Glossary

Algae: Marine plants that include the macro-algae, commonly known as seaweed, and the microscopic algae known as phytoplankton and phytobenthos.

Alluvial Fan: An alluvial fan is a fan-shaped deposit formed where a fast-flowing stream flattens, slows, and spreads typically onto a flatter plain.

Amnesic Shellfish Poisoning (ASP): A human illness caused by consumption of the marine biotoxin called domoic acid.

Antifoulant: To coat the hull of a vessel with a poisonous paint that prevents it from becoming encrusted with barnacles and other organisms.

Aquaculture: The artificial rearing and husbandry of aquatic organisms; fish, shellfish and seaweed.

Area for action (AFA): Areas in the Argyll and Bute Development Plan (2009) which, subject to resource availability during the plan-period, will be the focus for partnership or community action.

Area of Panoramic Quality: These are areas of regional importance in terms of their landscape quality, identified in the Argyll and Bute Development Plan (2009).

Assemblage: A mixed grouping of animals and/or plants that are associated with a particular environment and can be used as an identifying characteristic of that environment.

Benthic: A description for animals, plants – the benthos and habitats associated with the seabed.

Bern Convention: The *Council of Europe Convention on the Protection of European Wildlife and Natural Habitats* (Bern 1979). The convention offers protection to plants, invertebrates and all vertebrates and is binding on all signatories, which includes the UK.

Biodiversity: The variability among living organisms from all sources including, among others, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species and ecosystems (CBD 1992).

Biodiversity Convention: The UN *Convention on Biodiversity* signed at the UNCED 'Earth Summit' in Rio de Janeiro 1992 to safeguard the total variety of animals, plants and all other living matter on Earth, i.e. the biodiversity, and their habitats.

Biogeochemical: The study of the distribution of elements between organisms and their surroundings.

Biomass: The total weight of living matter, either by species or all species combined, also referred to as the standing stock.

Biota: Any living organisms, both animals and plants.

Biotope: The physical habitat with its associated, distinctive biological communities. The smallest unit of a habitat that can be delineated conveniently and is characterised by the community of plants, and animals living there.

Birds Directive: The EU *Directive on the Conservation of Wild Birds* (79/409/ EEC) seeks to protect all wild birds and the habitats of listed species, in particular through the designation of special protection areas (SPA).

Brackish: Slightly salty water

Bryophyte: A non-flowering plant, often growing in damp places, that has separate gamete-bearing and spore-bearing forms, e.g. moss.

Cetacea: Marine mammals that give birth at sea, e.g. dolphins, porpoises and whales.

Coastal Framework Plans: A framework plan with a multi-agency remit extending beyond planning jurisdiction and which relates to specific seaward and landward areas of coast (e.g. a sea loch), and which may embrace area management agreements. A coastal framework plan can be proposed by local plans or may emerge through an allied partnership process.

Coastal Zone: The space in which land-based activities and terrestrial environments influence the marine environment and *vice versa*, but there is no universally recognised definition for the coastal zone.
Pragmatically, the seaward boundary to the coastal zone is usually set by the limits of enabling legislation; e.g. the Territorial Sea (national legislation), or 6 miles – the area covered by national legislation and local byelaws, and the waters within which only UK registered vessels may fish.

Coliform Bacteria: Rod shaped bacteria, e.g. *Escherichia coli* (*E. coli*) and *Salmonella*, whose presence in coastal waters are indicative of faecal pollution.

Conservation Areas: Areas proposed by Local Plans or through a parallel process; they have a statutory basis (currently in the Planning (Listed Building and Conservation Areas) (Scotland) Act 1977) as areas of special architectural or historic interest and containing key features which it is desirable to conserve, sustain and enhance; a heightened value can be placed on a conservation area by Historic Scotland conferring 'outstanding' status;

Countryside Around Settlements: A development control zone which, under the Argyll and Bute Development Plan 2009, frames the area around settlements and settlement plans. Within this zone a co-ordinated and planned approach to development is appropriate, whilst allowing for small scale infill, rounding-off redevelopment and change of use of buildings to take place on an appropriate basis.

Creel: An alternative name for a crab or lobster pot.

Creeling: A method used for catching crabs, lobsters and Nephrops, whereby baited pots are laid on the seabed.

Demersal Trawling: Demersal trawls are used to catch fish or prawns that live on the bottom of the ocean. Trawlers targeting finfish often use one net (this is called a single-trawl) or two nets (twin-trawl), whereas prawn trawlers may use a twin-rig (towing two nets) or quad-rig (towing four nets). Both demersal and mid-water trawls use otter-boards to keep the mouth of the net open.

Depuration: The purification of bivalve molluscs by holding the live animals for a prescribed period in circulating seawater that is continuously sterilized, e.g. by an ultraviolet light source. During the process, the bivalves purge their guts of food and any coliform bacteria that may have collected there.

Development Control Zones: Argyll and Bute Development Plan designations which include:

- main towns
- small towns and villages
- minor settlements
- countryside around settlement
- greenbelt
- rural opportunity areas
- sensitive countryside
- very sensitive countryside

Diarrhetic Shellfish Poisoning (DSP): A temporary illness caused by eating bivalve molluscan shellfish that have accumulated toxins from dinoflagellates (*Dinophysis* spp.) in the phytoplankton.

Dredging: A method for catching molluscs that live on or in the sea bed, e.g. clams, native oysters, scallops. Boats tow groups – 'gangs' – of dredges, each dredge rarely more than a metre in width. They are made of a robust steel frame, often with a toothed bar across the lower edge, and a heavily reinforced or chain link bag.

Endemic: A natural or naturalized population that is normally found in a particular area.

Environmental Impact Assessment (EIA): An assessment which is required by formal Environmental Assessment Regulations or by the planning authority to inform the determination of a planning application and which describes the impact of development on natural and built heritage resources and on land use along with any other environmental impact.

Epifauna: Animals that live on the surface of the seabed or other substratum.

Fallowing: Practice of leaving cages empty of fish for a period of time to break cycles of disease and/or to allow the seabed to recover.

Furunculosis: Caused by *Aeromonas salmonicida*; characterized by bacteremia, septicemia and sometimes accompanied by deep necrotic lesions on the sides and backs of fish.

Good Ecological Status (Water Framework Directive): The level of quality that each river, loch, estuary, coast or ground water aims to achieve. The determination of ecological status in all marine surface waters includes the consideration of not only water quality but also marine ecology and alterations to hydromorphology caused by coastal development.

Gross Value Added (GVA): GVA measures the contribution to the economy of each individual producer, industry or sector in the United Kingdom.

Habitat: The place where an organism lives, as characterised by the physical features. For example, rocky reefs, sandbanks and mud holes all provide particular habitats that are occupied by animals adapted to live in or on one of them but probably cannot thrive, or even survive in the others.

Habitats (and Species) Directive: *Council Directive 92/43/EEC on the conservation of natural habitats and of wild flora and fauna* requires EU member states to protect scheduled species and to designate and manage special areas of conservation (SAC) for the protection of specific habitats and species identified in Annex I and II of the Directive.

Hypoxia: Low oxygen levels

ICZM: Integrated Coastal Zone Management, the co-ordination of all activities, regulatory and management functions to safeguard all natural resources and processes found in and affecting the coastal zone.

Intertidal: The foreshore or area of seabed between high water mark and low water mark which is exposed each day as the tide rises and falls, also known as the littoral zone.

Invasive: An invasive species is a non-native species whose introduction does or is likely to cause economic or environmental harm or harm to human, animal, or plant health.

***Karenia mikimotoi*:** One of the most common red tide causative dinoflagellates.

Keystone Species: A species that forms an essential part of a community or assemblage of species without which the rest of the community cannot exist. For example, reef building species such as the colonial worm *Sabellaria* spp or the horse mussel *Modiolus modiolus* are keystone species that provide specific habitats within which many other species live.

Listed Buildings: Buildings which are statutorily protected (currently under the Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997) as buildings of special architectural or historic interest and in relation to which it is a criminal offence to affect the appearance and characteristics without first having obtained the necessary listed building consent; these buildings are currently categorised as A, B and C in descending value and have descriptive lists and other information associated with them.

Littoral: The edge of the sea, but particularly the intertidal zone.

Local Biodiversity Action Plan: A multiagency action plan, which is currently being led by Argyll and Bute Council with the core objective of informing, influencing and engaging with agencies, organisations, businesses, communities and individuals to support and sustain biodiversity in Argyll and Bute.

Local Plan: A statutory plan, which has a detailed area and subject basis and which sits under a strategic Structure Plan.

Marine Consultation Area (MCA): A non-statutory nature conservation designation for Scotland. It identifies areas of nature conservation interest for which widespread consultation is desirable before any development takes place.

Marine Stewardship Council (MSC): A non-governmental organisation that encourages consumers to purchase fish taken only from environmentally responsible and sustainable fisheries. All fish products that MSC judge to be from such sustainable fisheries, will be permitted to carry an 'eco-friendly' seal of approval.

Material Considerations: Considerations or factors relating to the use and development of land, which are relevant and valid to consider in relation to the taking of a decision on an application for planning permission.

