

**AQUACULTURE
PATENT SEARCH
PN, Patent number**

Jan 2009

Title

Author

Abstract

JP2008022808-A
Fish bank for installing in underwater for adhesion growth of seaweed has structure formed by vegetable material e.g. forestry product and grains by-product containing wood chips that uses coppiced timber or construction waste.

SUGIMURA K

NOVELTY - A structure (12), formed by vegetable material such as forestry product and grains by-product containing wood chips that uses coppiced timber or construction waste as raw material accommodated in a net-like bag, is accommodated in the concave portion of a fish bank (11).

US2008016671-A1
Composite structural device i.e. composite pipe, manufacturing method for use as piling, involves applying longitudinal force to sleeve and core for installing sleeve over portion of core, and expanding inside diameter of sleeve.

WATSON W R

NOVELTY - The method involves selecting an elongated substantially cylindrical rigid core (12). A tubular plastic pipe sleeve (14) with an inside diameter same or less than an outside diameter of the core as measured in a relaxed state is selected. A longitudinal axis of the tubular sleeve is substantially aligned with a longitudinal axis of the core. A longitudinal force is applied to the sleeve and the core for installing the sleeve over a portion of the core, and the inside diameter of the sleeve is simultaneously expanded.

WO2007135979-A1;
JP2007313376-A
Liquid purification apparatus for purifying e.g. drinking water, has ring-shaped permanent magnets that are separated by predetermined space in inner surface of outer tube or outer surface of rotating shaft.

NAKAJIMA Y

NOVELTY - The liquid purification apparatus has ring-shaped permanent magnets (21,31) that are separated by predetermined space in inner surface of outer tube (3) or outer surface of rotating shaft (2). Ring-shaped spacers (22,32) are formed in the space between the ring-shaped permanent magnets.

US2007267344-A1;
WO2007136970-A2;
CA2587296-A1
Apparatus for providing an environment for enhancing biogrowth in an aquatic system e.g. aquaculture system, comprises a medium submerged in the water to promote the growth of microbes on the medium, and a support for supporting the medium.

THARP C E

NOVELTY - The apparatus for providing an environment for enhancing biogrowth in an aquatic system e.g. aquaculture system, comprises a medium submerged in the water to promote the growth of microbes on the medium, and a support for supporting the medium with the elements submerged in the water. The aquatic system has a receptacle containing water. The medium includes individual flexible elements arranged in a cluster. The elements collectively

US2008000841-A1; WO2008005190-A1	Aeration device for aerating liquid medium useful in e.g. wastewater treatment, comprises air permeable hose; a gas supply pipe in fluid communication with the hose; and a blower for supplying a gas to the pipe.	MITCHELL W S	occupy a thickness dimension of one inch to three feet, in the cluster. One end of the elements is free to allow the elements to flex. NOVELTY - An aeration device (10) useful in a liquid medium, comprises a housing (12) for flotation in the liquid medium; an air permeable hose (36); a gas supply pipe (34) in fluid communication with the hose; and a blower (40) acting as a gas-source for supplying a gas to the gas supply pipe. The blower supplies gas to the hose at a predetermined gas supply rate of 0.1-10 Standard cubic feet per minute (SCFM) per linear foot of hose, to aerate the liquid medium at a standard aeration efficiency of greater than four pounds of oxygen per hour per horsepower in fresh water.
US2008000823-A1	Aeration device for use in e.g. aquaculture application, has hose with pores, that is affixed to open bottom portion of housing substantially parallel to surface of liquid medium.	MITCHELL W S	NOVELTY - The aeration device (10) has housing (12) which floats within the liquid medium, such that the top portion remains above the top surface of the medium. A hose (36) affixed to the open bottom portion (30) of the housing substantially parallel to the surface of the medium, has wall with several pores. The average diameter of the pores is 0.001-0.004 inches and the pores are spaced apart evenly throughout the length of the hose. A gas source (40) supplies gas through a pipe (34).
US7294275-B1	Method for removing phosphorus from wastewater streams, e.g. aquaculture streams, comprises pelletizing a waste sludge, putting the pelletized waste sludge into flow-through contact reactor, and flowing the wastewater through the reactor.	SIBRELL P L	NOVELTY - The method for removing phosphorus from wastewater streams e.g. aquaculture streams, comprises pelletizing a waste sludge having an affinity for phosphorus, putting the pelletized waste sludge into flow-through contact reactor, flowing the wastewater through the reactor, saturating the pelletized waste sludge with the phosphorus, replacing the saturated pelletized waste sludge with fresh pelletized waste sludge, and stopping the water flow for a second period of time after flowing the wastewater through the reactor for a first period

WO2007138604-A2	Anoxic denitrification subsystem for water treatment system, has vacuum degassing chamber for removing dissolved oxygen from stream of pond water, and anoxic biofilter for carrying out denitrification of water from chamber.	SINGER A	<p>of time.</p> <p>NOVELTY - The subsystem has a vacuum degassing chamber for removing dissolved oxygen from a stream of pond water. An anoxic biofilter carries out denitrification of the stream of water received from the degassing chamber. The degassing chamber has a water tank with a water inlet and outlet in the upper and lower portions, respectively. The water inlet is connected to a spray nozzle installed in the tank, and a vacuum pump connected to an upper portion of the tank, applies negative pressure in the tank. A biofilter media e.g. cotton-wool, is provided inside an elongated vessel.</p> <p>NOVELTY - A porous mold (2) mounted on a water-retention sheet (5), is formed by recycling the waste material of fiber reinforced-cement board into an inorganic material. The porous mold has uniformly and densely located pores (1) of hole diameter 0.01-0.01 mm, that occupy 50% or more of the mold. The porosity of the mold is 40-90%.</p>
JP2007195455-A	Artificial mat for growing e.g. grass in lawn of parking lot, has mold comprising densely located pores of specific diameter, formed on water-retention sheet.	YUKAWA Y	
WO2007083990-A2	Integrated farming system for nypa plantation and aquaculture of crustaceans and fishes, comprises dikes and watergate system for inflow and outflow of water between pond system or plantation area and water level management.	NOOR B S B M	<p>NOVELTY - Integrated farming system comprises dikes and watergate system for inflow and outflow of water between pond system or plantation area and water level management.</p> <p>NOVELTY - Preparing fermentation residue, as a complex system for e.g. energy, comprises separating solids from fermentation residue; post-fermenting the residue; treating the anaerobic filter discharge; degrading N-substrates; separating the biomass remainder and low-molecular components; post-purifying water, ion exchanger and/or zeolites; adding mineral salt solutions through a mineral mixture; disinfecting water; concentrating the algal culture</p>
DE102005055310-A1; DE102005055310-B4	Preparing fermentation residue, useful in e.g. fish culture, comprises separating solid, post-fermenting, treating anaerobic discharge, separating biomass, post-purifying, adding mineral salt, concentrating and producing carbon dioxide.	HAMM H	

JP2007166988-A	<p>Culture soil for aquaculture used in e.g. home dining room, consists of glass foam obtained by heating raw material formed from mixture of glass material e.g. waste glass powder, foaming agent, and pigments.</p> <p>Manufacture of fermented compost useful as fertilizer in agriculture for cultivating Leguminosae crops, and also in aquaculture, comprises mixing waste microbial bed with bamboo powder, followed by fermenting obtained mixture.</p>	TAKANOHAS HI D	<p>and producing the carbon dioxide for algal culture from the flue-gas wash of the combined heat and power plant (CHP) and/or from biogas cleaning.</p> <p>NOVELTY - The culture soil consists of glass foam obtained by heating raw material formed from mixing of glass material, foaming agent, and pigments. The glass material is preferably waste glass powder.</p>
JP2007161501-A	<p>Underwater installation structure used for nurturing marine organisms e.g. crustacean has net-like bag which stores vegetable materials containing wood chips using coppiced timber or construction waste as raw material.</p>	KITAJIMA T	<p>NOVELTY - Fermented compost is obtained by mixing waste microbial bed, preferably non-wooden material derived from agricultural products with bamboo powder, followed by fermenting the obtained mixture.</p> <p>NOVELTY - The underwater installation structure (11) has a net-like bag which stores vegetable materials containing wood chips comprised of at least a coppiced timber or construction wastes, such as forestry product and grains by-product, as a raw material. The nurtured marine organism (12) such as crustacean, mollusk is stored inside the net-like bag with the vegetable materials.</p>
JP2007129913-A	<p>Aquaculture apparatus for growing plant such as lettuce, has culture-solution recovering unit that ejects culture solution from cultivation bed towards root system of plant body.</p> <p>Process, useful for preparing fish oil and protein useful e.g. in human/animal nutrition products, comprises mixing fish waste/fish material with preserving/stabilising solution, subjecting to autolytic proteolysis, heating and separating.</p>	SUGIMURA K	<p>NOVELTY - A supply pipe (4) discharges a culture solution to the inclined surfaces of a cultivation bed (3), which slant to at least two direction. A culture-solution recovering unit ejects the received culture solution from the cultivation bed towards the root system of a plant body such as lettuce. A cultivation panel is arranged at the cultivation bed, such that the root system of the plant body touches the cultivation bed.</p>
JP2007089489-A	<p>Aquaculture apparatus for growing plant such as lettuce, has culture-solution recovering unit that ejects culture solution from cultivation bed towards root system of plant body.</p> <p>Process, useful for preparing fish oil and protein useful e.g. in human/animal nutrition products, comprises mixing fish waste/fish material with preserving/stabilising solution, subjecting to autolytic proteolysis, heating and separating.</p>	SATO T	<p>NOVELTY - Process, useful for preparing fish oil and protein, is new.</p>
GB2428682-A		CLOUGHLEY J B	

