisations carrying out similar work, or of any completed or existing Darwin Initiative projects relevant to your work? If so, please give details explaining similarities and differences and showing how results of your work will be additional to any similar work and what attempts have/will be made to co-operate with and learn lessons from such work for mutual benefits.

Although this is a completely novel initiative for Chile, the project will build upon the conclusions and recommendations of a previous Darwin Initiative (2002-2004) entitled 'Access to Genetic Resources, Benefit Sharing and the Protection of Traditional Knowledge in Chile' carried out by *Fundación Sociedades Sustentables* (Chile) and the Foundation for International Environmental Law and Development (FIELD, UK). No other project that we know of is employing novel molecular and isotopic methods to address the potential impact of exotic aquaculture upon local aquatic biodiversity, or to apply the precautionary approach to help turn Chilean fish farming into a truly sustainable activity.

11. How will the project assist the host country in its implementation of the Convention on Biological Diversity? Please make reference to the relevant article(s) of the CBD thematic programmes and/or cross-cutting themes (see Annex C for list and worked example) and rank the relevance of the project to these by indicating percentages. Is any liaison proposed with the CBD national focal point in the host country? Further information about the CBD can be found on the Darwin website or CBD website.

Chile is a signatory of CBD, but also of several trade agreements with the US, EU, and Asian-Pacific (APEC) countries that will likely promote the further expansion of exotic aquaculture. An urgent compromise for CBD subscribers is to halt the loss of biodiversity by 2010. The proposed program will give Chilean researchers and government officials the capacity to assess and monitor the impact of exotic fish species on local aquatic biodiversity, and to identify and reduce escapes from fish farms, thereby supporting the Chilean Government's implementation of articles 8h, 10, 12-14, and 18 of CBD, with special emphasis on Introduced Species (30%), Biosafety (10%), Inland Waters Biodiversity (20%), Marine and Coastal Biodiversity (20%), and Sustainable Use (20%) themes. The implementation of a MAP and CBP will further ensure that any future developments in sport fisheries or in fish farming in Chile's unique aquatic habitats will be carried out in a sustainable way, with due consideration to the environmental threats posed by non-native species. Liaison with the CBD national focal point will be established, should the project be funded.

12. How does this project meet a clearly identifiable biodiversity need or priority defined by the host country? Please indicate how this work will fit in with National Biodiversity Strategies or Environmental Action Plans, if applicable.

Salmon farming in Chile is a large-scale, highly profitable industry, based on the culture of exotic species (a potential threat to indigenous species) in some of the most pristine and environmentally sensitive aquatic ecosystems in the world. Chile's revenue from the export of farmed salmon exceeds that of any other agricultural product, and the country is now the world's second salmon producer. Following the escape of millions of farmed salmon in the mid 90's, the 2003 Chilean Fisheries workshop 'Exploitation and Management of Exotic and Naturalized Aquatic Genetic Resources in Relation to Native Biodiversity' identified fish escapes as one of the biggest potential threats to Chile's native biodiversity. With more than 40 endemic freshwater species (most of which are barely known to Science), there are fears that the decline of some fish species, such as the Creole perch, may have been triggered by the introduction of exotic salmonids. Yet, there is no systematic screening of wild and exotic genetic resources and the impact of foreign species on Chile's aquatic biodiversity remains largely unknown. The Chilean National Biodiversity Strategy (2002) recognizes the need to restore ecosystems as the first step towards reversing the loss of biodiversity by 2010. The document also advocates for the integral protection of the country's wildlife and native genetic resources, sets to facilitate the development of sustainable practices, and to raise public awareness about Chile's unique natural assets. The National Biodiversity Strategy also encourages agreements between public (state) organizations and private bodies, and recognizes the importance of international cooperation for the protection of Chile's biodiversity. Our project, thus, is fully in line with the host country's Biodiversity Strategy.