National Scenic Area: A conservation designation specifically for Scotland, administered by Scottish Natural Heritage. NSAs are defined as having outstanding scenic interest or unsurpassed attractiveness. They are the Scottish equivalent of AONBs (Area of Outstanding Natural Beauty in England, Wales and Northern Ireland).

Natura 2000: The EU-wide network of Special Protection Areas (SPAs) established under the Birds Directive and Special Areas of Conservation (SACs) established under the Habitats Directive.

Non-native: An introduced, alien, exotic, non-indigenous species is a species living outside its native distributional range, which has arrived there by human activity, either deliberate or accidental.

OSPAR: A combination (1992) of two earlier conventions (Oslo and Paris) to create the *Convention for the Protection of the Marine Environment of the Northeast Atlantic*. Annexes to the convention address specific issues:

1. **Annex I** prevention and elimination of pollution from land based sources;
2. **Annex II** prevention and elimination of pollution by dumping or incineration;
3. **Annex III** prevention and elimination of pollution from offshore sources;
4. **Annex IV** assessment of the quality of the marine environment;
5. **Annex V** protection and conservation of ecosystems and biological diversity.

Paralytic Shellfish Poisoning (PSP): Paralytic Shellfish Poisoning is a natural algal poison, which filter feeding shellfish can concentrate.

Parr: A young salmon up to two years old that has dark transverse bands (parr marks) and lives in fresh water.

Phytoplankton: Very small free-floating plants, e.g. one-celled algae, found in plankton.

Plankton: The animals and plants that float in mid water and drift with the tides.

Polyculture: Polyculture is the practice of culturing more than one species of aquatic organism.

Ramsar Convention: The international Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar, Iran 1971).

Recreational Fisheries: Any fishery that is undertaken for pleasure rather than income; most frequently it is represented by beach and boat angling. Recreational sea fishing is not licensed, but it is subject to minimum landing size (MLS) regulations and its activities can be curtailed by quota restrictions.

Regulating Order: A variation in the public right to fish for molluscs otherwise guaranteed by *Magna Carta* (1215). The Order is usually granted to a public body, e.g. Sea Fisheries Committee (SFC), to manage a wild stock mollusc fishery. The species covered by each order are named. Licenses are then issued to individuals granting them the right to fish the named species within the area covered by the order. The order does not affect the public right to fish within the regulated area for species not named in the order.

River Basin Management Plans: Plans produced as one of the requirements of the European Union's Water Framework Directive to ensure that public sector bodies, businesses and individuals work together to protect the water environment and address significant impacts by coordinating all aspects of water management for the next 6 years. The plans will be reviewed and updated in 2015.

Salmonid: Belonging to, or characteristic of the family Salmonidae, which includes the salmon, trout, and whitefish.

Salt marsh: A maritime habitat found in temperate regions, but typically associated with tropical and subtropical mangrove swamps, in which excess sodium chloride is the predominant environmental feature.

Scheduled Ancient Monuments: Monuments protected by statute where within the scheduled area, development requiring planning permission is subordinated to scheduled monument consent legislation.

Sea lice: *Lepeoptheirus salmonis* and *Caligus elongatus*, natural marine ectoparasites of salmon.

Settlement: Main towns, small towns and villages, and minor settlements (six adjoining houses and above represent a settlement).

Several Order: An order removing the public right to fish for named shellfish normally guaranteed by *Magna Carta* (1215). The Order assigns exclusive rights to an individual or organisation to improve and manage an area of seabed and ownership of named species of shellfish living on it. The chosen method of management is usually through cultivation (mariculture), but it includes stock enhancement. The order does not affect the public right to fish within the area for species not named in the order.

Shellfish Growing Water: An area where coastal water quality is monitored/maintained by the Scottish Environment Protection Agency (SEPA) at an appropriate standard for shellfish growing.

Site of Special Scientific Interest (SSSI): For the purposes of this plan, these are sites which are designated by Scottish Natural Heritage (SNH) under the provisions of the Wildlife and Countryside Act 1981 and in accordance with specific guidelines to protect the special interest of the site from change or deterioration. These areas are special because of their marine conservation and wildlife importance and the nature conservation value of the plants, animals or habitats as well as any rock formations and can include rivers, freshwater and intertidal areas as far as the low water mark; SSSI status does not change the use of the land but the Council, owners and occupiers must consult with SNH on any developments or activities which may affect the site.

Smolts: Juvenile salmon (known as parr) spend most of their freshwater life in shallow riffles, mostly at the southern end of their range, until they reach 12–15 cm in length, when they transform themselves into smolts and are ready for migration in spring the first year after hatching.

Soakaway: A hole where waste water can drain away by filtering down through the soil.

Special Area of Conservation (SAC): Areas designated by Government to accord with the EC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora and to safeguard rare and threatened species and habitats listed in the Directive; terrestrial SACs are normally, but not exclusively, SSSIs which together with SPAs form the Natura 2000 network.

Special Protection Areas (SPAs): Strictly protected sites that are classified in accordance with Article 4 of the EC Birds Directive, which came into force in April 1979. They are classified for rare and vulnerable birds (as listed on Annex I of the Directive), and for regularly occurring migratory species.

Species Action Plans (SAP): Species Action Plans form part of the UK Biodiversity Action Plan (UKBAP) to protect UK priority species and habitats. Marine priority species for which plans have been published (UKBG 1999) include: baleen whales, harbour (common) porpoise, small dolphins, toothed whales, marine turtles, basking sharks, common skate, selected commercial fish species', 'selected deep-water fishes', native oyster, 12 non-commercial invertebrate species and two seaweeds.

Statutory Instrument: A document bringing into force, usually as a result of an Order in Council, a variation to existing legislation without the need for Parliament to amend the primary legislation.

Stratified: Forming or depositing in layers

Structure Plan: The strategic tier of the development plan, which establishes the framework for the local plan (s) - the current Structure Plan for the whole of the Argyll and Bute territory, is the Argyll and Bute Structure Plan approved November 2002.

Sublittoral: Depths greater than the intertidal zone.

Supplementary Planning Guidance: Planning guidance that is adopted in connection with a strategic development plan, or in connection with a local development plan, and which therefore forms part of the development plan.

Sustainable Development: Development that meets the needs of the present without compromising the ability of future generations to meet their own needs (WCED 1987 – *The Brundtland Report*).

Thermocline: Depth at which the rate of decrease of temperature with increase of depth is the largest. In general, the sea water temperature decreases from the surface to the deepest levels, except in high latitudes where the configuration can be more complex.

The Water Environment (Controlled Activities) (Scotland) Regulations 2005 (CAR): Regulations which require authorisation to be obtained from SEPA for any activity which may affect Scotland's water environment.

This includes discharges, disposal to land, abstractions, impoundments and engineering works in the water environment.

Tidal currents: A tidal current is a steady, permanent, horizontal movement of water, like a broad river running through the open ocean.

Tidal Stream: A tidal stream is a horizontal movement of water, but its speed and direction vary frequently and regularly according to the state of the tide.

Trawl: A large, funnel-shaped net that is towed through the water by single or paired boats. The mouth of the net is held open by a beam (beam trawl) or floats along the headline, weights along the ground rope and is pulled open laterally either by the doors attached to the towing wires (warps) or two boats pulling one warp each.

UKBAP: The UK Biodiversity Action Plan, the Government's programme aimed at meeting some of its obligations under the UN *Convention on Biodiversity* (1992). A wide range of habitat action plans (HAP) and species action plans (SAP) are being implemented to help safeguard and improve the conservation status of priority habitats and priority species.

Vibrioisis: Vibriosis is a disease caused by an infection with bacteria of the *Vibrio* genus, most commonly *Vibrio parahemolyticus* or *Vibrio vulnificus*. *Vibrio* bacteria cause diarrhea, skin infections, and/or blood infections.

Visual carrying capacity: The degree to which a particular landscape or area is able to accommodate development or change without significant effects on the character for which it is particularly valued by people or without causing an overall change to its landscape character type; this capacity will vary according to the type and nature of the development or change that is proposed.

Voe: A sheltered bay or inlet between two land masses in Shetland.

Water Bodies (River Basin Management Planning): SEPA have divided the larger rivers, lochs, estuaries, coasts and ground waters into smaller parts called water bodies. A water body may be a single burn or loch, or it could be a stretch of a river or an area of ground water.

Water Environment and Water Services (Scotland) Act 2003 (WEWS Act): Legislation translating the Water Framework Directive into Scottish law which gave Scottish Ministers powers to introduce regulatory controls over water activities, in order to protect, improve and promote sustainable use of Scotland's water environment. This includes wetlands, rivers, lochs, transitional waters (estuaries), coastal waters and groundwater.

Water Framework Directive (Council Directive 2000/60/EC): Requires Member States to establish systems for managing their water environments, underpinned by extensive environmental monitoring and scientific investigation, by identifying natural River Basin Districts (RBDs) and developing River Basin Management Plans (RBMPs). Member states must also recover the costs of water services to encourage sustainable water use.

Wellboat: Used for a range of functions including transferring of fish for harvest.

References

Argyll and Bute Council, 2002. Argyll and Bute Structure Plan - Developing Our Future. pp 54.