US2006292238-A1	Ingestible composition useful for treating infection in mammal comprises microstructured water consisting of hydrogen and oxygen atoms, having increased pH compared to double distilled water.	BAGLEY D	NOVELTY - A physiologically ingestible composition comprises microstructured water consisting of hydrogen and oxygen atoms, having increased pH compared to double distilled water; and optionally containing dissolved oxygen (20 - 150 parts per million (ppm)).
US2006292235-A1	Ingestible composition useful for treating infection in mammal comprises microstructured water consisting of hydrogen and oxygen atoms, having an ultraviolet spectrophotometric pattern containing specific major absorbancy.	BAGLEY D	NOVELTY - A physiologically ingestible composition comprises microstructured water consisting of hydrogen and oxygen atoms, having an ultraviolet spectrophotometric pattern containing a major absorbancy of 185 - 250 nm; and optionally containing dissolved oxygen (20 - 150 parts per million (ppm)).
US2006292234-A1	Ingestible composition useful for useful for increasing rate of wound healing of mammal e.g. human comprises microstructured water consisting of hydrogen and oxygen atoms, having a density greater than that of double distilled water.	BAGLEY D	NOVELTY - A physiologically ingestible composition comprises microstructured water consisting of hydrogen and oxygen atoms, having a density greater than that of double distilled water; and optionally containing dissolved oxygen.
US2006292241-A1	Composition of micro-structured water useful for addressing pulmonary deficiencies is formed by passing oxygen enriched water through coil system; combining with structured ozone; inputting to multi-coil system; and outputting tuned water.	BAGLEY D	NOVELTY - A physiologically ingestible composition of matter comprising micro-structured water consisting of hydrogen and oxygen atoms, having negative oxidation-reduction potential (ORP), is prepared by preconditioning water for electrolysis to produce alkaline water; combining with oxygen; spinning alkaline water/oxygen combination; outputting super-oxygenated, tuned and structured water; combining water output by coil system with structured ozone; inputting combined water and structured ozone to a multicoil system; and outputting super-oxygenated, tuned and structured water.
US2006292231-A1	Ingestible composition useful for addressing pulmonary deficiencies in mammal comprises microstructured water consisting of hydrogen and oxygen atoms, having increased pH	BAGLEY D	NOVELTY - A physiologically ingestible composition comprises microstructured water consisting of hydrogen and oxygen atoms, having increased pH compared to double distilled water; and optionally containing dissolved

US2006292228-A1	<p>compared to double distilled water. Ingestible composition useful for useful for increasing rate of wound healing of mammal e.g. human comprises microstructured water consisting of hydrogen and oxygen atoms, having a density greater than that of double distilled water.</p>	BAGLEY D	<p>oxygen. NOVELTY - A physiologically ingestible composition comprises microstructured water consisting of hydrogen and oxygen atoms, having a density greater than that of double distilled water; and optionally containing dissolved oxygen.</p>
US2007045197-A1	<p>Disinfection system for disinfecting fluid comprises reactor having chamber with tangential inlets, radiation source that offsets from axis that extend along center of chamber and directs radiation towards fluid, and tangential outlet.</p>	OGUT A	<p>NOVELTY - A disinfection system 10(1) comprises a reactor with a chamber (15) and at least one radiation source 18(1). The chamber in has at least one inlet (14) that is oriented to generate a vortex motion for a fluid introduced to chamber, and a tangential outlet. The radiation source is positioned to be offset from an axis, which extends along a center of the chamber. The radiation source partially directs radiation towards a circulating flow of fluid in the chamber from the vortex motion in a gap between a wall of the chamber of the reactor and the at least one radiation source.</p>
US2006286178-A1	<p>Physiologically ingestible composition for increasing level of oxygenated hemoglobin in blood of e.g. human comprises microstructured water having specific negative oxidation reduction potential, and dissolved oxygen.</p>	BAGLEY D	<p>NOVELTY - A physiologically ingestible composition (c1) comprises microstructured water, having a negative oxidation-reduction potential (ORP) of at least -40, and dissolved oxygen.</p>
US2006286176-A1	<p>Composition of microstructured water with negative oxidation reduction potential, useful for reducing lactic acid produced in muscle of mammal undergoing stress, is made by passing water through several coil sets in fluid communication.</p>	BAGLEY D	<p>NOVELTY - A physiologically ingestible composition comprises microstructured water consisting of hydrogen and oxygen atoms, having negative oxidation reduction potential (ORP) and optionally further containing dissolved oxygen, is made by passing the water through several coil sets in fluid communication.</p>
US2006275379-A1	<p>Composition of micro-structured water consisting of hydrogen and oxygen, useful for reducing fatigue is formed by combining preconditioned water with oxygen; passing through cone system;</p>	BAGLEY D	<p>NOVELTY - A physiological ingestible composition of matter comprising micro-structured water consisting of hydrogen and oxygen atoms, having negative oxidation-reduction potential (ORP) and optionally further</p>

	and outputting super-oxygenated structured water.		containing dissolved oxygen, is prepared by receiving preconditioned water; combining the preconditioned water with oxygen; passing the preconditioned water/oxygen combination through a cone system that spins the combination; and outputting super-oxygenated structured water. NOVELTY - Super-oxygenation of water involves combining water and first oxygen; manipulating the combined water and first oxygen into a vortex to diffuse the first oxygen into water and yield first oxygenated water; combining the first oxygenated water with second oxygen; and passing the first oxygenated water/second oxygen combination through a cone system that spins the combination to yield super structured water.
US2006273034-A1	Super-oxygenation of water useful in composition for reducing fatigue involves manipulating combined water and oxygen into vortex to diffuse oxygen into water; and passing the oxygenated water/oxygen through cone system.	BAGLEY D	NOVELTY - A physiological ingestible composition of matter comprising micro-structured water consisting of hydrogen and oxygen atoms, having negative oxidation-reduction potential (ORP) and optionally further containing dissolved oxygen, is prepared by preconditioning water received from a water source for electrolysis; performing electrolysis on the preconditioned water; outputting alkaline water and/or acidic water with a stable negative ORP; combining the negative ORP water with oxygen; and manipulating the combined water and oxygen into a vertex to diffuse the oxygen into the water.
US2006273026-A1	Composition of micro-structured water consisting of hydrogen and oxygen, useful for reducing fatigue is formed by combining the negative redox potential water with oxygen and manipulating into vortex to diffuse oxygen into water. Physiologically ingestible composition for inhibiting changes in heart rate of mammal undergoing stress, includes microstructured water consisting of hydrogen and oxygen atoms, and having specified major UV absorbancy in spectrum.	BAGLEY D	NOVELTY - A physiologically ingestible composition comprises microstructured water consisting of hydrogen and oxygen atoms, and having an ultraviolet spectrophotometric pattern comprising a major absorbancy at 185-250 nm.
US2006275393-A1	Physiologically ingestible composition	BAGLEY D	NOVELTY - A physiologically ingestible
US2006275391-A1	Physiologically ingestible composition	BAGLEY D	

	for increasing level of oxygenated hemoglobin in the blood of, e.g. human or horse, includes microstructured water comprising hydrogen and oxygen atoms.		composition comprises microstructured water consisting of hydrogen and oxygen atoms, and having a melting point lower than double distilled water. NOVELTY - A system (20) for tuning water to target certain pathologies in mammals comprises several coil sets (123) in fluid communication. Each coil set includes a crystal disposed adjacent a bottom portion of coil set. The system further comprises housing with inner and outer wall defining a space between the walls. NOVELTY - The system comprises system (I) configured to receive water from a source and output super-oxygenated and structured water, and system (II) in fluid communication with system (I) and configured to tune the super-oxygenated and structured water from system (I) and output super-oxygenated, tuned and structured water.
US2006272991-A1	System for tuning water to target certain pathologies in mammals useful in a system for producing oxygenated and structured water, comprises coil sets in fluid communication.	BAGLEY D	
US2006272947-A1; WO2006133113-A2	System for producing super-oxygenated, tuned and structured water used in aerobic processes, has system configured to receive water and output super-oxygenated and structured water, and system configured to tune structured water. Generation of structured ozone useful for making super-oxygenated and structured liquids e.g. water used as e.g. fermentation liquor of all kinds of fermentation processes, by directing ozone through magnetic flux to yield structured ozone.	BAGLEY D	
US2006275198-A1		BAGLEY D	NOVELTY - Generation of structured ozone comprises creating ozone; directing the ozone through a magnetic flux to yield structured ozone; and outputting the structured ozone. NOVELTY - An oxygen enhancer (622) comprises a vessel (6200) having an inlet (6215) and an outlet (6225) to pass oxygen; a pair of screens (6270, 6280) positioned within the vessel to form a gap between screens; and a magnetic source with at least one magnet (6275) configured to produce a magnetic flux within the gap as the oxygen passes through the vessel. The enhancer further includes an inlet ring (6230), an outlet ring (6240), and wires (6260). The enhancer has filtering material within vessel to absorb contaminants in oxygen as it passes through vessel.
US2006273006-A1	Oxygen enhancer for enhancing, structuring and/or pre-structuring oxygen useful in system for producing and tuning super-oxygenated and structured water, comprises a pair of screens, and magnets for producing magnetic flux between screens.	BAGLEY D	

WO2007005993-A2	Oxygenation of aqueous systems involves application of current to electrodes after injecting oxygen in aqueous material.	ORLEBEKE D	NOVELTY - Electrolysis involves immersing an anode and a cathode in an aqueous material before injecting oxygen in the same material. Current is applied to the electrodes such that a potential of ca. 10 volts is applied across the electrodes to dissolve 100% of the injected oxygen in the aqueous material.
US2006275485-A1	Ingestible composition useful for treating infection in mammal comprises microstructured water consisting of hydrogen and oxygen atoms, and dissolved oxygen.	BAGLEY D	NOVELTY - A physiologically ingestible composition comprises microstructured water consisting of hydrogen and oxygen atoms, and dissolved oxygen.
US2006275482-A1	Ingestible composition used for reducing changes in blood-oxygen saturation levels of mammal undergoing stress comprises micro-structured water consisting of hydrogen and oxygen, and dissolved oxygen.	BAGLEY D	NOVELTY - A physiological ingestible composition comprises micro-structured water consisting of hydrogen and oxygen atoms, and dissolved oxygen.
US2006275479-A1	Ingestible composition used for reducing changes in blood-oxygen saturation levels of mammal undergoing stress comprises micro-structured water consisting of hydrogen and oxygen and having melting point lower than double distilled water.	BAGLEY D	NOVELTY - A physiological ingestible composition comprises micro-structured water consisting of hydrogen and oxygen atoms, and having melting point lower than double distilled water; and optionally further contains dissolved oxygen.
US2006275476-A1	Reducing changes in blood oxygen saturation levels of mammal undergoing stress involves orally administering composition of micro-structured water prepared by manipulating combined water and oxygen into vortex to diffuse oxygen into water.	BAGLEY D	NOVELTY - Reducing changes in blood oxygen saturation levels of a mammal undergoing stress involves orally administering physiologically ingestible composition of matter comprising microstructured water consisting of hydrogen and oxygen atoms, having a negative oxidation reduction potential (ORP) of less than -100 and optionally further containing dissolved oxygen, to the mammal. The composition is prepared by combining water and oxygen; and manipulating the combined water and oxygen into a vortex to cause the oxygen to diffuse into the water.
US2006275473-A1	Ingestible composition for increasing rate of wound healing of a mammal e.g.	BAGLEY D	NOVELTY - A physiological ingestible composition comprises micro-structured water