13. If relevant, please explain how the work will contribute to sustainable livelihoods in the host country.

The accidental or deliberate introduction of exotic salmonids has the potential to seriously impact upon the local artisan fisheries, or even result in the extinction of local wildlife. Fish farming in Chile continues to grow despite increasing environmental opposition. Hence, the challenge ahead is how to make an aquaculture industry based almost entirely on the farming of exotic species sustainable without compromising ecosystem stability or economic growth. This project will formulate a MAP and CBP designed to protect unique Andean habitats and keystone species from further exotic invasions, and to secure continuing job opportunities for future generations, thus helping to prevent the financial collapse that has often accompanied unsustainable aquaculture operations throughout the world.

14. What will be the impact of the work, and how will this be achieved? Please include details of how the results of the project will be disseminated and put into effect to achieve this impact.

The impact of the proposed project will be twofold: (1) data gathered through the use of novel research methods will serve to formulate a MAP and CBP for monitoring and reducing the impact of Exotic Aquaculture, while (2) a combination of capacity building, specific training, and the launch of a dedicated MSc program on Sustainable Aquaculture will serve to raise public awareness and educate future generations of Chilean researchers and students. The impact of the project, thus, will continue beyond the Darwin Initiative and will be maximized by the endorsement of all major stakeholders. The results of the project will be disseminated and put into effect by a combination of workshops, a dedicated education and training program, and literature for local people. Scientific results will be presented at national and international conferences, and will be published in yearly reports, as well as in peer reviewed journals. Dissemination will be further achieved by a project website for both scientific and general audiences. Thus our project presents specific, tangible benefits for Chilean society and a clear, identifiable route to turn research findings into policy, and policy into conservation practice.

15. How will the work leave a lasting legacy in the host country or region?

With the aid of new, purposely developed molecular and isotopic toolkits, and the help of trained staff, the Laboratory of Genetics & Aquaculture at ULL will be technically implemented to monitor and assess the impact of exotic salmonids, and to recognize other, future non-indigenous threats to Andean Aquatic biodiversity. It is envisaged that trained staff will continue to work on the monitoring programme (using the lab) beyond the Darwin funding, thereby facilitating the transfer of specialized knowledge to other Chilean students. The implementation of a MAP and CBP will further ensure that any future developments in sport fisheries or in fish farming in Chile's temperate rainforest lakes and southern inner fjords will be carried out in a sustainable way, with due consideration to the environmental threats posed by exotic species. The proposed education program leading to the launch of a MSc in Sustainable Aquaculture will provide specialized and continuing training for Chilean students, and will constitute a lasting and timely legacy of the Darwin initiative for the protection of Chile's aquatic biodiversity and the sustainable and fair exploitation of its aquatic resources. The development of the MAP, CBP, and MSc will be aided by inputs which draw on the considerable experience of our associated partners in commissioning and managing sustainable projects in a range of developing countries, including Chile.

16. Please give details of a clear exit strategy and state what steps have been taken to identify and address potential problems in achieving impact and legacy.

The long-term professional relationship that exists between UK and Chilean project principals, as well as among the other partners, ensures that possible hurdles to our project have been identified through frequent communication and repeated consultations with key stakeholders. Two of the critical problems envisaged are possible lack of industry-wide cooperation, and setbacks in the development of MAP and CBP due to inter-stakeholder conflicts. We have considered the involvement of facilitators in the MAP development process, and – as a last alternative - third party mediation if the process was derailed. We believe that sustainable practices can only be achieved if they are based on sound science, result transparency, and multi-stakeholder involvement. Involvement in the running of the project will be progressively stepped down during the last year of the Darwin Initiative, which is expected to end with the launch of a new MSc in Sustainable Aquaculture and the presentation of results at an international conference, after which the program will be run entirely by the host country.