Argyll and Bute Council, 2009. Argyll and Bute Local Plan. pp 153.

Argyll and Bute Council, 2010. Argyll and Bute Woodland and Forest Strategy 2010. [cited 13/09/2010]. Available from: http://www.argyll-bute.gov.uk/pdffilesstore/wfsdraft

Argyll and Lochaber Area Management Plan, 2009-2015. Supplementary to the river basin management plan for the Scotland river basin district. [cited 09/12/2010]. Available from: http://www.sepa.org.uk/water/river_basin_planning/area_advisory_groups/argyll_and_lochaber.aspx#argyll_area_management_plan

Argyll Fisheries Trust (2009). Argyll and the Islands Strategic Fishery Management Plan 2009-2015. Cherry Park, Inveraray, Argyll, PA32 8XE. http://www.argyllfisheriestrust.co.uk/pdfs/argyllstrategicfishery.pdf

Austin, W. E. N., Inall, M. E., 2002. Deep Water Renewal in a Scottish Fjord: Temperature, Salinity and Oxygen Isotopes. *Polar Research* 21 (2), 251-258.

Barne, J. H., Robson, C. F., Kaznowska, S. S., Doody, J. P., Davidson, N. C., Buck, A. L., 1997. Coasts and Seas of the United Kingdom – Region 14 South-west Scotland: Ballantrae to Mull. A report prepared by Joint Nature Conservation Committee, Monkstone House, City Road, Peterborough PE1 1JY.

Baxter, J. M., Boyd, I. L., Cox, M., Cunningham, L., Holmes, P., Moffat, C.F., (Editors), 2008. Scotland's Seas: Towards Understanding their State. Fisheries Research Services, Aberdeen. pp. 174.

Beveridge, C., Cook, E.J., Brunner, L., MacLeod, A., Black, K., 2009. Rapid Assessment surveys for *Didemnum vexillum* in Scotland. Scottish Natural Heritage Commissioned Report.

Black, B., 2008. An t' Sailean Saltmarsh: Management Plan, 2008-2013. Plan commissioned by the Scottish Agricultural College, Oban on behalf of Lochnell Estate.

Boulton, G. S., Peacock, J. D., Sutherland, D. G., 1991. Quaternary. In: Craig, G.Y., (Ed.), Geology of Scotland, 3rd edn. Geological Society of London, London.

Cook, E., 2005. Japanese skeleton shrimp *Caprella muticum*. Marine Aliens project. [On-line] http://www.marlin.ac.uk/marine_aliens/marine_aliens.htm

Craik, J.C. A., 1995. Effects of North American Mink on the breeding success of terns and smaller gulls in west Scotland. Seabird 17:3-11.

Craik, J.C. A., 1997. Long-term effects of North American Mink on seabirds in western Scotland. Bird Study 44: 303-309.

Craik, J. C. A., 2000. Breeding success of Common Gulls *Larus canus* in West Scotland. II. Comparisons between colonies. Scottish Association for Marine Science, Dunstaffnage Marine Laboratory, P.O. Box 3, Oban, Argyll PA34 4AD.

Davison, D. M., 2009. *Sargassum muticum* in Scotland 2008: a review of information, issues and implications. Scottish Natural Heritage Commissioned Report No. 324 (ROAME No. R07ACC707).

Donnelley, R. R., 2008. Scottish Sea Fisheries Statistics – A National Statistics Publication for Scotland. [cited 23/06/2010] Available from: http://www.scotland.gov.uk/Publications/2009/09/11100225/53

Edwards, A., Edelsten D.J. 1977. Deep water renewal of Loch Etive: a three basin Scottish fiord. Estuar. Coast. Mar. Sci., 5: 575-595.

Gage, J. 1972a. A preliminary survey of the benthic macrofauna and sediments in Loch Etive and Creran, sea-lochs along the west coast of Scotland. J. Mar. Biol. Assoc. UK. 52: 237-276.

Gillibrand, P. A., Cromey, C., J., Black, K. D., Inall, M. E., Gontarek, S. J. 2007. Identifying the Risk of Deoxygenation in Scottish Sea Lochs with Isolated Deep Water – A report to The Scottish Aquaculture Research Forum. Scottish Association for Marine Science, Dunstaffnage Marine Laboratory, Oban, Argyll PA37 1QA.

Grant, A. 2006. Landscape/seascape carrying capacity for aquaculture. Scottish Natural Heritage Commissioned Report No. 215 (ROAME No. F04NC12).

Holt, R., 1991. Surveys of Scottish Sealochs – Loch Etive. Marine Nature Conservation Review (JNCC Report 10), Volume 1 Report.

Houston, A., 2004. Clyde Cruising Club: Kintyre to Ardnamurchan. Sailing directions and anchorages. Published by Clyde Cruising Club Ltd. Suite 101, The Pentagon Centre, 36, Washington Street, Glasgow G3 8AZ.

Howe, J. A., Shimmield, T., Austin, W. E. N., Longva, O., 2001. Post-glacial depositional environments in a mid-high latitude glacially-overdeepened sea loch, inner Loch Etive, western Scotland. Marine geology 185 (2002) 417-433.

Kettle-White, A. 2006. *Argyll & the Islands Fisheries Biosecurity Management Plan*. Report commissioned by the Argyll Fisheries Trust, Cherry Park, Inveraray, Argyll, PA32 8XE.

Lawrence, M., 2004. The Yachtsman's Pilot – The Isle of Mull and adjacent coasts. Published by Imray Laurie and Wilson Ltd. Wych House, St. Ives, Cambridgeshire PE27 5TB.

Lorne Forest District – Strategic Plan 2007-2017. Available from: http://forums.forestresearch.gov.uk/pdf/LorneFDSP.pdf/$FILE/LorneFDSP.pdf [Accessed on 7th September 2010].

MacKenzie Wilson Partnership, 2006. Sailing in the Clyde Estuary; The Potential for Future Development. A Market Assessment, Economic Impact Study and Action Plan.

Magill, S., Black, K., Kay, D., Stapleton, C., Kershaw, S., Lees, D., Lowther, J., Francis, C., Watkins, J., Davies, C., 2008. Risk Factors in Shellfish Harvesting Areas. Final Project Report Prepared for Scottish Aquaculture Research Forum. SARF013/SAMS Report No. 256.

Neal, K., 2005. *Eriocheir sinensis*. Chinese mitten crab. Marine Life Information Network: Biology and Sensitivity Key Information Sub-programme [on-line]. Plymouth: Marine Biological Association of the United Kingdom. [cited 18/06/2010]. Available from: http://www.marlin.ac.uk/speciesinformation.php?speciesID=3283

Oakley, J., 2006. *Caprella mutica*. Japanese skeleton shrimp. Marine Life Information Network: Biology and Sensitivity Key Information Sub-programme [on-line]. Plymouth: Marine Biological Association of the United Kingdom. [cited 18/06/2010]. Available from: http://www.marlin.ac.uk/speciesinformation.php?speciesID=2879

Oakley, J., 2007. *Undaria pinnatifida*. Wakame. Marine Life Information Network: Biology and Sensitivity Key Information Sub-programme [on-line]. Plymouth: Marine Biological Association of the United Kingdom. [cited 18/06/2010]. Available from: http://www.marlin.ac.uk/speciesinformation.php?speciesID=4547

Proctor, K. and Rafferty, T.F. 2004. Survey of Giant Hogweed, Japanese Knotweed and Himalayan Balsam on five major Lothian rivers. Scottish Natural Heritage Commissioned Report No. 223 (ROAME No. F02L J01).

Radford, A. F., Riddington, G. L., Gibson, H., 2009. *Executive Summary: Economic Impact of Recreational Sea Angling in Scotland*. A report prepared by Cogent Research International Ltd. for the Scottish Government. 13pp. (Report No. B61549 7/09).

Rayment, W., 2008. *Crepidula fornicata*. Slipper limpet. Marine Life Information Network: Biology and Sensitivity Key Information Sub-programme [on-line]. Plymouth: Marine Biological Association of the United Kingdom. [cited 15/06/2010]. Available from: http://www.marlin.ac.uk/speciesfullreview.php?speciesID=3086

Ridley, G., 1986. *The DIVER Guide to Scotland-Volume 1 – Dive West Scotland.* Underwater World Publications, London.

Sail West Project, 2007. A Strategic Programme for the Development of Marine Leisure Activities and Infrastructure in the Republic of Ireland Border Region, Northern Ireland and the West of Scotland.

Sanderson, C., J., 2006. Reducing the environmental impact of fish cage farming through the cultivation of seaweeds. SAMS, UHI.

UKHO, 2008. West Coast of Scotland Pilot: West coast of Scotland from Mull of Galloway to Cape Wrath including the Hebrides and off-lying islands. Admiralty Sailing Directions (NP 66). Published by the United Kingdom Hydrographic Office, Admiralty Way, Taunton, Somerset TA1 2DN.

West Argyll Forest District Strategy Plan 2009-2013. Forestry Commission Scotland.

Wilding, T. A., Hughes, D. J., Black, K. D., 2005. The benthic environment of the North and West of Scotland and the Northern and Western Isles: sources of information and overview. Report 1 to METOC. Scottish Association for Marine Science, Oban, Scotland, PA37 1QA.