	human comprises micro-structured water consisting of hydrogen and oxygen atoms, and vapor pressure different than double dissolved water.		consisting of hydrogen and oxygen atoms, and a vapor pressure different than double dissolved water.
US2006275470-A1	Composition of micro-structured water, used to reduce blood oxygen saturation level of mammal undergoing stress is formed by passing combination of water and oxygen through cone system; and outputting super-oxygenated structured water.	BAGLEY D	NOVELTY - A physiologically ingestible composition of matter comprising micro-structured water consisting of hydrogen and oxygen atoms, having negative oxidation-reduction potential (ORP) and optionally further containing dissolved oxygen, is prepared by receiving water; combining the preconditioned water with oxygen; passing the preconditioned water/oxygen combination through a cone system that spins the combination; and outputting super-oxygenated structured water.
US2006275467-A1	Composition of micro-structured water with negative oxidation-reduction potential, useful for treating infection in mammal is formed by preconditioning water for electrolysis; adding ozone to water; and passing water through magnetic flux.	BAGLEY D	NOVELTY - A physiologically ingestible composition of matter comprising micro-structured water consisting of hydrogen and oxygen atoms, having negative oxidation-reduction potential (ORP) and optionally further containing dissolved oxygen, is prepared by preconditioning the water for electrolysis; adding ozone to the water; and passing the water through a magnetic flux.
US2006275464-A1	Composition of micro-structured water for reducing blood oxygen saturation level is formed by passing oxygen enriched water through coil system; combining with structured ozone; inputting to multi-coil system; and outputting tuned water.	BAGLEY D	NOVELTY - A physiologically ingestible composition of matter comprising micro-structured water consisting of hydrogen and oxygen atoms, having negative oxidation-reduction potential (ORP), is prepared by preconditioning water for electrolysis to produce alkaline water; combining with oxygen; spinning alkaline water/oxygen combination; outputting super-oxygenated, tuned and structured water; combining water output by coil system with structured ozone; inputting combined water and structured ozone to a multicoil system; and outputting super-oxygenated, tuned and structured water.
US2006275461-A1	Ingestible composition useful for	BAGLEY D	NOVELTY - A physiological ingestible

	increasing rate of wound healing of a mammal e.g. human comprises micro-structured water consisting of hydrogen and oxygen; and dissolved oxygen.		composition comprises micro-structured water consisting of hydrogen and oxygen atoms; and dissolved oxygen.
US2006275458-A1	Composition of micro-structured water with negative oxidation-reduction potential useful for addressing pulmonary deficiencies in mammal is formed by manipulating combined water and oxygen into vortex to diffuse oxygen into water.	BAGLEY D	NOVELTY - A physiological ingestible composition of matter comprising micro-structured water consisting of hydrogen and oxygen atoms, having negative oxidation-reduction potential (ORP) and optionally further containing dissolved oxygen in 20 - 150 ppm, is prepared by combining water and oxygen; and manipulating the combined water and oxygen into a vortex to diffuse the oxygen into the water.
US2006275454-A1	Composition of micro-structured water with negative oxidation-reduction potential, useful for increasing rate of wound healing of mammal e.g. human, is formed by passing water through several coil sets in fluid communication.	BAGLEY D	NOVELTY - A physiological ingestible composition of matter comprising micro-structured water consisting of hydrogen and oxygen atoms, having negative oxidation-reduction potential (ORP) and optionally further containing dissolved oxygen, is prepared by passing water through a several coil sets in fluid communication.
US2006275451-A1	Composition of micro-structured water with negative oxidation-reduction potential for treating infection in mammal is formed by electrolysis of preconditioned water; and outputting alkaline/acidic water with stable negative redox potential.	BAGLEY D	NOVELTY - A physiological ingestible composition of matter comprising micro-structured water consisting of hydrogen and oxygen atoms, having negative oxidation-reduction potential (ORP) and optionally further containing dissolved oxygen, is prepared by preconditioning water received from a water source for electrolysis; performing electrolysis on the preconditioned water; and outputting alkaline water and/or acidic water with a stable negative ORP.
US2006275448-A1	Composition of micro-structured water with negative oxidation-reduction potential useful for treating infection in mammal is formed by creating magnetic flux; and passing water through the magnetic flux in spiral-type manner.	BAGLEY D	NOVELTY - A physiological ingestible composition of matter comprising micro-structured water consisting of hydrogen and oxygen atoms, having negative oxidation-reduction potential (ORP) and optionally further containing dissolved oxygen, is prepared by creating a magnetic flux; and passing water

US2006275355-A1	<p>Super-oxygenation of water useful in composition for treating infections involves manipulating combined water and oxygen into vortex to diffuse oxygen into water; and passing the oxygenated water/oxygen through cone system. Structuring oxygen useful for e.g. making super-oxygenated and structured liquids and for aerobic processes including e.g. bioremediation of contaminated ground waters, by passing oxygen through magnetic flux to yield structured oxygen.</p>	BAGLEY D	<p>through the magnetic flux in a spiral-type manner. NOVELTY - Super-oxygenation of water involves combining water and first oxygen; manipulating the combined water and first oxygen into a vortex to diffuse the first oxygen into water and yield first oxygenated water; combining the first oxygenated water with second oxygen; and passing the first oxygenated water/second oxygen combination through a cone system that spins the combination to yield super structured water.</p>
US2006275200-A1	<p>Production system for producing super-oxygenated and structured water, comprises oxygen/water combining system configured to receive alkaline water from water preparation system and output oxygen-enriched structured water, and cone system. Super-oxygenation of water used to reduce lactate in blood of mammal undergoing stress involves manipulating combined water and oxygen into vortex to diffuse oxygen into water; and passing the oxygenated water/oxygen</p>	BAGLEY D	<p>NOVELTY - Structuring oxygen comprises inputting an oxygen-bearing gas to an oxygen generator system (OGS) to yield oxygen; and passing the oxygen through a magnetic flux to yield structured oxygen. NOVELTY - A production system for producing super-oxygenated and structured water, comprises water preparation system for preparing water with a stable negative oxygenation reduction potential (ORP) configured to receive water from a source and output alkaline water with a stable negative ORP; an oxygen/water combining system configured to receive alkaline water from the water preparation system and output oxygen-enriched structured water; and a cone system configured to receive the oxygen-enriched structured water from the oxygen/water combining system and output super-oxygenated and structured water. NOVELTY - Super-oxygenation of water involves combining water and first oxygen; manipulating the combined water and first oxygen into a vortex to diffuse the first oxygen into water and yield first oxygenated water; combining the first oxygenated water with second oxygen; and</p>
US2006275199-A1		BAGLEY D	
US2006273032-A1		BAGLEY D	

	through cone system.		passing the first oxygenated water/second oxygen combination through a cone system that spins the combination to yield super structured water. NOVELTY - Super-oxygenation of water involves combining water and first oxygen; manipulating the combined water and first oxygen into a vortex to diffuse the first oxygen into water and yield first oxygenated water; combining the first oxygenated water with second oxygen; and passing the first oxygenated water/second oxygen combination through a cone system that spins the combination to yield super structured water.
US2006273029-A1	Super-oxygenation of water useful in e.g. food processing of microorganisms involves manipulating combined water and oxygen into vortex to diffuse oxygen into water; and passing the oxygenated water/oxygen through cone system.	BAGLEY D	NOVELTY - A physiological ingestible composition of matter comprising micro-structured water consisting of hydrogen and oxygen atoms, having negative oxidation-reduction potential (ORP) and optionally further containing dissolved oxygen, is prepared by preconditioning water received from a water source for electrolysis; performing electrolysis on the preconditioned water; outputting alkaline water and/or acidic water with a stable negative ORP; combining the negative ORP water with oxygen; and manipulating the combined water and oxygen into a vertex to diffuse the oxygen into the water. NOVELTY - Super-oxygenation of water involves combining water and first oxygen; manipulating the combined water and first oxygen into a vortex to diffuse the first oxygen into water and yield first oxygenated water; combining the first oxygenated water with second oxygen; and passing the first oxygenated water/second oxygen combination through a cone system that spins the combination to yield super structured water.
US2006273028-A1	Composition of micro-structured water useful for increasing rate of wound healing of mammal e.g. human, is formed by combining the negative redox potential water with oxygen and manipulating into vortex to diffuse oxygen into water.	BAGLEY D	NOVELTY - Super-oxygenation of water involves combining water and first oxygen; manipulating the combined water and first oxygen into a vortex to diffuse the first oxygen into water and yield first oxygenated water; combining the first oxygenated water with second oxygen; and passing the first oxygenated water/second oxygen combination through a cone system that spins the combination to yield super structured water.
US2006273023-A1	Super-oxygenation of water useful in composition for addressing pulmonary deficiencies involves manipulating combined water and oxygen into vortex to diffuse oxygen into water; and passing the oxygenated water/oxygen through cone system.	BAGLEY D	
US2006273018-A1	Making super-oxygenated, structured	BAGLEY D	NOVELTY - Making super-oxygenated and

	water for e.g. wound oxygenation involves electrolyzing water to form alkaline water; combining oxygen; spinning; passing through coil system; combining with ozone; and passing through multicoil system.		structured water involves: performing electrolysis of water to produce alkaline water; combining with oxygen; spinning; outputting and receiving super-oxygenated, tuned and structured water into a coil system and passing the water through the system; combining water output by the coil system with structured ozone; inputting the combined water and structured ozone to a multicoil system and passing the water through the system; and outputting super-oxygenated, tuned and structured water. NOVELTY - Oxygen/water combining system (113) comprises an oxygen generator (600); a combining unit coupled to the oxygen generator for combining oxygen with water; and diffusion chamber (115) coupled to the combining unit for receiving the combined water and oxygen. The diffusion chamber includes a spray nozzle (503) positioned such that water and oxygen that pass through the spray nozzle create a vortex (511) to diffuse oxygen in water.
US2006272989-A1	Oxygen/water combining system for oxygenating water useful in a system for producing and tuning super-oxygenated and structured water, comprises oxygen generator, unit for combining oxygen with water, and diffusion chamber. Composition for use in aerobic processes, and for e.g. increasing oxygen content of blood and tissues and oxygenation of wounds, comprises microstructured water having boiling point higher than that of double distilled water.	BAGLEY D	
US2006273282-A1	Composition useful in aerobic process e.g. biochemical oxygen demand measurement technique comprises microstructured water having an increased pH compared to unstructured water.	BAGLEY D	NOVELTY - A composition comprises microstructured water having a b.pt. higher than the b.pt. of double distilled water.
US2006273281-A1	Reduction of population of target pathogen(s) in animal waste comprises administering protected bacteriophage strain(s), and/or phage component to animal.	BAGLEY D	NOVELTY - A composition (C1) comprises microstructured water having an increased pH compared to unstructured water. NOVELTY - Reduction of population of target pathogen(s) in animal waste comprises administering protected bacteriophage strain(s), and/or phage component to an animal, where the protected bacteriophage strain(s) and/or phage
WO2006125318-A1; EP1883304-A1		MURTHY K	