17. How will the project be advertised as a Darwin project and in what ways will the Darwin name and logo be used?

We will advertise the Darwin project by stressing three key issues: (1) how the project fulfills the aims of the CBD, as well as the National Biodiversity Strategy, (2) the uniqueness and fragility of Andean Aquatic ecosystems and species, and (3) the socio-economic importance of the Chilean Aquaculture Industry and how the project is helping to reduce its impact and become more sustainable. Because Chile is a world leader in open-cage salmon farming (an activity increasingly under attack), any initiative intended to reduce its impact is bound to attract the public's attention and result in considerable media coverage. In addition, an increasing number of tourists are being attracted to the pristine Araucarian lakes and inner fjords of southern Chile and this, along with the work of the University, will provide numerous opportunities for promoting the Darwin Initiative and the dissemination of results. The Darwin name and logo will appear in the ULL laboratory, in all dissemination outputs and contacts with the media, as well as in the project website (in English and Spanish).

18. Will the project include training and development? Please indicate who the trainees will be and criteria for selection and that the level and content of training will be. How many will be involved, and from which countries? How will you measure the effectiveness of the training and will those trained then be able to train others? Where appropriate give the length and dates (if known) of any training course. How will trainee outcomes be monitored after the end of the training?

Specific project training will be provided to two Chilean Research Assistants (to be appointed). These will be selected primarily on the basis of their degree and relevant field experience. The positions will be advertised in local newspapers and in the project (and other) websites. Chilean staff will be trained in-situ by UK and associated N. American and N. Zealand partners through a series of 2 week long workshops each year (dates to be confirmed). Training will be demonstrated by showing proficiency in key laboratory and field skills (molecular methods, impact assessment, etc.) necessary to run the monitoring program, as well as by the ability to teach and train other people. In addition, two MSc students and 4-6 undergraduate students will undertake research projects within the project, and will attend components of the workshops.

LOGICAL FRAMEWORK

19. Please enter the details of your project onto the matrix using the note at Annex B of the Guidance Note. This should not have substantially changed from the Logical Framework submitted with your Stage 1 application. Please highlight any changes.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Goal: To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but poor in resources to achieve the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising out of the utilisation of genetic resources			
Purpose To build, in collaboration with government, industry and other stakeholders, the capacity for assessing, monitoring, and reducing the impact of the accidental or deliberate introduction of exotic fish species on Chilean aquatic biodiversity	1. New knowledge on the distribution and abundance of exotic fish species and their impact upon native aquatic biodiversity 2. Endorsement of a Management Action Plan (MAP) and Code of Best Practice (CBP) in relation to exotic species, introductions and protection of native aquatic biodiversity 3. Increased understanding and public awareness