Zbawicka, M., Burzynski, A., Skibinski, D., Wenne, R., 2010. Scottish *Mytilus trossulus* mussels retain ancestral mitochondrial DNA: Complete sequences of male and female mtDNA genomes. *Gene*.

Bibliography

Anderson, J. and Myers, M., 2005. Seafish – The Argyll and the Islands Enterprise Fisheries Review. Seafish Economics.

Argyll and Bute Local Biodiversity Action Plan, 2010. Available from: http://www.ukbap-reporting.org.uk/plans/lbap_plans.asp?LBAP=%7BA7BACE11%2DC90C%2D4023%2D8868%2D9E47C23317D7%7D&CO [Accessed July 2010].

Argyll and Bute Local Transport Strategy 2007-2010 – Moving Forward.

Argyll Fisheries Trust, 2010. Available from: http://www.argyllfisheriestrust.co.uk/fishresources.html [Accessed 10 February 2010].

Baxter, J. M., Boyd, I. L., Cox, M., Cunningham, L., Holmes, P., Moffat, C.F., (Editors), 2008. Scotland's Seas: Towards Understanding their State. Fisheries Research Services, Aberdeen. pp. 174.

Bibby, H., 2005. An Sailean Saltmarsh Vegetation Survey, July 2005. Report commissioned by Lochnell Estate.

Cogent Strategies International Ltd., 2009**.** Economic Impact of Recreational Sea Angling in Scotland. Produced for the Scottish Government. B61548 7/09.

Craik, J. C. A., 1999. NBN Gateway – Seabird 1999 dataset.

Craik, J. C. A., 2000. NBN Gateway – Seabird 2000 dataset.

Ferrrira, J. G., Hawkins, A. J. S., Monteriro, P., Moore, H., Service, M., Pascoe, P. L., Ramos, L., Sequeria, A., 2007. Intergrated assessment of ecosystem-scale carrying capacity in shellfish growing areas. *Aquaculture* 275, (2008) 138-151.

Gillibrand, P. A., Inall, M. E., Portilla, E., Tett, P., 2009. A Box Model of Seasonal Exchange and Mixing in Restricted Exchange Environments: the ACExR Model. *Preprint submitted to Continental Shelf Research.* Scottish Association for Marine Science, Dunstaffnage Marine Laboratory, Oban, Argyll, PA37 1QA U.K.

Grant, A., 2000. Marine Aquaculture and the Landscape: The siting and design of marine aquaculture in the landscape. Scottish Natural Heritage Management Series, cited in: Guidance on Landscape/Seascape Capacity for Aquaculture 2008.

Grant, A., 2008. Guidance on Landscape/Seascape Capacity for Aquaculture – Scottish Natural Heritage.

Historic Scotland, 2010. Available from: Historic Scotland http://www.historic-scotland.gov.uk/index/heritage/gardens/gardens-selection.htm [Accessed 7th March 2010].

Howe, J. A., Overnell, J., Inall, M. E., Wilby, A. D., 2001. A side-scan sonar image of a glacially-overdeepened sea loch, upper Loch Etive, Argyll. *Scottish Journal of Geology* 37, (1), 3-10.

Marine Climate Change Impacts Partnership, 2009-10. Available from: http://www.mccip.org.uk/arc/2007/marine.htm [Accessed 31 July 2010].

MCCIP Annual Report Card 2009-2010 Available from: http://www.mccip.org.uk/annual-report-card/2010-2011.aspx [Accessed 31st July 2010].

Overnell, J., Brand, T., Bourgeois, W., Statham, P.J., 2002. Manganese Dynamics in the Water Column of the Upper Basin of Loch Etive, a Scottish Fjord. *Estuarine, Coastal and Shelf Science* 55, 481–492.

Radford, A. F., Riddington G.L 2004. *The Economic Impact of Game and Coarse Fishing in Scotland.* A report prepared for SEERAD - http://www.scotland.gov.uk/Publications/2004/06/19506/38879

Scottish Executive. 2007. Scottish Planning Series, Planning Circular 1 2007 – Planning Controls for Marine Fish Farming.

Scottish Natural Heritage. 1996. Landscape Assessment of Argyll and the Firth of Clyde – Environmental Resources Management. No. 78.

Scottish Planning Policy, 2010. Available from: http://www.scotland.gov.uk/Resource/Doc/300760/0093908.pdf [Accessed March 2010].

Scottish Shellfish Farm Production Survey, 2009 Report. Marine Scotland Science, Marine Laboratory, 375 Victoria Road, Aberdeen AB11 9DB.

SMRU (Sea Mammal Research Unit), 2010. *Seals in Britain* http://www.smru.st-andrews.ac.uk/

SNH, 2010. *Rhododendron ponticum* and hybrids [on-line]. Available from: http://www.snh.gov.uk/protecting-scotlands-nature/species-action-framework/species-action-list/rhododendron/ [Accessed July 2010].

Somerfield, P. J., Gage, J. D., 2000. Community structure of the benthos in Scottish Sea-lochs. IV. Multivariate spatial pattern. *Marine Biology* 136: 1133-1145.

Stewart Miller Associates, 2004. *Overview of the Marine Tourism Sector in Argyll and the Islands of Scotland*. 60pp.

The Marine Life Information Network for Britain and Ireland (*MarLIN*), 2010. Marine Aliens - *Caprella mutica* Available from: http://www.marlin.ac.uk/marine_aliens/species.asp?SpID=20#Life [Accessed 13 January 2010].

The Scottish Government, 2009. Statistical Bulletin, Scottish Salmon and Sea Trout Catches, 2008. Fisheries series No. Fis/2009/1 September 2009.

The Scottish Government, 2000. Policy Guidance Note – Locational Guidelines for the Authorisation of Marine Fish Farms in Scottish Waters. Available from: http://www.scotland.gov.uk/Resource/Doc/1062/0000280.pdf [Accessed 22 September 2010].

The Scottish Government, 2010. Consideration of Climatic Factors within Strategic Environmental Assessment (SEA).pp 24. Available from: http://www.scotland.gov.uk/Publications/2010/03/18102927/0 [Accessed July 2010].

UK Biodiversity Group, 1999. Tranche 2 Action Plans - Volume V: Maritime species and habitats. pp. 71.

UK priority habitats and species, 2010. Available from: http://www.ukbap-reporting.org.uk/plans/priority.asp [Accessed July 2010].

Warrer-Hansen, I., 2005. Kames Fish Farming Limited – Environmental Statement for a Proposed Modification of a Mussel Farm in Loch Etive to a Rainbow Trout Farm. A report prepared by Warrer-Hansen, Environmental Engineering Company, County Dublin, Ireland.

Appendix I – Summary of Local Authority Development Plan policies particularly relevant to the Loch Etive ICZM Plan

The following tables list Argyll and Bute Council, and Highland Council development plan policies most relevant to marine and coastal development and activity in and around Loch Etive. This is not a full list of policies and other policies maybe relevant to a specific policy. Therefore it is essential that the individual Development Plans listed below are referred to in relation to development proposals.

The map below identifies the marine area of Loch Etive under the jurisdiction of each Local Authority.

The Argyll and Bute Council Development Plan comprises the Structure Plan and Local Plan and these documents can be viewed at:
Structure Plan – http://www.argyll-bute.gov.uk/content/planning/developmentpolicy/structureplan
Local Plan - http://www.argyll-bute.gov.uk/content/planning/developmentpolicy/localplan/

The Highland Council Development Plan comprises the Highland Structure Plan and the West Highlands & Islands Local Plan which can be viewed at:
Structure Plan -
http://www.highland.gov.uk/yourenvironment/planning/developmentplans/structureplan/thehighlandstructureplan.htm
West Highlands & Islands Local Plan -
http://www.highland.gov.uk/yourenvironment/planning/developmentplans/localplans/whilp.htm

Argyll & Bute Council Structure Plan

POLICIES	Inshore Fisheries	Aquaculture	Recreation & Tourism	Shipping & Transport	Coastal/Marine Infrastructure	Natural & Historic Environment	Water Quality & Waste	Marine Renewables
REC CP 2 – Sea Fishing Interests	✓	✓	✓	✓	✓		✓	✓
REC TOUR 1 – Water Related Tourism Opportunities			✓			✓		
STRAT CP 1 – Coastal Transhipment Development	✓	✓	✓	✓	✓	✓	✓	
REC CP 1 – Coastal Framework Plans	✓	✓	✓	✓	✓	✓	✓	✓

Argyll & Bute Council Local Plan

POLICIES	Inshore Fisheries	Aquaculture	Recreation & Tourism	Shipping & Transport	Coastal/Marine Infrastructure	Natural & Historic Environment	Water Quality & Waste	Marine Renewables
LP AQUA 1 – Shell Fish and Fin Fish Farming		✓						
LP REC 1 – Sport, Leisure and Recreation			✓					
LP REC 2 – Safeguarding of Recreational Land and Important Open Spaces			✓		✓			
LP TOUR 2 – Safeguarding of Primary Tourist Areas			✓		✓			
LP SERV 1 – Private Sewage Treatment Plans and Wastewater		✓	✓		✓		✓	
LP SERV 2 – Incorporation of Natural Features/ Sustainable Drainage Systems (SuDS)		✓	✓		✓	✓	✓	
LP SERV 3 – Drainage Impact Assessment (DIA)		✓	✓		✓		✓	
LP SERV 5 – Waste Related Development and Waste Management in Developments		✓	✓		✓		✓	
LP SERV 8 – Flooding and Land Erosion – The Risk Framework for Development			✓		✓	✓	✓	