<p>WO2006106325-A1; NO200705555-A; EP1868449-A1</p>	<p>Phospholipid composition useful for feeding animals, as component of e.g. fish feed is obtained by contacting fish meal with organic solvent to produce a liquid and subjecting it to microfiltration optionally followed by solvent stripping. Residue collector for use in tanks used in e.g. fish farms, is arranged in tank to collect e.g. fish and aquatic organisms wastes and food residues, such that collected residues can be used in making organic fertilizers.</p>	<p>SCHNEIDER M</p>	<p>component is released in vivo, is capable of killing the target pathogen(s), and acts to clear the target pathogen(s) from a gut of the animal, thus reducing the population of target pathogen(s) in the livestock manure. NOVELTY - A phospholipid composition is obtained by contacting a fish meal with an organic solvent to produce a lipid-containing liquid, and subjecting the liquid to microfiltration, optionally followed by solvent stripping with a second solvent in which neutral lipids are more soluble than polar lipids to precipitate a phospholipid composition and optionally contacting the soluble neutral lipids, optionally after solvent stripping, with an adsorbent material to remove contaminants.</p>
<p>BR200500668-A</p>	<p>Water purifier for use in storage reservoir of water purification plant, has water purification material stored in upper end of diffusion tube which receives air from floating island suspended to under water from pump.</p>	<p>VON ERMLAND A K</p>	<p>NOVELTY - The residue collector is arranged in a tank to collect residues, such as fish and aquatic organism wastes and food residues. The collected residues can be used in making organic fertilizers. NOVELTY - The water area (20) has a floating island (1) suspended to the under water from the pump (3). The floating island sends air into a diffusion tube (5) through a porous metal mesh (13). The diffusion tube has a container (6) to release the received air through its bottom end (22), and a water purification material such as zeolite (7) stored in its upper end (23). A curtain (12) forms a region (24) around a metal mesh container (15) where the cultivation bed (17) is mounted for plant vegetation.</p>
<p>JP2006289275-A</p>	<p>Method for reusing waste water of aquaculture.</p>	<p>SAKAMOTO E</p>	<p>NOVELTY - The invention discloses a method of using wastewater for aquaculture. The clean seawater is filtered through sand filter and exchanges heat with production wastewater through heat exchanger in the waste disposal basin, and then the heating-up or heating-down</p>
<p>CN1826882-A</p>		<p>LU D</p>	

CN1789176-A;
CN1321076-C
JP2006304732-A

Aquaculture sewage purifier using large-sized algae as fillings.
Particle composition for floor surface of

LI D
FURUSAWA S

seawater is stored in laying-up basin and is introduced into preheating tank or refrigerating machine for cultivating production. The invention solves the high cost in current aquaculture because of the water temperature adjustment, and makes use of the heat exchange law to restore the energy in breeding wastewater to reduce production cost and save energy.
NOVELTY - The invention relates to a cleaning device for cultivating wastewater by employing macroscopic algae as filling material; the cultivating device comprises transparent glass boxes stacking with each other with volume shortened layer by layer from bottom to up, the back of glass box employs sunlight as light source, the top of every glass box is equipped with water inlet pipe and bottom with water outlet pipe, which is the water inlet pipe for the next glass box, the water outlet pipe of the bottom glass box is connected with main water outlet pipe, the top glass box is connected with main water inlet pipe, refrigerating pump and water pump are equipped in the pipeline between the main water outlet pipe and main water inlet pipe. The cultivating wastewater flows into the upper glass box from the main water inlet pipe and contacts with algae completely, the metabolism and photosynthetic oxygenation action of the algae will be carried out thoroughly on the condition of using sunlight as light source and aerated by air pump, which can adsorb large quantity production factors such as C, N and P to enrich the nutrient stock, the wastewater will be cleaned by the algae in the middle and bottom of the glass box, and at the same, the photosynthetic oxygenation action will increase the dissolved oxygen in seawater to improve water quality.
NOVELTY - Particle blend is formed by mixing 5

e.g. aquaculture, has solidification layer that combines water retention and water permeability and formed by directly sprinkling particle blend in floor surface.

to 15 weight parts, 1 to 5 weight parts of peat moss (c), 15 to 30 weight parts of Portland cement and 0.1 to 0.5 weight parts of non-ionic surface active agents that are inorganic-type solidification agents (d) by the silt (b) of natural sand and changes to 100 weight parts of Kanuma soil (a) of diameter 0.5plus minus-0.1 millimeter. A solidification layer, which combines water retention and water permeability, is formed by directly sprinkling particle blend in a floor surface after particle blend is laid on the floor surface.

WO2006089252-A2

Liquid valving using reactive or responsive materials, involves causing liquid to enter flow path of device, such that liquid reacts with material located along flow path to generate product that impedes flow of liquid through device.

MCNEELY M
R

NOVELTY - The method involves causing a liquid to enter a flow path through a device, such that the liquid reacts with a material located along the flow path. The liquid and the material generate a product that impedes further flow of the liquid through the device. The material used swells in the presence of liquid. The generated product comprises of a material polymerizing in the presence of liquid, forming a semi-solid material that impedes fluid flow.

NOVELTY - The invention discloses a method for in-situ repairing of water-quality environment in aquaculture, which is characterized in that: after a week of pool clearing, putting composite microbe into the pool, culturing prawn for a month, then putting cyclina sinensis into the pool, culturing gracilaria lichenoides after half a month, and adding composite microbe every 7-15 days. The composite microbe must contain bacillus and photosynthetic bacterium, the quantitative proportion of which is 1: 2. The density of bacillus is no less than 1.5asterisk 10¹⁰ individual/ m³. The invention is characterized in that repairing the pool environment with shellfish-algae-microbe system, the organic contaminant and eutrophication inorganic nutrient salt in water decrease, and it not only solves the self-pollution

CN1769214-A;
CN1326784-C

Water quality environment in situ rehabilitation method in aquatic breeding.

DONG S

EP1686095-A1	Photocatalytic reactor with modular configuration for purifying and disinfecting wastewater from aquaculture, comprises UV light sources within quartz tube; glass strips covered with supported titanium oxide; and discs having perforations.	VENEGAS CABELLO P A	problem in culturing pool, but also solves the problem that the culturing wastewater contaminates the offshore ecologic environment. The prawn growing environment is largely improved, thus the prawn survival rate and growth rate is increased. NOVELTY - A Photocatalytic reactor comprises UV light sources arranged in a radial from within quartz tube; titanium oxide (TiO ₂) catalyst supported on glass strips that at a fixed at a pre-established distance from the UV sources; and support discs having perforations which from the floor of the reaction chambers. The waste water is treated by batches is re-circulated and returned to the circuit. The waste water is fed through a lower end of the reactor and submitted to a strong turbulence when passing through the perforations on the discs.
US2006162667-A1; WO2006081359-A2; EP1848269-A2	Self-contained, submersible aquaculture tank for containing fish and other aquatic animal, plant, and algal species, comprises primary semi-rigid enclosure including articulating panels securely attached and connected to flexible joints.	PAPADOYIAN IS E D	NOVELTY - A self-contained, submersible aquaculture tank comprises primary semi-rigid enclosure (12) including articulating panels; and flexible joints. The articulating panels are securely attached and connected to the flexible joints, one of the flexible joints being interposed between two adjacent articulating panels, where the primary semi-rigid enclosure provides for movement of the panels.
JP2006174813-A	Aquaculture has cultivation container to which water is supplied from upper side with pump, wherein using ceramics as a cultivation solution increases wave effect.	FUJIWARA Y	NOVELTY - The aquaculture includes a cultivation container that expropriated water retaining materials piled up in multiple stages, and supplied with water from the upper side with a pump. Water is supplied in order to the cultivation container via gravity, wherein using ceramics as a cultivation solution increases the wave effect.
US2006151385-A1	Aeration apparatus for lagoon, irrigation ponds, has vortex chamber within air manifold that surrounds fluid intake so as to circumferentially draw air into fluid	BURROWS H P	NOVELTY - The apparatus has a vortex chamber within an air manifold that surrounds a fluid intake so as to circumferentially draw air into the fluid flowing through the air manifold as a result

US2006118495-A1	<p>flowing through air manifold.</p> <p>Cavitation nozzle for waste water treatment, comprises hydro-acoustic oscillator, orifice, and conical diffuser comprising liquid jet diffusing zone, zone comprising shear chambers, and zone having preset diameter.</p>	KONDRATAL V I	<p>of pressure drop generated by the flow of fluid through the manifold.</p> <p>NOVELTY - A cavitation nozzle comprises a hydro-acoustic oscillator (2), an orifice (3), and a conical diffuser. The conical diffuser comprises a zone (I) (4) for diffusing a liquid jet, a zone (II) (5) comprising two or more shear chambers, and a zone (III) (6) having a diameter larger than the shear chamber or the zone (I).</p>
WO2006049517-A1; NZ536363-A; AU2005301409-A1; IN200700824-P3	<p>Mixing pump for fluids comprises tube system in fluid communication with fluid reservoirs, where first fluid is delivered into first reservoir under pressure and tube system draws in second fluid from second reservoir by Bernoulli effect.</p>	TIMNEY B	<p>NOVELTY - A mixing pump (1) comprises: a first reservoir (2) having a fluid distribution aperture (5); a second reservoir (12) having a second distribution aperture (13) where the first reservoir is connected to a first tube system in fluid communication with the second reservoir such that when a first fluid is delivered under pressure, the velocity creates a Bernoulli effect upon the second reservoir, that causes introduction of the second fluid into the first tube.</p>
US2006087047-A1	<p>Propeller-type fluid mixing apparatus for e.g. aquaculture applications, comprises drive shaft, motor, propeller, and conduit(s) having inlet portion connected with pressurized fluid source and outlet portion provided with diffuser ring.</p>	MATHUR A N	<p>NOVELTY - A propeller-type fluid mixing apparatus comprises a drive shaft, a motor for rotating the drive shaft, a propeller attached to the drive shaft, and conduit(s) having an inlet portion connected with a pressurized source for fluid and an outlet portion provided with a diffuser ring. Rotation of the drive shaft rotates the propeller and induces a flow of liquid in which the propeller is disposed.</p>
JP2006075055-A US2006042556-A1; US7174850-B2	<p>Particle-form water-absorption material for water-retaining materials, contains water-absorbing resin and composite inorganic compound of calcium, magnesium, iron and/or silicon having preset solubility, at preset mass ratio. Multi-layer aquaculture system for culturing aquatic crustacean, has light-emitting sources generating effect of</p>	ISHIZAKI K HSIAO S T	<p>NOVELTY - A particle-form water-absorption material contains a water-absorbing resin and a composite inorganic compound (5-50 mass% with respect to the solid content of resin) of calcium, magnesium, iron and/or silicon. The solubility of the composite inorganic compound is 10 g or less (exceeding 0) with respect to ion-exchange water (100 g) at 20degreesC.</p> <p>NOVELTY - The system has multi-layer containers for carrying water body of culture. Light-emitting sources generate an effect of</p>