of threats to native biodiversity resulting from foreign fish introductions	1. Project reports, workshop proceedings and publications in peer-reviewed journals 2. Documentation and correspondence for MAP and CBP 3. Records of educational programme and training workshops. Development of professional curricula on sustainable aquaculture. Students trained under programme pass their courses	1. Project findings are understood and accepted by the salmon industry, regulatory agencies and all stakeholders. Policy makers use findings to help reduce the impact of exotic species on local biodiversity 2. Market forces and increased recognition on the impact of exotics facilitate the shift towards more sustainable fish farming 3. Curriculum development is implemented by ULL with the launch of a MSc in Sustainable Aquaculture
Outputs 1. Abundance, distribution, and impact of exotic and naturalized salmonids assessed 2. A monitoring and impact assessment programme with trained personnel established 3. MAP, CBP, and possible exclusion zones for protecting aquatic biodiversity from exotic invasions 4. Educational events and media coverage for local people, fish farmers, and rest of stakeholders	1. Findings endorsed by the scientific community and stakeholders 2. GIS database & molecular and isotopic toolkits for identification of exotic and farmed fish species developed, tested, and at least 2 staff trained 3. MAP and CBP peer reviewed and presented at international conference 4. Participation of fish farmers and rest of stakeholders in educational events, Darwin project featured in media	1. Publication of results in peer reviewed, national and international scientific journals 2. Project reports, scientific papers, abundance and distribution maps, species database, fish escape assessment protocol, project website 3. Workshop proceedings, MAP and CBP published and distributed, copies sent to Darwin Initiative 4. Educational leaflets, press releases, media coverage, reports	1. Sampling strategy and logistic support are appropriate for project objectives and facilitate the collection of data 2. Adequate performance of molecular and isotopic diagnostic toolkits to produce desired results 3. Successful liaison with industry, government agencies and rest of stakeholders for project support 4. Links to educational media and NGO's are established (already in place via ULL)
Activities 1. Capacity building and training in assessing impact of exotic invasions 2. Research & monitoring of exotic and naturalized fish species 3. Education programme and dissemination of results	Activity Milestones Yr1. Initial meetings with stakeholders. Develop GIS database, molecular and isotopic diagnostic toolkits and run training workshops, establish sampling strategy and field protocols. Follow-up training workshops in Yr2 & Yr3. Yr1. Field test diagnostic methods for species identification, stock assignment and trophic niche overlap, begin screening. Yr2 & Yr 3. Continue screening, workshops to discuss results. Yr 3. Writing of scientific publications, MAP and CBP. Yr1. Develop education programme, establish website, and attract media interest. Yr2-Yr3. Develop MSc curriculum, presentation of results at international conferences. All years: annual reports, workshops proceedings, update webpage. At least 2 scientific peer-reviewed papers submitted by end of Yr 3		Assumptions 1. Program receives required support from University (in place). 2. Research methods and tools are adequate. Required baseline information is provided by industry and regulatory bodies 3. Successful liaison with stakeholders and media interest. Support from University