LP TRAN 8 – Piers and Harbours	✓	✓	✓	✓	✓			
LP ENV 1 - Development Impact on the General Environment	✓	✓	✓	✓	✓	✓	✓	✓
LP ENV 2 - Development Impact on Biodiversity (i.e. biological diversity)	✓	✓	✓	✓	✓	✓	✓	✓
LP ENV 3 - Development Impact on European and Ramsar Sites	✓	✓	✓	✓	✓	✓	✓	✓
LP ENV 5 – Development Impact on Sites of Special Scientific Interest (SSSIs)	✓	✓	✓	✓	✓	✓	✓	✓
LP ENV 6 – Development Impact on Habitats and Species	✓	✓	✓	✓	✓	✓	✓	✓
LP ENV 8 – Development Impact on Local Nature Conservation Sites		✓	✓		✓	✓	✓	
LP ENV 10 - Development Impact on Areas of Panoramic Quality	✓	✓	✓	✓	✓	✓	✓	✓
LP ENV 11 - Development Impact on Historic Gardens and Designed Landscapes	✓	✓	✓	✓	✓	✓	✓	✓
LP ENV 12 – Water Quality and Environment	✓	✓	✓	✓	✓	✓	✓	✓
LP ENV 16 - Development Impact on Scheduled Ancient Monuments	✓	✓	✓	✓	✓	✓	✓	✓
LP ENV 17 - Development Impact on Sites of Archaeological Importance	✓	✓	✓	✓	✓	✓	✓	✓
LP CST 1 – Coastal Development on the Developed Coast (Settlements and Countryside around Settlements)		✓	✓		✓		✓	
LP CST 2 – Coastal Development on the Undeveloped Coast (Sensitive Countryside Zone)		✓	✓		✓		✓	
LP CST 3 – Coastal Development on the Isolated Coast (Very Sensitive Countryside Zone)		✓	✓		✓		✓	
LP CST 4 – Development Impact on the Natural Foreshore		✓	✓		✓	✓		

Highland Council Structure Plan

	Inshore Fisheries	Aquaculture	Recreation & Tourism	Shipping & Transport	Coastal/Marine Infrastructure	Natural & Historic Environment	Water Quality & Waste	Marine Renewables
G2 – Design for sustainability	✓	✓	✓	✓	✓	✓	✓	N/A
RD1 – Area sustainable development strategies	✓	✓	✓	✓	✓	✓	✓	N/A
SR4 – Launch and mooring facilities			✓		✓	✓		N/A
N1 – Nature conservation	✓	✓	✓	✓	✓	✓	✓	N/A
L4 – Landscape character		✓	✓		✓		✓	N/A
BC2 – Archaeology, tourism and education			✓			✓		N/A
TC7 – Transportation of timber				✓	✓			N/A
TC15 – Ferry services			✓	✓	✓			N/A
TC16 – Improvements to port facilities	✓	✓	✓	✓	✓			N/A
TC17 – Harbour improvements	✓	✓	✓	✓	✓			N/A
W2 – Waste minimisation		✓	✓		✓		✓	N/A
W3 – Reuse and recycling		✓	✓		✓		✓	N/A

West Highland and Islands Local Plan

	Inshore Fisheries	Aquaculture	Recreation & Tourism	Shipping & Transport	Coastal/Marine Infrastructure	Natural & Historic Environment	Water Quality & Waste	Marine Renewables
POLICY 1 – Settlement Development Areas		✓	✓		✓		✓	N/A
POLICY 4 – Natural, Built and Cultural Heritage		✓	✓		✓	✓	✓	N/A
POLICY 11 – Protected Species	✓	✓	✓	✓	✓	✓	✓	N/A
POLICY 13 – Important Habitats	✓	✓	✓	✓	✓	✓	✓	N/A
POLICY 14 – Surface Water Drainage (SuDS)		✓	✓		✓		✓	N/A

Appendix II – Development of Policy Guidance for Policy Zones

1. Assessing Policy Zones

Spatial data
For each policy zone, two types of spatial information have been mapped. This information has been provided by stakeholders and regulators and where relevant, field assessments have been carried out to verify information.

Static features and interests, such as: Submarine cables, moorings, aquaculture developments, dive sites, sensitive habitats/wildlife areas, historic features, designated sites and landscape/seascape character.

Mobile features and interests, such as: Fishing activity, recreational activities, commercial boat traffic.

Landscape assessment
A Landscape/Seascape carrying capacity assessment, undertaken by SNH in 2006 considered the capacity for aquaculture development in relation to the surroundings. Consideration is given to the type of development and appropriate scales of development within given areas of the loch. The results from this work have been used as an additional layer of information, complementing the spatial data.

2. Developing Policy Zone Guidance and Aquaculture policies

In order to develop robust Policy Guidance and to determine development potential for aquaculture in each policy zone, the following stages were followed:

1) A marine spatial planning process using spatial information supplied by stakeholders and regulators, identified where different activities and interests occur and therefore the sensitivity of different parts of the coast to activities and development, including where potential conflict may occur.
2) Opportunities and constraints to future use and development were identified based on the information gathered for each policy zone.
3) This then informed the development of Policy Guidance, including priorities for future use and development and safeguarding of important interests and features.

   Aquaculture polices were developed by assessing the compatibility of aquaculture development against a number of criteria that are based on Scottish Planning Policy and the Argyll and Bute Development Plan policy LPAQUA1 (see Appendix VI).

The results of the landscape/seascape capacity analysis were used to consider the capacity for aquaculture development in relation to the surroundings. Although the landscape analysis focussed on the capacity for future aquaculture development, the assessment of sensitivity of different parts of the coastline has also informed the identification of opportunities and constraints for the future use of specific areas and the potential for other forms of marine and coastal development.

The Policy Guidance take account of all information gathered for each policy zone and a justification is provided for each policy or policy statement. Where it is clear at a strategic level that there is likely to be a significant adverse effect the development policy will be a presumption against development. In cases where it is felt impacts could be mitigated or it is not possible to determine the significance of impacts at a strategic level, policies are a presumption in favour, but constraints and supplementary guidance provides a steer on what potential constraints need to be overcome. Where a presumption against development has been identified, development policies for aquaculture do not preclude the submission of applications for shellfish or finfish development in these areas.

Appendix III: Development scenarios for aquaculture development

Guidance on the scale of aquaculture development, presented in the Policy Zone section is based on the following development scenarios which were used to focus thinking on the potential effects of development on the seascape, as part of the Landscape/seascape capacity assessment for aquaculture development in Loch Etive.

These Development Scenarios are indicative, and are intended to be used as a guide for discussion between the developer and local planning authority. They represent the general size, range of components and layout of developments. They cannot however, aim to cover all variables in the design, size and layout of aquaculture structures.

Three broad scenarios were used, differentiated by size:

Small scale

- Up to six circular cages (80 m circumference) or equivalent cage surface area of square cages or other sizes of circular cages. As a guide, this equates to a maximum cage surface area of around 3000 m^2, which is roughly equivalent to up to six square cages (23 x 23 m), up to eight (70 m circumference) cages or up to four (100 m circumference cages).
- Up to four mussel lines or rafts occupying up to one third of the length of a bay, with no additional infrastructure. Generally, the lines are likely to be about 100 m – 200 m in length, but it is the proportion to the length of bay, or defined coastline which is the overriding consideration.
- Oyster trestles which occupy up to one tenth of the length of a bay (or defined area), when the intertidal is revealed at low tide.
- Scallop lines which require up to fifty buoys to be visible.

Medium scale

- Up to twelve circular cages (80 m circumference) or equivalent cage surface area of square cages or other sizes of circular cages. As a guide this equates to a maximum cage surface area of around 6000 m^2, which is roughly equivalent to up to twelve square cages (23 x 23 m), up to sixteen (70 m circumference) cages or up to eight (100 m circumference cages).
- Up to six mussel lines or rafts, occupying up to two thirds of the length of a bay, with associated offshore infrastructure. Generally, the lines are likely to be about 200 m – 440 m in length, but it is the proportion to the length of bay or defined coastline which is the overriding consideration.
- Oyster trestles which occupy up to one quarter of the length of a bay (or defined area), when the intertidal is revealed at low tide.
- Scallop lines which require between fifty and two hundred buoys to be visible.

Large scale

- More than twelve circular cages (80 m circumference) or equivalent cage surface area of square cages or other sizes of circular cages. As a guide, this equates to a cage surface area of more than 6000 m^2, which is roughly equivalent to more than twelve square cages (23 x 23 m), sixteen (70 m circumference) cages or eight (100 m circumference cages).
- More than six mussel lines or rafts, occupying more than two thirds of the length of a bay, with associated offshore infrastructure. Generally the lines are likely to be about 440 m in length or even longer, but it is the proportion to the length of bay or defined coastline, which is the overriding consideration.
- Oyster trestles which occupy more than one quarter of the length of a bay (or defined area), when the intertidal is revealed at low tide.
- Scallop lines which require more than two hundred buoys to be visible.