	bright and dark contrast, where sources are adapted to containers to express effect of bright and dark contrast.			bright and dark contrast. The sources are adapted to the containers to express the effect of bright and dark contrast over a preset place. A water filtering equipment (161) couples with the containers. A flow control piping and water delivery motor (162) couples with the containers for circulation. NOVELTY - Fertilizer for aquaculture is formed from (wt. %): nitrogen fertilizer (64-85), phosphate fertilizer (6-8) and solid wastes (6-30) produced by using danty to produce fulvic acid liquid fertilizer. The fertilizer can be substituted for organic fertilizer, and is applicable to aquaculture.
CN1686963-A; CN1296330-C	Fertilizer for breeding aquatic products.	ZHAO X		NOVELTY - The floating island comprises a base and a network structure. A multi-layer metal ring is fixed to a rubber ring (1). The gas is filled into a hollow space in the ring. A non-water absorbing material is connected with the metal ring using a clamp material. The network structure is fixed in the upper portion of the base. A weight (5), metal or stone is fixed to a main housing so as to suspend the main housing under water.
JP2006025783-A; CN1689991-A; CN1321075-C WO2006002485-A1; NO200700696-A; EP1787499-A1; AU2005259846-A1; IN200700902-P1; CN1985549-A; KR2007047279-A	Vegetation floating island for water purification in river, has network structure fixed to upper portion of base and weight fixed to main housing to suspend main housing under water.	IZUMO S		NOVELTY - The transformer configuration includes a primary winding (1), a secondary winding (3), and a magnetic core (2). The secondary winding is a conductive medium within a non-conductive conduit. Preferably, the conductive medium is a fluid or a multiphase slurry.
	Transformer configuration for fluid treatment apparatus, has secondary winding which is a conductive medium within non-conductive conduit.	KELLY P V		
WO2006000042-A1; EP1781092-A1; AU2005256163-A1; US2008029041-A1; JP2008503224-W WO2005115598-A2; US2005279713-A1; US7255332-B2;	Aquaculture system for growing fish in ponds, lakes, has liquid-impervious floating tank arranged within water in pond and water reticulation system to recirculate water from pond to tank and from tank to pond. Gas dissolving apparatus for oxygenation and/or ozonation treatment of, e.g. rivers, has chamber provided	MCROBERT I OSBORN G S		NOVELTY - A liquid-impervious floating tank (14) is arranged within a water in a pond (12). A water reticulation system (16) recirculates water from the pond to the tank and from the tank to the pond. NOVELTY - A gas dissolving apparatus comprising a chamber external to a saturation tank and connected to the tank via a liquid outlet

US2007267334-A1	with orifices through which liquid containing dissolved gas from saturation tank can be released in region external the chamber.		of the tank, is new. Chamber is provided with orifices through which liquid containing dissolved gas from the saturation tank can be released into a region external the chamber.
	Planktonic algae composition, useful as a delivery vector for the control of algae blooms, is prepared by treating planktonic algae with sodium hypochlorite solution and extracting the precipitate from the solution.		NOVELTY - Planktonic algae composition (I), used as a delivery vector in aqueous solutions for the control of algae blooms, is prepared by treating planktonic algae with sodium hypochlorite (3%) solution until all chloroplasts are broken down resulting in a precipitate which is light brown in color. The precipitate is extracted from the solution of sodium hypochlorite.
US2005266994-A1		COPPEDGE K L	
	Culturing fish-and-shellfish in fisheries, without daily exchanging water in tank, by circulating water between reactors which sealed filter medium having ventilation holes and fermentation product of aerobic thermophilic bacteria.		NOVELTY - Culturing fish-and-shellfish (F), without daily exchanging water in water tank (2), involves circulating water in water tank between (a) reactors (3), which sealed filter medium (P) having several fine air flowing passage or ventilation holes and (b) fermentation product of aerobic thermophilic bacteria.
JP2005328735-A		YAMAMURA S	
	Biofilter system for removal of carbonaceous matter and/or nitrogenous matter from aqueous waste, has main biofilter chamber containing aerobic and anaerobic bacteria without physical separation, and unit for oxygenating bacteria in chamber.		NOVELTY - A biofilter system (100) for removal of carbonaceous matter and/or nitrogenous matter from aqueous waste (116), comprises main biofilter chamber having inlet and outlet ports and containing aerobic and anaerobic bacteria without physical separation; and a unit for oxygenating the aerobic and anaerobic bacteria in the main biofilter chamber, including mechanism (112) for timing the oxygenation of the aerobic and anaerobic bacteria.
US2005252855-A1		SHIEH W K	
	Controlling, removing, preventing and/or inhibiting accumulation, colonization or fouling of aquaculture fish farm pen nets with marine organisms, plankton and algae, by formation of copper ion plume in and around nets.		NOVELTY - Controlling, removing, preventing and/or inhibiting the accumulation, colonization or fouling of aquaculture fish farm pen nets with marine organisms, plankton and algae, comprises formation of a copper ion plume in and around the aquaculture fish farm pen nets.
CA2460246-A1		HOLLENBERG R M	
	Powder charcoal used for feed of animals and livestock farming, is obtained by cutting stem, branch and leaves of trees, bamboo, sliver and		NOVELTY - The powder charcoal is obtained by grinding and powdering a charcoal material. The charcoal material is obtained by carbonizing chips obtained by cutting stem, branch and
JP2005312418-A		KAWARAI T	

	weeds into chips, carbonizing chip, and grinding obtained charcoal material.			leaves of trees, bamboo, sliver, bamboo grass and weeds. Also claimed is manufacture of powder charcoal. NOVELTY - The procedure consists of producing dipterous insects (flies of the sub-order brachycera) from nymphs, and keeping them in a closed cage (2) while they lay eggs that hatch into maggots. The flies are allowed to feed on a food source that is separate from the place where their eggs are laid, the first consisting of glucides and the second a source of decomposing animal protein. The hatched maggots are transferred to food source rich in proteins and/or lipids, such as palm kernel meal, at a rate of 1 kg of maggots to about 3 kg of their food source.
FR2868911-A1; WO2005102368-A1	Use of dipterous insects to produce maggots and break down waste plant materials rich in proteins and lipids.	HEM S		NOVELTY - The invention discloses a water planted pasture grass filtration method and plant filter for decontaminating sewage water containing rich solid bodies, wherein a composite filter bed of the nursery sock growing dish for water planting pasture grass performs the mechanical filtration to the inputted sewage water, wherein most of the solid bodies in the sewage water are kept in the nursery sock growing dishes, the filtered waste water flows into the waste water barrel through a cultivating trough.
CN1594141-A; CN1268557-C	Water culture pasture grass filtering method for sewage of circulating water aquaculture system and plant filter.	PAN J		NOVELTY - Flat synthetic resin film (2) comprises woven fabric knitted goods, on which a corrugated film (1) is layered. The mountain height of film is 5-100 mm and pitch of the mountain portion is 5-100 mm.
JP2005246206-A	Compact for microorganism processing, has flat synthetic resin film made of woven fabric knitted goods. Electrochemical treatment of to-be-processed water such as wash water, involves producing electrolyzed water by electrolyzing raw material water using metal electrode, and contacting to-be-processed water and obtained	ASAMI K		NOVELTY - Raw material water is electrolyzed by a metal electrode (23), and electrolyzed water containing active species and having sterilization capability is generated. To-be-processed water and the obtained electrolyzed water are contacted, and water is electrochemically treated.
WO2005077831-A1; JP2005246279-A		KOIKE N		

	electrolyzed water.			The electrolyzed water is generated in a single apparatus without contacting raw material water and to-be-processed water. NOVELTY - A method for reducing and/or removing nitrogenous products from a marine recirculating aquaculture system involves transferring salt water medium from an aquatic species rearing tank through a filter to separate solid materials from the salt water medium; and transferring the separated solids and at least a portion of the medium to a sludge holding tank having a media substrate for growth of anaerobic microorganisms active in sulfate reductions.
WO2005075366-A1; EP1718570-A1; AU2005210477-A1; US2007163952-A1; MX2006008671-A1	Reducing or removing nitrogenous products from marine recirculating aquaculture system, involves use of sludge holding tank having media substrate for growth of anaerobic microorganisms active in sulfate reductions, and denitrification unit.	SCHREIER H J		NOVELTY - The processing system of waste water has a magnetic processing unit (11) to improve quality of natural water by magnetic action, a high-pressure pump (121) to send out treated water from unit (11), catalyst contact unit (12) to adsorb and remove impurities from treated water, and a magnetic processing unit (13) connected in series to further improve quality of treated water from catalyst contact unit, by magnetic action. NOVELTY - A ring disc filter system comprises a spine having spine legs internally of a stack of ring disc filters; a fluid diverter to direct fluid during normal filtering operations from an inlet through the filters to create a filtering action; a spray tube positioned internally of the spine legs and having fluid orifices and disposed inwardly of the ring disc stack; and an outlet for discharging the fluid with impurities.
JP2005230709-A	Processing system of waste water, such as waste water from industry, has magnetic processing units to improve quality of natural water by magnetic action, high-pressure pump, and catalyst contact unit to remove impurities from treated water.	ITO K		NOVELTY - A ring disc filter system comprises a spine having spine legs internally of a stack of ring disc filters; a fluid diverter to direct fluid during normal filtering operations from an inlet through the filters to create a filtering action; a spray tube positioned internally of the spine legs and having fluid orifices and disposed inwardly of the ring disc stack; and an outlet for discharging the fluid with impurities.
US2005178704-A1; WO2005081762-A2; EP1715933-A2; US7192528-B2; JP2007522925-W	Ring disc filter system for e.g. agricultural irrigation comprises fluid diverter, spray tube having fluid orifices and disposed inwardly of ring disc filter stack, and discharge outlet for fluid with impurities. Agricultural material used for e.g. paddy seedling, is produced by kneading shredder waste and sprinkling powder mixed with water, and solidifying kneaded material so as to form mat-like structure.	PROCHASKA J F		NOVELTY - The material is produced by mixing and kneading the shredder waste, sprinkling powder and water. The kneaded material is then solidified, so as to form a mat-like structure.
JP2005237268-A US2005079596-A1;	Novel isolated bacterial strain for	MACHIDA T HOVANEC T		NOVELTY - An isolated bacterial strain (I) for