20. Provide a project implementation timetable that shows the key milestones in project activities.

Project implementation timetable		
Date	Financial year	Key milestones
(Month/Yr)	Apr-Mar 2006/7 Apr-Mar 2007/8 Apr-Mar 2008/9 Apr-Mar 2009/2010	Development of molecular & isotopic toolkits, sampling program Biodiversity Impact Assessment, Capacity training Development of MAP and CBP, Outreach program Launch of MSc in Sustainable Aquaculture, Presentation of results
7/06	Apr-Mar 2006/7	Training & Capacity Building Project planning visit by UK staff to Chile: planning for project initiation (UK staff 10 days).
10/06	Apr-Mar 2006/7	Project initiation, Memorandum of Agreement, staff selection, ordering and purchasing of equipment
12/06	Apr-Mar 2006/7	First training workshop: sampling protocols, GIS, & assessment of wildlife interactions (selected partners, 2 weeks).
3/07	Apr-Mar 2006/7	ULL Genetics Laboratory fully operational
7/07	Apr-Mar 2007/8	Second training workshop: molecular methods, GSI & assignment methods (selected partners, 2 weeks)
7/08	Apr-Mar 2008/9	Third training workshop: isotopic methods, assessment of trophic levels, diet and habitat overlap, competition (selected partners, 2 weeks)
6/09	Apr-Mar 2009/10	Fourth training workshop: putting everything together, precautionary approach, best practices, strategies for sustainable aquaculture (all partners, 2 weeks)
9/09	Apr-Mar 2009/10	Final review meeting and project handover (UK staff, 1 week)
10/06-7/07	Apr-Mar 2006/7-7/8	Research and Monitoring Programme Development and testing of molecular (mtDNA + microsatellites) and isotopic (C/N) toolkits for Genetic Stock Identification (GSI)
12/06-3/09	Apr-Mar 2006/7-8/9	Screening of distribution and prevalence of exotic salmonids in S. Chile (X Region, target c. 80 marine and freshwater sites)
12/06/-1/08	Apr-Mar 2006/7-7/8	Sampling of fish farms for genetic variation and isotopic signatures for baseline GSI database (4 species, 8 marine sites, 4 freshwater sites)
2-7/07	Apr-Mar 2006/7-7/8	Assessment of wildlife interactions and predation around selected fish farms
12/06-5/07	Apr-Mar 2006/7-7/8	Impact of exotic salmonids on native biodiversity: control sites
2/08	Apr-Mar 2007/8	Results of first year sampling completed and compiled
10/07-3/08	Apr-Mar 2007/8	Impact of exotic salmonids on native biodiversity: sites with accidental escapees
9/08	Apr-Mar 2008/9	Results of second year sampling completed and compiled
10/08-3/09	Apr-Mar 2008/9	Impact of exotic salmonids on native biodiversity: stocked sites (naturalized)
6/09	Apr-Mar 2009/10	Results of third year sampling completed and compiled
8/09	Apr-Mar 2009/10	Final results compiled, monitoring programme fully handed over to ULL
1-6/07	Apr-Mar 2006/7-7/8	Public Education and Conservation Awareness Programme Development/production of educational material (posters, leaflets, presentations) & outreach program (e.g. at trade fairs, fishing contests) for tourists, local communities, sport fishermen, and aquaculture operators in collaboration with stakeholders (in Spanish, English, and possibly other languages)
12/06	Apr-Mar 2006/7	First local community workshop, outreach (selected partners, 1 week).
7/07	Apr-Mar 2007/8	Second local community workshop, outreach (selected partners, 1 week).
7/08	Apr-Mar 2008/9	Third local community workshop, outreach (selected partners, 1 week).
6/09	Apr-Mar 2007/8-9/10	Development and validation of MSc program on Sustainable Aquaculture
3-7/06	Apr-Mar 2006/7	Dissemination of Results Initial press releases produced (Darwin Initiative, UWS, ULL)
10-12/06	Apr-Mar 2006/7	Project featured in Conservation, Trade (Fisheries & Aquaculture), and NGO's Newsletters.
4,10/07-10	Apr-Mar 2006/7-8/9	Newsletters and press releases produced with half-yearly project reports
1/07-6/07	Apr-Mar 2006/7-7/8	Development of project website (updated throughout the project)
12/06-6/09	Apr-Mar 2006/7-9/10	Project featured in broadcast media (4)
2/06-6/09	Apr-Mar 2006/7-9/10	Popular articles completed (4)
9/07	Apr-Mar 2007/8	End of Yr 1: Minimum of 1 presentation of results at national conference/seminar
9/08	Apr-Mar 2008/9	End of Yr 2: Minimum of 1 presentation of results at national conference/seminar
9/09	Apr-Mar 2009/10	End of Yr 3: Minimum of 1 presentation of results at national conference/seminar
9/09	Apr-Mar 2009/10	End of Project: Presentation of project results at one or more international conferences
9/09	Apr-Mar 2009/10	End of Project: DVD/CD with project accomplishments, all educational material publications, and proceedings of workshops
7/09	Apr-Mar 2009/10	Management Action Plan (MAP) and Code of Best Practices (CBP) completed and submitted for review
9/10	Apr-Mar 2010/11	At least 2 papers accepted by international peer reviewed journals one year after end of Darwin funding