Appendix IV: Details of wildlife recording schemes

A number of biological public recording schemes have been set up through a various conservation agencies. These are listed below together with their contact details.

Marine and coastal species
Information on identifying and recording marine species/habitats can be found on the Seasearch website: http://www.seasearch.co.uk/

Whales & dolphins
Information on cetacean sightings can be found through the Hebridean Whale and Dolphin Trust (HWDT) and the Whale and Dolphin Conservation Society (WDCS) websites respectively: http://www.whaledolphintrust.co.uk/research/sightings-summary-2000-2003.asp; http://www.wdcs.org.uk/

Bird Species
Bird sightings can be reported to the County Bird Recorder, which is hosted on the Argyll Bird Club website at http://www.argyllbirdclub.org/bird_rec/bird_recorder.asp

Non-native species
Information on identifying invasive marine non-native species and how to report a sighting can be found on the following websites:

Scottish Natural Heritage (SNH): www.snh.org.uk/wireweed

Marlin: http://www.marlin.ac.uk/marine_aliens/marine_aliens.htm

The Green Blue: http://www.thegreenblue.org.uk/boat_users/antifoul_and_invasive_species.aspx

http://www.thegreenblue.org.uk/boat_users/antifoul_and_invasive_species/boater_best_practice_antifoul.aspx

The Scottish Canoe Association: http://www.canoescotland.org/access/Environment/Biosecurity.aspx

The Argyll Fisheries Trust:

http://www.invasivespeciesscotland.org.uk/FileLibrary/Plans/Argyll%20Biosecurity%20Management%20Plan.pdf

RAFTS Invasive Species and Bio-security Programme:

http://www.invasivespeciesscotland.org.uk/biosecurity_programme/biosecurity_plans.asp

Appendix V - Sites, Habitats and Species of Significance

	European or wider significance		National significance			Regional/Local significance	
	European Protected Species or Site[1]	OSPAR Species/ Habitat	National Designated Site	UK BAP Priority Species/ Habitat	Priority Marine Features	Argyll and Bute LBAP	Other sensitive area, habitat or species
Designated Sites							
Loch Etive Woods SAC	✓		✓				
Airds Park & Coille Nathais SSSI			✓				
Ard Trilleachan SSSI			✓				
Barran Dubh SSSI			✓				
Bonawe to Cadderlie SSSI			✓				
Kennacraig and Esragan Burn SSSI			✓				
Clais Dhearg SSSI			✓				
Glen Nant SSSI			✓				
Glen Nant National Nature Reserve			✓				
Loch Etive MCA			✓				
Biodiversity Action Plan habitats							
Blue mussel beds				✓	✓		
Mud habitats in Deep Water				✓		✓	
Burrowed Mud (SpMeg, MegMax)					✓		
Inshore deep mud with burrowing hear t urchin					✓		
Intertidal Mudflats				✓	✓	✓	
Sheltered Muddy Gravels				✓		✓	
Kelp and seaweed communities on sublittoral sediment				✓			
Low or variable salinity habitats				✓	✓		
Tide-swept algal communities				✓			
Coastal salt marsh				✓	✓	✓	
Coastal sand dunes				✓			
Tidal rapids					✓	✓	
Biodiversity Action Plan species							
European otter (*Lutra lutra*)				✓	✓	✓	
Common seal (*Phoca vitulina*)	✓			✓			
Common skate (*Dipturis flossada & D. intermedia*)				✓			
Atlantic herring (*Clupea harengus*)				✓	✓		
Spurdog (*Squalus acanthias*)		✓		✓			
Icelandic Cyprine (*Arctica Islandica*)		✓			✓		
Northern featherstar (*Leprometra celtica*)					✓		
Sand Goby					✓		
Angler fish (juveniles)					✓		

[1] Protected under Habitats Directive (92/43/EEC) or Birds Directive (79/409/EEC)

Cod					✓		
Eel (marine part of life cycle)					✓		
Ling					✓		
Saithe (juveniles)					✓		
Whiting (juveniles)					✓		
Fireworks Anemone (*Pachycerianthus multiplicatus*)				✓			
Atlantic mackerel (*Scomber scombrus*)				✓	✓		
Atlantic salmon (*Salmo salar)*				✓	✓	✓	
Sea trout (*Salmo trutta)*				✓	✓	✓	
Important sensitive areas							
Wildfish rivers		✓					✓
Haul-out areas for common seals (*Phoca vitulina*)							✓
Important seabird breeding sites							✓

Appendix VI – Additional information on marine and coastal Invasive Non Native Species

1. Marine and coastal INNS known to be present in or on the adjacent shores of Loch Etive

Species		Pathways for further spread	Impacts
Coastal	American Mink *(Mustela vision)*	• Spread through migration	• Detrimental impacts on nesting colonial sea birds, and aquatic mammals • May account for large proportion of salmonid mortality in some river systems • Impact on economic activities - fin-fish farming, river fisheries, game shooting, poultry farming and, indirectly, tourism industries
	Japanese Knotweed *(Fallopia japonica)*	• Movement of plant fragments by wind or water • Movement of contaminated soil • Plant debris on vehicles can introduce species to new areas • Fragments transported by water through river systems and spread by tide	• Once established can exclude native vegetation and prohibit regeneration of riparian areas. • Can reduce diversity and alters habitat for wildlife. • Can grow through tarmac and concrete
	Himalayan Balsam *(Impatiens glandulifera)*	• Escape from gardens • Natural dispersal • Contaminated soil	• Can shade out low level native plants reducing diversity and denuding riverbanks of understory vegetation • Winter dieback exposes soil to erosion • Greater nectar production makes flowers more attractive to bumblebees resulting in less pollination of native species
	Rhododendron *(Rhododendron ponticum)*	• Planted in gardens, parks and demesnes. • Natural dispersal by seed and vegetative means	• Can out-compete native plants for space and resources, especially sunlight • Can impacts fish and invertebrate communities • Prevention of access to sites
	Common cord grass (*Spartina anglica*)	• Planted for dune stabilisation • Natural dispersal by seed and expansion through the rhizomes. Seeds can remain dormant for several years	• Invasion and spread creates mono-specific stands in the upper intertidal areas often occupied by Zostera • This is can reduce feeding areas for bird species such as Brent geese that depend on this habitat for food

2. Marine and coastal INNS that present the greatest threat if introduced to Loch Etive

Species		Risk	Entry Pathway	Impacts
Marine	Carpet Sea Squirt *(Didemnum vexillum)*	high	• Fouling of sea going vessels and/or contamination of aquaculture produce • Once established, can spread by sexual reproduction and asexually by fragmentation of colonies • Could become established through movement of shellfish for the aquaculture industry	• Local economy & environment – can overgrow other species & seabed habitats, and artificial structures such as moorings, pontoons and aquaculture equipment
	Chinese Mitten Crab (*Eriocheir sinensis*)	high	• Ship ballast water and hull fouling • Live food trade and smuggling • Can colonise new river systems by walking over land • Distribution through water transfer of planktonic stage	• May compete for space & resources with native brown seaweeds
	Slipper Limpet (*Crepidula fornicate*)	?	• Hull fouling • Contamination of oyster spat	• Can smother seabed spp. & alter seabed habitat structure • Can compete for food and space with other filter-feeding species including mussels • Foul commercially farmed marine species and man-made structures/equipment
	Wireweed (*Sargassum muticum*)	med	• Natural dispersal • Contaminant of oyster spat • Fouling on boats and other marine equipment	• Will eventually become a naturalised species throughout UK • Will change community structure
	Wakame (*Undaria pinnatifida*)	?	• Recreational boating – hull fouling?	• Potential to overgrow and out-compete native species
	Leathery Sea Squirt (*Styela Clava*)	?	• Hull fouling	• Large populations can dominate & displace other species through competition for food & space • Fouling pest on ship hulls & aquaculture equipment
	Green sea fingers (*Codium fragile*)	?	• Already recorded in Argyll • Fouling pest on ship hulls & aquaculture equipment	• Can alter seabed communities and habitats. • Can foul shellfish beds and artificial structures.
	Red algae *(Heterosiphonia japonica)*		• Already recorded in Argyll • Aquaculture (movement of shellfish) and ship ballast water	• May change composition of macroalgal communities
	Japanese skeleton shrimp (*Caprella mutica)*	?	• Associated with human activity – marina pontoons, boat hulls, mooring ropes, fish farm structures	• Unknown