WO2005045002-A2; EP1675969-A2; AU2004287046-A1; JP2007510402-W; CN1890388-A; KR2007036016-A	oxidizing nitrite to nitrate, useful in bioremediation process that alleviates or prevents accumulation of nitrite in medium.	A	oxidizing nitrite to nitrate, comprising a base pair sequence that has 96% or more sequence identity to a fully defined 1495 (SEQ ID No. 1), 1450 (SEQ ID No. 2), 1445 (SEQ ID No. 3), 1450 (SEQ ID No. 4), 1473 (SEQ ID No. 5), 1473 (SEQ ID No. 6), 1480 (SEQ ID No. 7), or 1490 (SEQ ID No. 8) base pair sequence given in the specification, is new. NOVELTY - A waste treatment vessel is operated by aerating and circulating waste material in the treatment vessel until a predetermined number of a first type of strict aerobe and a second type of strict aerobe have colonized the treatment vessel; and adding facultative anaerobic bacteria to the treatment vessel. The first type of strict aerobe converts ammonia to nitrites, and the second type of strict aerobe converts nitrites to nitrates.
US2005077237-A1	Operation of waste treatment vessel for, e.g. septic tanks, involves aerating and circulating waste material in the treatment vessel, and adding facultative anaerobic bacteria to the treatment vessel.	WICKHAM D E	NOVELTY - A controlled eutrophication system includes an inlet in fluid communication with algal growth channel; a first flowrate control device for controlling the flowrate of water through the channel; raceway(s) containing a first aquatic organism; a second flow rate control device for controlling the flowrate of water through the raceway; a polishing chamber containing a second aquatic organism; biomass removal device; and water discharge.
WO2005033020-A1; US2005115893-A1; US7258790-B2	Controlled eutrophication system for removing pollutants from wastewater, has inlet in fluid communication with algal growth channel, two flowrate control devices, raceway(s), polishing chamber, biomass removal device, and water discharge.	BRUNE D E	NOVELTY - A sludge harvester (10) comprises hollow suction head, outlet duct(s) extending from the hollow suction head (23), and mechanism for creating a suction pressure in the suction head to cause settling solids beneath the suction head to pass along the outlet duct(s) for collection.
WO2005028069-A1; AU2004273539-A1	Sludge harvester for collecting solids settling at bottom of liquid reservoir, comprises hollow suction head, outlet duct(s) extending from hollow suction head, and mechanism for creating suction pressure in suction head.	NIELSEN I B	NOVELTY - A bioproduction process of preparing an hydrolysate from squid processing byproducts including obtaining squid byproducts, hydrolyzing the byproducts, heating the hydrolyzed product
WO2005010192-A2; EP1622466-A2; US2006099305-A1	Preparing hydrolysate from squid processing byproducts, useful for aquaculture feed ingredient, by hydrolyzing the byproducts, heating until	LEE C M	

	<p>the viscosity stabilizes, filtering the heating product and concentrating the filtrate.</p>		<p>until the viscosity stabilizes, filtering the heating product to form a filtrate, concentrating the filtrate to form the desired hydrolysate.</p>
<p>US2004219519-A1</p>	<p>Amplifying bacteriophage targeting enteric pathogen in e.g. poultry involves isolating wild bacteriophage from wastewater, and amplifying enteric pathogen-specific bacteriophage forming lytic plaque and non-pathogenic bacteria combination.</p>	<p>HARGIS B M</p>	<p>NOVELTY - Selecting and amplifying bacteriophages targeting enteric pathogen by isolating wild bacteriophages from environmental or waste water samples; selecting enteric pathogen-specific bacteriophage (b) to form lytic plaques in soft agar overlay plates inoculated with (b); selecting non-pathogenic bacteria (c) as potential alternative host to (b); amplifying the combination of (b) in (c); and passing through gastrointestinal tract.</p>
<p>JP2004300620-A</p>	<p>Liquid absorber e.g. waste ink absorber for inkjet printer, consists of hydrophilic fiber adhered with surfactant having preset hydrophilic lipophilic balance.</p>		<p>NOVELTY - A liquid absorber consists of a fiber aggregate comprising fiber of less than 7 dtex. At least 30 mass% of fiber aggregate is hydrophilic fiber in which portion(s) of fiber surface is covered with molten mixed resin of thermoplastic resin and hydrophilic compound. 0.01-5 mass% of surfactant having hydrophilic-lipophilic balance of 10 or more, is adhered to hydrophilic fiber. The liquid absorber has density of 0.05-0.25 g/cm³.</p>
<p>WO2004082803-A2; GB2413098-A; GB2413098-B; GB2427155-A; GB2427155-B</p>	<p>Backflushed filter assembly for e.g. garden ponds comprises storage and release arrangement accumulating and storing motive power from drive arrangement and releasing stored motive power to intermittently operate backflushing arrangement.</p>	<p>HOSFORD J P</p>	<p>NOVELTY - A backflushed filter assembly comprises a storage and release arrangement which accumulates and stores motive power supplied from a drive arrangement over a first period of time and then releases the stored motive power over a second period to intermittently operate the backflushing arrangement to generate and direct the backflushing flow to backflush the filter.</p>
<p>JP2004267181-A</p>	<p>Container for growing plants in e.g. greenhouses, has fixing belt which binds rhizome of plant grown in culture medium consisting of waste urethane, which is provided in container, to tie rods arranged in container.</p>		<p>NOVELTY - The plastic container (1) has several fixing holes (2) provided at the side walls. The tie rods (3) made of the same plastic material, are passed horizontally through the holes. The caps (4) made of the same plastic material are adhesively fixed to the outer ends of the rods. A fixing belt (5) binds the rhizome of a plant grown in a culture medium consisting of waste</p>

NZ512612-A	<p>Production of a dry krill premix or feedstuff for aquaculture, comprises producing concentrated liquid hydrolysate, mixing the hydrolysate and a dry carrier, and co-drying the mixture of the concentrated hydrolysate and dry carrier.</p>	SAXBY D J	<p>urethane, provided in the container, to the rod.</p> <p>NOVELTY - Production of a dry krill premix or feedstuff comprises:</p>
NZ512082-A	<p>Production of a dry krill premix or feedstuff for aquaculture, comprises producing predetermined amounts of concentrated krill hydrolysate and dry matter, mixing the hydrolysate and dry carrier matter and co-drying the mixture.</p>	SAXBY D J	<p>NOVELTY - Method (M) for production of a dry krill premix or feedstuff comprises:</p>
JP2004223345-A	<p>Purification of fluid such as agricultural water, involves supplying oxygen in space between outer and inner cylinders, generating discharge between electrodes, producing ozone and mixing ozone with fluid in inner cylinder.</p>		<p>NOVELTY - Oxygen is supplied in the space between outer cylinder and inner cylinder of a reaction container (32). The inner cylinder has pair of electrodes. A discharge is generated between the electrodes between outer cylinder and inner cylinder. When oxygen passes through the discharge area between the electrodes, ozone is produced. The ozone is mixed with fluid in the inner cylinder, to purify the fluid.</p>
JP2004188246-A	<p>Ozone water manufacturing system for sewer processing facility, has vapor liquid separator for separating and supplying gas component containing un-dissolved ozone gas from ozone water, to another ozone dissolution unit.</p>		<p>NOVELTY - A ozone dissolution unit (2) generates ozone water using ozone gas supplied from a ozone generator (1) and water supplied from a natural water supply unit (3). A vapor liquid separator (7) separates the gas component containing un-dissolved ozone gas from ozone water, and supplies the separated component to another ozone dissolution unit (2a).</p>
<p>JP2004180663-A US2004101826-A1; WO2004051226-A2; AU2003297695-A1;</p>	<p>Waste wood chip culture medium useful as soil improvement material, is obtained by washing waste wood chip pieces with water, disinfecting, dipping aggregates of wood chip in alkaline liquid and neutralizing to specific pH.</p> <p>Monitoring high-risk environments for presence or absence of microbes, by providing a sample and detecting</p>	JONES A M	<p>NOVELTY - A waste wood chip culture medium is obtained by washing waste wood chip pieces with water, disinfecting the pieces, dipping aggregates of waste wood chip in alkaline liquid, neutralizing the pH to 5-7 and drying.</p> <p>NOVELTY - Monitoring (M1) high-risk environments for the presence or absence of one or more microbes, involves providing a sample</p>

EP1579012-A2; BR200316697-A; AU2003297695-A8; CN1735696-A; KR2005086869-A	presence or absence of cpn60 markers in the sample, which indicates the presence of microbes.		obtained from high-risk environment, and detecting the presence or absence of cpn60 marker in the sample (where cpn60 marker is indicative of the presence of one or more microbes), is new. NOVELTY - A hydrophilization open cell polyurethane foam comprising two types of poly dimethyl siloxane polyoxyalkylene copolymers (A and B), is new. The compound A has polyoxyalkylene terminal having 1-4C alkoxy and/or aliphatic acyloxy, and an average molecular weight of 900 or more, and compound B has polyoxyalkylene terminal having 1-4C alkoxy and/or acetoxy group, and an average molecular weight of less than 800.
JP2003268064-A	Hydrophilization open cell polyurethane foam useful e.g. for absorbing waste ink and for raising seedlings comprises poly-dimethyl siloxane-polyoxyalkylene copolymers each having different functional groups and average molecular weights.		NOVELTY - A positive displacement blower (36) is arranged in a housing (10). An air treatment assembly is in flow communication with the blower for treating air flowing from the blower to the air treatment assembly. An air flow structure directs air flowing through the housing to take at least a sharp turn.
US2004042905-A1	Air treatment enclosure for waste treatment assemblies, aquaculture, has air flow structure which directs air flowing through housing to take at least sharp turn.	STALLINGS W A	NOVELTY - A biofilter system (100) comprising a main biofilter chamber (110) having inlet and outlet ports (104, 106) and containing aerobic and anaerobic bacteria (102, 108) without physical separation; and mechanism for oxygenating the aerobic and anaerobic bacteria in the main biofilter chamber having mechanism for timing the oxygenation (112) of the aerobic and anaerobic bacteria, is new.
US2003213734-A1; US6936170-B2	Biofilter system for removal of carbonaceous and/or nitrogenous matter from animal waste, comprises main biofilter chamber having inlet and outlet ports and containing aerobic and anaerobic bacteria without physical separation.	SHIEH W K	NOVELTY - Microbial support (12,14,16) comprises resin material mixed with far-infrared radiating material.
JP2003154386-A	Microbial support for sewage disposal and for potting/cultivating plants in aquaculture, comprises resin material mixed with far-infrared radiating material.		NOVELTY - Electrolytic process (M1) for removing contaminants from aqueous medium, involves adding one or more catalytic enzymes to aqueous medium, providing electrode cell including cathodic electrode and anodic
US2003226766-A1; CA2431106-A1; US6802956-B2	Electrolytic process, for removing contaminants from aqueous medium, involves adding catalytic enzymes to aqueous medium, providing electrode cell, adding aqueous medium to	ORLEBEKE D N	