21. Set out the project's measurable outputs using the separate list of output measures.

PROJECT OUTPUTS		
Year/Month	Standard output number (see standard output list)	Description (include numbers of people involved, publications produced, days/weeks etc.)
06/10-09/09	2	Training outputs 2 Chilean students attaining MSc qualification at ULL by end of project
06/10-09/09	4A	Minimum of 4 Chilean undergraduate students will carry out research within the Project and attend components of the training workshops
06/10-09/09	4B, D	At least 6 weeks. Training run for a minimum of 2 weeks per year
06/10-09/09	4C	4 Chilean MSc/PhD students to attend workshops and seminars
06/10-09/09	5	2, training of RA's (Biodiversity Impact Assessment, Molecular methods)
06/10-09/09	6A/B	At least 60 people/year participating in local community workshops and outreach/education program (1 week/year)
06/10-09/09	7	9 different training/education materials including (1) information leaflets, (2) posters, (3) PowerPoint slideshow, (4) Information pack, (5) local community workshop hand-outs, (6) training workshop hand-outs, (7) Sampling/analysis protocols (8) website and (9) DVD/CD compilation
06/10-09/09	8	Research outputs UK partners: 30 weeks (yr 1: 12, yr 2 : 6, yr 3 :12); Canadian partner: 4 weeks (yr 2: 2, yr 3: 2); US partners: 8 weeks (yr 2: 4, yr 3: 4); New Zealand partner: 6 weeks (2 wk/yr).
09/07	9	Two, Management Action Plan (MAP) and Code of Best Practices (CBP)
09/09	11 A/B	Minimum of two peer reviewed papers
009/09	12A	Reference database with key- sensitive molecular markers, location of fish farms, and distribution of exotic salmonids
06/10-09/09	14A	Dissemination outputs Total 7 (4 project training workshops + 3 local community seminars)
06/10-09/09	14B	Minimum 4 (3 national + 1 international)
06/10-09/09	15A, B	6 coinciding with half-yearly reports
06/10-09/09	15C	3 coinciding with annual reports
06/10-09/09	16A, B, C	3, 1 yearly; 200; 100
06/10-09/09	17B	Project website linked to all partner institutions and other relevant sites
06/10-09/09	18A/B/C/D	One in each category envisaged
06/10-09/09	19A/B/A/C/D	One in each category envisaged
09/09	20	Physical outputs £27,918. Equipment purchased under Darwin Initiative to equip Aquaculture & Genetics Laboratory at ULL for GSI
09/09	21	Two: MSc program in Sustainable and GSI facilities at ULL laboratory
06/10-09/09	23	Financial outputs Contributions in kind, salaries, consumables, field transport, overheads, etc. U. Wales Swansea: 49,314; U. Los Lagos: 64,314; Centre for Ecology & Hydrology: £31, 875; Consultancy Prof Beardmore: £12,000 Oregon State University: £12,469; University of Victoria: £13,400 US Geological Survey: £17,004; Victoria University of Wellington: £12,000 £25,000 per year continuing funding by U. of Los Lagos after Darwin Funding. Further continuing funding will be sought during the course of the project
After 09/09	23	

PROJECT BASED MONITORING AND EVALUATION

22. Describe, referring to the Indicators in the Logical Framework, how the progress of the project will be monitored and evaluated, including towards delivery of its outputs and in terms of achieving its overall purpose. This should be during the lifetime of the project and at its conclusion. Please include information on how host country partners will be included in the monitoring and evaluation.

Project progress and deliverables in relation to the proposed timetable will be monitored by frequent contacts and visits from UK staff (who will undertake at least 2 visits per year) and associated partners. This will ensure that the core elements of the project and associated training are delivered on time and meet the required standards. Verification of outputs will be assessed by reference to the expected indicators specified in the Logical Frame. Scientific outputs will be peer reviewed before publication, thus ensuring the highest international standards. Quality of education and training components will be assessed internally by the associated partners, and also independently by outside experts, to highlight potential lessons and problems. As project leader in the host country, Dr. Gonzalo Gajardo (ULL) will be responsible for overseeing the day to day management of the project and progress towards its outputs. With assistance of Dr. Orellana (ULL), Dr. Gajardo will collate reports from the Chilean project scientific staff on a monthly basis and forward them to the UK project leader, who will circulate them among all partners. Results will be continuously updated to databases as appropriate and exchanged via email. Review meetings will be held involving all local project staff during visits of UK personnel to Chile. With UK staff and inputs from all partners, Dr. Gajardo and the Chilean staff will co-author the intermediate and final progress reports. Scientific papers, MAP, and CBP will be co-authored by all participating partners, according to contribution.