Appendix VII: Statutory consultees for development consents/licences

Fish Farm Applications

Loch Etive Statutory Consultees	Contact Details
Argyll and Bute Council Planning	Oban, Lorn and the Isles Lorn House, Albany Street, Oban, Argyll. PA34 4AR. 01631 567950 planning.oli@argyll-bute.gov.uk
Argyll and District Salmon Fisheries Board	Jane Wright – Clerk, Argyll District Salmon Fishery Board, North-west Tower, Cherry Park, Inveraray, PA32 8XE jmswright@btinternet.com
Historic Scotland	Nicola Hall - Senior Development Assessment Officer nicola.hall@scotland.gsi.gov.uk Development Assessment Team, Room 7, Longmore House, Salisbury Place, Edinburgh, EH9 1SH HS.DAT@scotland.gsi.gov.uk
Marine Scotland (Scottish Government)	Anna Donald, FFPlanning@marlab.ac.uk
The Crown Estate	Alex Adrian - Aquaculture Operations Manager The Crown Estate 6 Bell's Place Edinburgh EH4 3BJ Tel. 01312606076 Alex.Adrian@thecrownestate.co.uk
Scottish Environment Protection Agency	SEPA Planning Service Susan Dean - Senior Planning Officer Inverdee House Baxter Street Aberdeen AB11 9QA Tel. 01349 860442 planningaberdeen@sepa.org.uk Local Environment Protection & Improvement Team, 2 Smithy Lane, Lochgilphead, PA31 8TA Tel. 01546 602876
Scottish Natural Heritage	Andrew Campbell - Area Manager Cameron House, Albany Street, Oban, PA34 4AE. Tel. 0300 2449360 andrew.campbell@snh.gov.uk

Appendix VIII: Contact details for statutory and non-statutory consultees for development applications

Loch Etive Organisations & Consultees	Contact Details
Ardchattan Community Council	Robin Dodman – Secretary strath_d@hotmail.com http://www.argyll-bute.gov.uk/community-councillors
Argyll and Bute Council Planning	Oban, Lorn and the Isles Lorn House, Albany Street, Oban, Argyll. PA34 4AR. 01631 567950 planning.oli@argyll-bute.gov.uk
Argyll and District Salmon Fisheries Board	Craig McIntyre – Clerk, Argyll District Salmon Fishery Board, North-west Tower, Cherry Park, Inveraray, PA32 8XE cm@argyllfisheriestrust.co.uk
Argyll Fisheries Trust	Craig MacIntyre – Trust Manager. Cherry Park, Inveraray, PA32 8XE cm@argyllfisheriestrust.co.uk
Celtic Sea Farms	Philipe Heiniger - Operations Manager. philippe.heiniger@celtic-sea.com
Clyde AMG Group	Katriona Lundberg - coordinator 01738 448809 katriona.lundberg@sepa.org.uk
Clyde Inshore Fisheries Group	Alex Watson Crook - Clyde IFG Executive Committee Local Coordinator P.O.Box 8509 Prestwick. KA9 9AE A_WatsonCrook@scotlandifg.co.uk
Connel Community Council	Les Stewart – Secretary http://www.argyll-bute.gov.uk/community-councillors
Dalriada Diving	Trevor Davies t.davies850@btinternet.com
Dawnfresh Farming Ltd.	Robert Reilly – Environmental & Aquaculture Technical Manager Robert.Reilly@dawnfresh.co.uk
Dunbeg Community Council	Mrs. G. Neal – Convener http://www.argyll-bute.gov.uk/community-councillors
Dunstaffnage Estate	Paul Nicol Bell Ingram 2 Gibraltar Street, Oban, Argyll PA34 4AY 01631 566 122 oban@bellingram.co.uk
Dunstaffnage Marina	Tim Aitkenhead tim@dunstaffnagemarina.com
Forestry Commission Scotland	Helen Watt - Recreation Community & Tourism Manager helen.watt@forestry.gsi.gov.uk
Historic Scotland	Nicola Hall - Senior Development Assessment Officer nicola.hall@scotland.gsi.gov.uk Development Assessment Team, Room 7, Longmore House, Salisbury Place, Edinburgh, EH9 1SH HS.DAT@scotland.gsi.gov.uk
Inverawe Estate	Robert Campbell-Preston robertcp@inverawe.co.uk

Kilmaronaig Estate	T L Nelson Kilmaronaig Estate Connel Argyll PA37 1PW
Lochnell Estate	Paul Nicol Bell Ingram 2 Gibraltar Street, Oban, Argyll PA34 4AY 01631 566 122 oban@bellingram.co.uk
Marine Scotland (Scottish Government)	Anna Donald, FFPlanning@marlab.ac.uk
Muckairn Mussels	Walter Speirs walter@muckairn-mussels.com
National Trust for Scotland	Abbie Patterson - Biodiversity Partnership apatterson@nts.org.uk The National Trust for Scotland Hermiston Quay, 5 Cultins Road Edinburgh, EH11 4DF 0844 493 2100 information@nts.org.uk
Northern Lighthouse Board	Northern Lighthouse Board, Coastal Inspector, Steven Driver, 84 George Street, Edinburgh, EH2 3DA navigation@nlb.org.uk
Royal Society for the Protection of Birds	Andy Robinson, South West Scotland Office, 10 Park Quadrant, Glasgow, G3 6BS andy.robinson@rspb.org.uk
Royal Yachting Association Scotland	Russell Graham 1 Redheughs Rigg South Gyle Edinburgh EH12 9DQ 0131 317 7388 admin@ryascotland.org.uk
Scottish Association for Marine Science	Tavis Potts Tavis.Potts@sams.ac.uk
Scottish Canoe Association	Mike Dales Mike.Dales@canoescotland.com
Scottish Creelers and Divers Association	Alistair Sinclair 5 Queen Elizabeth Cottages Furnace PA32 8XX ats1@btopenworld.com
Scottish Environment Protection Agency	SEPA Planning Service Susan Dean - Senior Planning Officer Inverdee House Baxter Street Aberdeen AB11 9QA Tel. 01349 860442 planningaberdeen@sepa.org.uk Local Environment Protection & Improvement Team, 2 Smithy Lane, Lochgilphead, PA31 8TA

	Tel. 01546 602876
Scottish Federation of Sea Anglers	John Crowther john_crowther_5@hotmail.com
Scottish Natural Heritage	Andrew Campbell - Area Manager Cameron House, Albany Street, Oban, PA34 4AE. Tel. 0300 2449360 andrew.campbell@snh.gov.uk
Scottish Sea Angling Conservation Network	Steve Bastiman steve.bastiman@btopenworld.com
Scottish Water	Mark Williams - Environmental Regulation & Climate Change Manager Castle House, 6 Castle Drive, Carnegie Campus, Dunfermline KY11 8GG. Tel. 08456018855 Elaine.Jones@scottishwater.co.uk
Small Isles and Mull Inshore Fisheries Group (representing Mallaig and North West Fishermen's Association)	Dan Edwards – Coordinator d_edwards@scotlandifg.co.uk
Taynuilt Community Council	Murray Sim – Convener http://www.argyll-bute.gov.uk/community-councillors
The Crown Estate	Alex Adrian - Aquaculture Operations Manager The Crown Estate 6 Bell's Place Edinburgh EH4 3BJ Tel. 01312606076 Alex.Adrian@thecrownestate.co.uk
The Scottish Sub-Aqua Club	The Scottish Sub Aqua Club Caledonia House, 1 Redheughs Rigg, South Gyle, Edinburgh EH12 9DQ Tel. 0131 625 4404 hq@scotsac.com
West Connel Moorings Association	John Anderson Ard Beag Connel PA37 1PT Tel. 01631 710630 john@highlandimage.co.uk

Appendix IX: Summary of national policy and guidance relevant to Aquaculture in Scotland

1 National Policy/Guidance

A Fresh Start: The renewed Strategic Framework for Scottish Aquaculture 2009
The renewed framework is based on six themes:

- Healthier fish and shellfish;
- Improved systems for licensing aquaculture developments;
- Improved containment;
- Better marketing and improved image;
- Improved access to finance
- Shellfish Forum

The framework sets out plans for a refocused Ministerial Group on Aquaculture (MGA) to oversee the work of six sub-groups working on critical themes for the industry. The Strategic Framework for Scottish Aquaculture (SFSA) was published in March 2003 and based on four guiding principles: economic; environmental; social and stewardship. It is the main policy instrument to deliver a diverse, competitive but sustainable aquaculture industry in Scotland and provides a set of parameters within which industry can balance socio-economic benefits against environmental impact.

The Scottish Aquaculture Research Forum (SARF) was created to promote, encourage and support research and development in aquaculture. SARF is an independent company whose main aim is to support research into aquaculture and related areas.

Scottish Planning Policy (SPP)
Following the extension of planning controls to marine fish farming, SPP sets out the Scottish Government's national planning policy for marine and freshwater fish farming. It provides guidance on how planning authorities should plan for fish farming development and respond to development proposals for fish farming. It seeks to ensure that they take a strategic long term approach to planning for fish farming and explains how developers, planners and other interests should work towards achieving this. All relevant documents can be downloaded from the Scottish Government's web-pages: http://www.scotland.gov.uk/Publications/2010/02/03132605/0

Locational Guidelines for the Authorisation of Marine Fish Farms in Scottish Waters (not relevant to shellfish aquaculture)
Loch Etive is listed under the Scottish Executive's Locational Guidelines for the Authorisation of Marine Fish Farms in Scottish Waters as a category 3 area. Areas are designated based on predictive modelling of nutrient enhancement and benthic impact conducted by the Fisheries Research Services. Category 3 areas are the least sensitive and show the lowest potential for environmental impact. Therefore, they offer the best prospects for obtaining permission for aquaculture development although each case is still considered carefully and modelling is run for each application.