	electrode cell, applying current across electrodes.		electrode, adding aqueous medium to electrode cell, so that the electrodes are substantially immersed in aqueous medium, and applying current of at least 10 amperes across the electrodes. NOVELTY - A conditioning system has a bioreactor divided into sub-compartments through which growing culture flows, where the conditioning system includes reservoirs for microorganisms and nutrients, a metering pump controlled by a timer to transfer microorganisms and nutrients from reservoirs to a sub-compartment, a water supply unit, an air pump, an electrical control device, and an outfall mechanism.
US2003136716-A1; CA2368407-A1; CA2416607-A1	Conditioning system for growing and conditioning microorganisms useful in water body restoration, comprises a bioreactor system divided into sub-compartments through which growing culture flows.	MOFFITT S	NOVELTY - A vortex mechanical power filter includes a filter unit (12) mounted on a standpipe of a vortex tank (10), and a water jet assembly (18) placed within a filter screen of the filter unit. A water inlet (22) is positioned so that water to be filtered impinges a side of the filter unit at an angle causing the filter unit to rotate without the aid of a motor.
US6398038-B1	Vortex mechanical power filter includes water inlet for drawing water from water supply, filter unit mounted on standpipe of vortex tank and water jet assembly placed within filter screen of the filter unit.	FONTES M J	NOVELTY - A main portion(1) has an insertion hole (6) with a gas inlet tube (5) which supplies gas for mixing with surfactant mixed pressurized water supplied through water feed tube (4) connected to water inlet (3). A cone shaped divergent nozzle (2) connected to main portion, generates gas bubbles from water gas mixture. The open end of nozzle is connected to a water tank (12), to release the generated gas bubbles.
JP2003230824-A	Fine gas bubble generation apparatus use for e.g. purifying sea water, mixes pressurized water containing surfactant and gas to generate gas bubbles.		NOVELTY - The system has a plate (26) that extends laterally across ends (20, 24) of a conduit (18). An axial hole (28) is formed in the plate to provide fluid communication with another conduit (22). Legs are formed on an underside of the plate to space it from a bottom wall of the tank (12). The conduits exit the tank at a location
WO2003075646-A; WO2003075646-A1; AU2003209827-A1; US2005183673-A1; CN1652683-A	Waste water extraction system for aquaculture receptacles, has plate with axial hole to provide fluid communication with conduit and otherwise seals end of another conduit.	MCROBERT I	

<p>WO2003065798-A; WO2003065798-A1; SE200200348-A; SE521571-C2; AU2003206322-A1; EP1480513-A1; US2005061737-A1; US7001519-B2</p>	<p>Closed loop system for treatment industrial and agricultural waste water, includes production units of nitrogen containing compounds and/or substances, and suspended carrier bioreactors for bacterial growth under anoxic and oxic conditions.</p>	<p>LINDEN B</p>	<p>(38), which is below the water level of the tank. NOVELTY - A closed loop system comprising production unit(s) of nitrogen containing compounds and/or substances, suspended carrier bioreactor(s) for bacterial growth under anoxic conditions to cause anaerobic denitrification, with compartments, and suspended-carrier bioreactor(s) for bacterial growth under oxic conditions to cause aerobic nitrification, is new.</p>
<p>US2003104605-A1; US7090838-B2</p>	<p>New isolated form of pathogenic bacterium, or its progeny that controls at least one of an alga or a cyanobacterium in water, useful for reducing or eliminating off-flavor in water, fish, aquatic life forms, aqueous waste or aquaculture.</p>	<p>WALKER H L</p>	<p>NOVELTY - An isolated form of pathogenic bacterium, or its progeny, which controls at least one of an alga or a cyanobacterium in water and which is at least substantially similar to a bacterium deposited in the ARS patent culture collection having an assigned number NRRL B-30043, is new.</p>
<p>US6517724-B1</p>	<p>Floating media biofilter in wastewater treatment system has charge chamber with air outlet which is fluidly connected to filter chamber for admitting air into filter chamber.</p>	<p>MALONE R F</p>	<p>NOVELTY - A charge chamber (13) having air outlet (26) is fluidly connected to a filter chamber (12) to admit air into the filter chamber. A concentric siphon is provided to selectively allow the passage of the air through the outlet.</p>
<p>US6511054-B1</p>	<p>Porous air diffuser used in waste water treatment plants, has purging mechanism that is attached to outlet pipe provided on one end of porous diffuser and extending above surface of liquid to be aerated.</p>	<p>GREEN T</p>	<p>NOVELTY - A porous diffuser (16) is secured to a stabilizing pipe (34) having a weight element. A purging mechanism (32) is attached to an outlet pipe (20) that is provided on one end of the porous diffuser and extending above the surface of the liquid to be aerated.</p>
<p>JP2003009653-A</p>	<p>Seedling raising mat for e.g. aquaculture, horticulture, has main body, which includes cubic sections whose recesses accommodate seeds, which is formed by shaping and solidifying cornstarch.</p>		<p>NOVELTY - Multiple recesses (2), which individually accommodate dropped seeds, are formed on the respective surfaces of cubic sections (4) of a main body (1). The main body is formed by shaping and solidifying cornstarch.</p>
<p>JP2003010882-A; JP3586698-B2</p>	<p>Processing of organic phosphoric acid triester in treated water and leachate of waste material, involves placing aquaculture of <i>Cyperus alternifolius</i> in rooting zone and decomposing underwater.</p>		<p>NOVELTY - A method for processing the organic phosphoric acid triester treated water of city sewage, involves placing aquaculture of <i>Cyperus alternifolius</i> (A) in the harmful organic phosphoric acid triester contained in the treated water (5) of city sewage and leachate of the waste material</p>

<p>US2003057163-A1; WO2004013049-A2; US6702949-B2; AU2003261420-A1; AU2003261420-A8</p>	<p>Water treatment method for diffuser, involves introducing nitrogen into pumped water from reservoir and supplying it to sparging column to release nitrogen and carbon dioxide, and oxygen is supplied to depleted water.</p>	<p>WOOD A B</p>	<p>disposal and decomposing underwater using the plant microorganisms consortia in a rooting zone. NOVELTY - Nitrogen is introduced into pumped water from a reservoir to displace the carbon dioxide. The inert gas saturated water is pumped to a sparging column to release nitrogen and carbon dioxide and provides a depleted water. Oxygen is introduced to the depleted water and the oxygen enriched water is returned to the reservoir.</p>
<p>WO2003032718-A; WO2003032718-A2; AU2002335112-A1; US2005087489-A1; AU2002335112-A8; US7314741-B2</p>	<p>Marine system for removing ammonia by anammox process, and thus for processing marine waste water containing ammonia, has recirculating filter system which comprises marine planctomycetes having anammox activity.</p>	<p>TAL Y</p>	<p>NOVELTY - A marine system (I) comprises a recirculating filter system which comprises marine planctomycetes having anammox activity, where anammox is an anaerobic process in which ammonia is oxidized to nitrogen gas using nitrate as an electron acceptor.</p>
<p>WO2003015503-A; WO2003015503-A2; US2003070624-A1; US6584935-B2; AU2002324729-A1; AU2002324729-A8 WO2003022041-A1; NZ532045-A;</p>	<p>Marine aquaculture process for production of marine species, e.g. crab species, includes broodstock conditioning, spawning, egg incubation, larval growth, nursery post-larval growth, and grow-out.</p>	<p>ZOHAR Y</p>	<p>NOVELTY - A marine aquaculture process for production of marine species, e.g. crab species, includes broodstock conditioning, spawning, egg incubation, larval growth, nursery post-larval growth, and grow-out of marine species to a final product weight. Process conditions at each life-cycle stage are optimized and continuously monitored and controlled for specific marine species to obtain optimal production.</p>
<p>US2004149233-A1; AU2002328669-A1; EP1458233-A1; KR2004049843-A; BR200212291-A; CN1585601-A; JP2005527185-W; ZA200402676-A; MX2004002464-A1; TW200304770-A; ZA200502734-A;</p>	<p>Modular aquaculture temperature controlled room for growth of e.g. fish has contained in a stackable room module primary fish chamber overflowing to primary swirl then secondary screen and bio-filter also UV and ozone treatment.</p>	<p>CUMMINS I G</p>	<p>NOVELTY - The room is temperature controlled and has atmospheric air pumped to foam fractionators (30) in main fish chamber (12). Chamber overflows via screen to primary swirl filter and thence to screen filter e.g. drum rotated by water flow. Base of filter has bio-filter (89) and water is recycled through main bio-filter (15) to chamber that may also include UV and ozone treatment units. Chambers may be accessed through hinged panels and rooms may be stacked.</p>

US7029577-B2;
ZA200502733-A;
US2006180532-A1;
US2006180533-A1;
IN200400785-P1;
US2006191828-A1;
US7293658-B2;
AU2002328669-B2;
AU2007229362-A1;
AU2007229364-A1
WO2003007701-A;
WO2003007701-A2;
GB2383934-A;
GB2383934-B;
EP1406487-A2;
AU2002317281-A1;
US2004159288-A1;
ZA200302053-A;
AU2002317281-A8;
US7004109-B2;
US2006124063-A1;
US7156048-B2

Aquaculture of marine worms e.g. *Arenicola marina*, comprises providing foodstuff within substrate housing the worms.

OLIVE P J W

NOVELTY - An aquaculture of marine worms comprises providing a foodstuff (10) within a substrate (9) housing the worms.
NOVELTY - A biofilter system comprises a main biofilter chamber (110) having an inlet port (104) and an outlet port (106) and containing aerobic and anaerobic bacterial without physical separation; and a pump or an agitator (108) for oxygenating the aerobic and anaerobic bacteria and a timer (112) for timing the oxygenation of the aerobic and anaerobic bacteria.

WO2002100785-A;
US2002148779-A1;
WO2002100785-A1;
US6630067-B2;
AU2002310404-A1

Biofilter system for treating aqueous waste from e.g., aquaculture, comprises main biofilter chamber and pump or agitator and timer for oxygenation of aerobic and anaerobic bacteria.

SHIEH W K

WO2003000976-A;
WO2003000976-A1;
AU2002302853-A1;
US2004242108-A1
WO200288298-A;
WO200288298-A1;
US2003105072-A1;
EP1381668-A1;

Non-woven fabric for use as chemical filter, cleansing article such as wipe, pad, plant seed germination mat, comprises fibers of preset length and specific amount of binder.
Nitrogen heterocyclic compound useful for controlling biofilm on a substrate, treating insides of high-humidity appliances, in laundry applications,

RUSSELL S J

NOVELTY - Non-woven fabric comprises fibers having length of 0.1-12 mm and binder (15% w/w or less).