Code of Good Practice for Scottish Finfish Aquaculture (not relevant to shellfish aquaculture)
Dawnfresh Ltd. adhere to the Code of Good Practice for Scottish Finfish Aquaculture, which was established to ensure all farmers adhere to relevant legislation; manage their sites in an economically, socially and environmentally sustainable way; meet specified standards, e.g. in stock health and welfare; provide assurance to other interest groups on fish farming practices; and provide an alternative to further regulation of the industry.

Tripartite Working Group (not relevant to shellfish aquaculture)
The Tripartite Working Group (TWG) was established in 1999 and is composed of representatives from the Scottish Government Marine Directorate, Fisheries Research Services, the salmon farming industry and wild fisheries interest groups. The aim of the TWG was to address problems and to seek solutions between the industry, and wild fish interest groups that will help maintain wild salmonid stocks and promote a sustainable aquaculture industry.

At a local level, Area Management Groups were established, composed of representatives from local fish farming companies, local wild salmonid interests (District Salmon Fishery Boards/Fishery Trusts), with a goal to promote and maintain the good health of wild and farmed salmonids through an Area Management Agreement (AMA).

2 Relevant regulations

Environmental Impact Assessment (EIA) Regulations **(not relevant to shellfish aquaculture)**
The Environmental Impact Assessment (Scotland) Regulations 1999 (SSI 1999/1) as amended, implement the Council Directives (85/337/EEC and 97/11/EC) on the assessment of the effects of certain public and private projects on the environment. Under the 1999 Regulations as amended, an EIA; an assessment of the impact of the project on the environment, must be undertaken where any proposed finfish development is to be carried out in a sensitive area, designed to hold a biomass of 100 tonnes or greater or will extend to 0.1 hectare, or more of the surface area of the marine waters, including any proposed structures or excavations.

EIA Guidance and Templates
A series of Practical Guidelines have been developed, which are designed to assist developers, planners, environmental practitioners and regulators in their approach to marine fish farm Environmental Impact Assessments (EIA). The Guidelines are accompanied by a series of templates for use by applicants, and are the result of a collaborative process directed and assisted by a steering group, and input from a number of key individuals from industry, government and regulators. All relevant documents can be downloaded from the SARF web-pages: http://www.sarf.org.uk/index.html.

Registration of Fish Farms
Under the Registration of Fish Farming and Shellfish Farming Businesses Order 1985, all fish farming and shellfish farming businesses are required to register with Fisheries Research Services, on behalf of the Scottish Government Marine Directive, for fish health purposes to help maintain and improve the fish health status of Scottish Waters.

Appendix X – Codes of conduct and environmental programmes

Recreation & Tourism

Scottish Outdoor Access Code
The Scottish Outdoor Access Code (SOAC) provides detailed guidance on the public's responsibilities when exercising access rights and management of land and water. The complete version is available at:
http://www.outdooraccess-scotland.com/outdoors-responsibly/access-code-and-advice/soac/
http://www.snh.gov.uk/docs/A309336.pdf

Scottish Marine Wildlife Watching Code
The Scottish Marine Wildlife Watching Code (SMWWC) is intended to be a concise code of conduct that comprises a set of broad principles, followed by three user codes: *On the coast*, *On the sea*, and *In the sea*. Detailed information is available at: http://www.outdooraccess-scotland.com/outdoors-responsibly/access-code-and-advice/marine-wildlife-code/
http://www.marinecode.org/

BSAC '*Respect Our Wrecks Code*'
The British Sub Aqua Club (BSAC) has developed a *Respect Our Wrecks* code of practice for wreck divers. Detailed information is available at:
http://www.bsac.com/page.asp?section=3200&sectionTitle=Protected+Wrecks

SCOTSAC – Land Access Guidance for Divers
SCOTSAC have developed an access guidance code and is available through either website address:
www.scotsac.com; http://www.scotsac.com/PDF-downloads/board/land%20access%20guidance.pdf

Scottish Canoe Association – Paddlers Access Code & Associated Links
The Scottish Canoe Association (SCA) is the recognised governing body of canoe sport and recreation in Scotland. The SCA Paddlers Access Code is available from:
http://www.canoescotland.org/LinkClick.aspx?fileticket=4dmGhPy4OWo%3d&tabid=228&mid=1188

Related information and Guidance Notes are additionally available from:
http://www.canoescotland.org/access/Access/ResponsibleAccess/PaddlersAccessCode.aspx

The Sea Kayaking - A Guide to Good Environmental Practice is available from:
http://www.canoescotland.org/LinkClick.aspx?fileticket=NA6_sTm125g%3D&tabid=604

Wild Camping Advice for Canoeists is available from:
http://www.canoescotland.org/LinkClick.aspx?fileticket=nVfPogAE3CI%3d&tabid=636

Wild Scotland Best Practice Guidelines
Wild Scotland provides advice and guidance to its members on responsible wildlife-watching operations. The guidelines are available from:
http://www.wild-scotland.org.uk/wsbp.aspx

Green Blue Environmental Initiative
The Green Blue is an environmental awareness initiative by the British Marine Federation and the Royal Yachting Association. The Green Blue aims to educate and inform the recreational boating community about our environmental impacts, emphasising how these can be minimised. Guidance notes are available from:
http://www.thegreenblue.org.uk/

Scottish Sea Anglers Conservation Network (SSACN)
The SSACN Code of Best Practice for the capture and release of Spurdog, including general species for recreational anglers is available from:
http://www.tagsharks.com/spurdog-code-of-best-practice
http://www.ssacn.org/give-fish-a-chance-gfac-2/catch-and-release

Aquaculture

Farmed Fish and Shellfish
Information on the salmonid parasite *Gyrodactylus salaris* and the Scottish Government's Code of Good Practice is available from: http://www.scotland.gov.uk/Topics/marine/Fish-Shellfish/18610/diseases/notifiableDisease/g-salaris

Marine Aquaculture and the Landscape: The siting and design of marine aquaculture developments in the landscape
http://www.snh.org.uk/pdfs/publications/heritagemanagement/marineaquaculture.pdf

Association of Shellfish Growers Code of Good Practice
The Association of Shellfish Growers Code of Good Practice and related information is available from:
http://assg.org.uk/code-of-practice/4536619829

Code of Good Practice for Scottish Finfish Aquaculture
The Code of Practice for Scottish Finfish Aquaculture is available from the link below:
http://www.scottishsalmon.co.uk/dlDocs/CoGp.pdf

Shipping & Transport

Maritime and Coastguard Agency Codes of Practice are available from:
http://www.mcga.gov.uk/c4mca/mcga07-home/shipsandcargoes/mcga-shiptype/mcga-pleasurecraftandsmallships/mcga-dqs-cvs-newsletter.htm

Appendix XI: Loch Etive ICZM Group – Stakeholders involved/kept informed during development of the plan

Achnacree Fishers
Achnacree Moorings Association
Ardchattan Community Council
Ardchattan Priory
Argyll Charter Boat Association
Argyll District Salmon Fisheries Board
Argyll Fisheries Trust
Black Isle Seafoods
Boat Hire
Breedon Aggregates/ Ennstone Thistle
Celtic Sea
Clyde Fishermen's Association
Connel Community Council
Dalriada Diving
Dawnfresh Farming Ltd
Dunbeg Community Council
Dunstaffnage Marina
Dunstaffnage Marine Laboratory
Environmental Health (Argyll & Bute Council)
Forera Ltd
Forest Enterprise
Forestry Commission Scotland
Glencoe and Glen Etive Community Council
GRAB Trust
Hebridean Partnership
Highlands & Islands Enterprise
Highland Council
Historic Scotland
Kames Fish Farming
Local Creel Fisherman
Loch Etive Cruises
Loch Etive Shellfish Growers Association
Mallaig & North West Fishermen's Association
Marine Scotland
Moorings Association
National Kayak School
North Ledaig Caravan Park
Northern Lighthouse Board
Oban Airport, Argyll & Bute Council
Oban Canoe Club
Oban Sea Kayak Guides
Ports and Harbour Branch
Rowland Woollven
RSPB
RYA Scotland
Scottish Association for Marine Science (SAMS)
Scottish Canoe Association
Scottish Environment Protection Agency
Scottish Federation of Sea Anglers Clyde & West Region
Scottish Natural Heritage
Scottish Seafarms
Scottish Sub Aqua Club
Scottish Water
Scottish Wildlife Trust
Seafreedom Kayak
Seil Natural History Group
SEPA
SSACN
Sustainable Oban
Taynuilt Community Council
The Crown Estate
The Oban Times
Tralee Bay Holidays
West Connel Moorings Association
West Highland Anchorages & Moorings Association (WHAM)

And 45 individual stakeholders

Place	**Number**
Achnacloich	2
Ardchattan	1
Ballachullish	1
Benderloch	2
Bonawe	3
Connel	3
Dunbeg	2
Inverawe	1
Inverliever	1
North Connel	9
North Ledaig/Ledaig	3
Oban	4
Taynuilt/Airds Bay	11
E-mail address only	2