DEGENHARD
T C R

NOVELTY - A nitrogen heterocyclic compound (I), its salt or stereoisomer, is new.

<p>AU2002305225-A1; JP2004528356-W; CN1527876-A; CN1689405-A; US7018642-B2; CN1699545-A; US2006165648-A1; CN1307875-C; CN1327766-C</p>	<p>assist in cleaning or preventing mold growth on stored fabrics.</p>		<p>NOVELTY - A controllably variable floating device and a support frame control orientation of the artificial island reef (AIR) platform which has leading edge provided with openings, for varying flow of ocean current into the trailing edge. Several spherical net cages (60) have vent and deflectors for deflecting oxygenated water from the trailing edge, to flow into them. A net skin covering the cages, protects the cages from predators.</p>
<p>US2002162515-A1; US6520115-B2</p>	<p>Artificial island reef platform for aquaculture, has controllably variable floating device and support framework for controlling platform orientation.</p>	<p>BOYD S</p>	<p>NOVELTY - An aquaculture wastewater treatment system (10) includes fish species-based particulates removal system (20) comprising a separate fish raceway; suspended media biofilter reactor ammonia removal subsystem (30) including suspended media mechanism; and constructed wetlands subsystem (40) for further treating effluents from the ammonia removal subsystem.</p>
<p>US6447681-B1</p>	<p>An aquaculture wastewater treatment system includes fish species-based particulates removal system, suspended media biofilter reactor ammonia removal subsystem, and constructed wetlands subsystem.</p>	<p>CARLBERG J M</p>	<p>NOVELTY - An isolated form of a pathogenic bacterium (I) (its progeny), which controls at least one of an alga or a cyanobacterium in water and which is at least substantially similar to a bacterium deposited in the ARS patent culture collection having the assigned number NRRL B-30043, is new.</p>
<p>US2002106351-A1; US6482635-B2 WO200283575-A; WO200283575-A1; NO200101869-A; AU2002243110-A1</p>	<p>Novel pathogenic bacterium or its progeny, especially Bacterium SG-3, useful for reducing or eliminating off-flavor in water, fish or other aquatic life forms, controls an alga or a cyanobacterium in water. Purification, possible disinfection method for cleaning e.g. municipal waste water containing ammonium, involves adding water before or at same time as addition</p>	<p>WALKER H L LYGREN E</p>	<p>NOVELTY - Water containing a composition of ammonium, is purified, possibly disinfected by addition of water before or at the same time as the addition of an amount of oxidant, possibly</p>

of oxidant, possibly ozone gas.

WO200274076-A; US6443097-B1; WO200274076-A1; AU2002252315-A1; CA2441002-C	Recirculating marine aquaculture process, involves continuously monitored and controlled operation in aqueous medium under optimized photoperiod, water temperature, water chemistry and diet conditions.	ZOHAR Y	ozone gas. Oxidation of ammonium thus takes place. Total water containing the composition of ammonium, after the addition of water has a salinity of at least 0.2%. NOVELTY - A closed, recirculating marine aquaculture process (M) for producing marine fish, involves operation in an aqueous medium (AM) coupled in liquid recirculation relationship with a unit for removing waste components from AM and returning purified AM to external environment, where photoperiod, water temperature, water chemistry, and diet are optimized and then continuously monitored and controlled for the fish.
US2002113011-A1; US6613229-B2	Waste treatment apparatus for treating e.g., domestic and municipal waste, includes aeration basin, aerating device, denitrification chamber, and clarifying device.	RICKETTS D D	NOVELTY - A waste treatment apparatus comprises an aeration basin containing mixed liquor comprising sludge and waste and including an aerating device for aerating the mixed liquor; a denitrification chamber; and a clarifying device.
US2002113010-A1; US6572774-B2	Waste treatment apparatus has narrow opening between aeration basin and clarifier, through which mixed liquor or recycled sludge flows between aeration basin and clarifier.	RICKETTS D D	NOVELTY - A narrow opening (26) exists between an aeration basin (2) and a clarifier (4), through which mixed liquor flows from the aeration basin to the clarifier or recycled sludge flows from the clarifier to the aeration basin.
US6428690-B1 WO200260552-A; US2002070162-A1; WO200260552-A2; AU2002249842-A1; US6780318-B2; AU2002249842-A8	Filter module for, e.g. swimming and wading pools, includes backwash jets that eject water at increased velocity such that water impinging on accumulated particles of filtering medium breaks apart the particles.	TSE T	NOVELTY - A filter module has backwash jets for exiting water from a backwash jet assembly at increased velocity. The water impinges on accumulated particles of the filtering medium, thus breaking the particles apart so that waste material is removed from the particles of the filtering medium.
JP2002102884-A	Recovering a disposal trench with a biomat slime, comprises adding facultative anaerobic bacteria to effluent. Waste water treatment apparatus contains seedling plants, purification tank and waste water treatment tank	FIFE J J	NOVELTY - A method for recovering a disposal trench that has failed from a biomat slime comprises adding a facultative anaerobic bacteria to effluent. A new waste treatment system removes nitrogen from wastewater. NOVELTY - Waste water treatment apparatus contains seedling plants in network for plant

	which propagates algae control and recovery of nitrogen and phosphorus by plant aquatic root.		affixed by floating in purification tank to perform treatment in waste water tank which performs watertight processing. Waste water treatment tank propagates algae control by limiting incident conditions to aqua culture collection and recovery of nitrogen and phosphorus by plant aquatic root which grow thick in water.
JP2002097475-A	Manufacture of carbon material as culture medium, involves heating mixture of organic substance raw material, plant ashes, shell fish shell powder, chemical and bone meal, and carbonizing at preset condition.		NOVELTY - An organic substance raw material, plant ashes, shell fish shell powder, chemical and bone meal, are mixed, heated and carbonized to less than 400degreesC and a carbon material is obtained.
WO200231101-A2; AU200214629-A; US6571735-B1; AU2002214629-A8	Autoclavable unicellular culture system which can be incorporated into aquaculture system for rearing fish or shellfish, has flexible, light transmitting walls, oxygen diffuser and a head plate with many apertures.	WILKINSON L	NOVELTY - An autoclavable unicellular culture system (I) comprising a bioreactor including a flexible, light transmitting walls defining an interior space and having an opening, an oxygen diffuser situated in the interior space, and a head plate (2), associated with an opening and having several apertures (19), is new.
US6352714-B1	Producing metal nutrient, useful as animal feed or feed supplement, comprises heating chrome leather scrap and alkaline material to produce protein hydrolysate, removing chromium, oxidizing hydrolysate and mixing with metal salt.	ERICKSON P R	NOVELTY - Producing a metal nutrient for use as animal feed or feed supplement, involves heating chrome leather scrap, water and an alkaline material to produce a protein hydrolysate (PF) and insoluble chromium compounds (C), separating PF from (C), adding an oxidizing agent to PF to remove trace organic materials, and admixing a water soluble metal salt with PF to produce amino acid metal proteinate.
CN1321573-A; CN1194843-C	Production method of granolithic floor brick.	YANG G	NOVELTY - The present invention relates to a production method of artificial stone wall and floor bricks, and is characterized by that its matrix is formed from stone material, and its surface is fully spread with broken conch or shell shards, after polished, its glossiness can be up to 80 gloss units, and its wearability is hight than that of natural marble. Said invented product is formed under the condition of high pressure and heating state, its product density is high, can be up to 24g/cu.cm. Said invention can fully utilize

US6322782-B1	New composition comprising novel pathogenic bacterium SG-3 and a carrier, useful for controlling algae in aquatic environments especially to reduce or eliminate off-flavor in water or fish e.g. commercially produced catfish.	WALKER H L	natural stone material and waste material of aquaculture industry to implement automatic industrial production of said invented wall and floor bricks, and features high production efficiency and low production cost.
US6325842-B1	Aeration and mixing apparatus, for aeration of e.g. ponds, comprises manifold with air venturi tubes extending nozzles to spray pressurized air into liquids being discharged that have vanes to swirl liquids prior to discharge.	CALDWELL D A	NOVELTY - A composition comprising a new pathogenic bacterium SG-3 (ARS Patent Culture Collection (NRRL) number NRRL B-30043) and a carrier is new. NOVELTY - Aeration and mixing apparatus comprises pontoons with a manifold to receive liquid for aeration and spray liquids from nozzles. Air venturi tubes extend into each of the nozzles to spray pressurized air into the liquids being discharged. The tubes have vanes to swirl liquids prior to their discharge through openings in the manifold.
JP2001252650-A; JP3758927-B2	Optical sterilization of water, comprises irradiating pulsed light rays intermittently on turbulent flow of water in sterilization tank.		NOVELTY - Optical sterilization of water comprising irradiating pulsed light rays intermittently on a turbulent flow of water generated by stirring water in the tank with a stir disc, where the stir disc has water flow holes, is new.
US6306621-B1 WO200174722-A; FR2807026-A1; WO200174722-A1; AU200144282-A; BR200109826-A;	Simultaneous detection of Escherichia coli and total coliforms in liquid sample, e.g. water, by passing liquid sample through membrane filter, placing filter on plate of growth medium, and incubating the plate. Apparatus for treating salt, brackish or waste water has a device forming gas micro-bubbles in water before injection in reaction chamber and a device skimming foam from reactor.	BRENNER K P HUSSENOT J	NOVELTY - Escherichia coli and total coliforms are simultaneously detected in a liquid sample by passing the liquid sample through a membrane filter. The filter is placed on a plate of growth medium containing a solidifying agent, a galactoside and a glucuronide, and an agent used to suppress growth of non-coliform gram negative bacteria. The plate of medium is then incubated. NOVELTY - A water treatment apparatus has a device forming micro-bubbles of gas in the water to be treated before injection through an orifice into a reaction chamber. Another device skims foam from the reactor.

EP1272430-A1;
 US2003164340-A1;
 CN1427802-A;
 IN200200985-P1;
 AU2001244282-B2;
 MX2002009778-A1;
 US7033506-B2;
 EP1272430-B1;
 DE60119717-E;
 CN1230383-C;
 ES2260206-T3;
 IL152065-A;
 DE60119717-T2;
 MX242765-B
 WO200110201-A;
 WO200110201-A1;
 US6317385-B1;
 GB2367229-A;
 NO200200598-A;
 NZ516984-A;
 GB2367229-B;
 CA2378300-C

Aquaculture feeding monitor in large scale fish farm, calculates rate of food dropping from seacage by processing acoustic signal generated by acoustic transducer.

HEDGE PETH
 J

NOVELTY - An acoustic transducer (12) positioned below a seacage (14), generates an acoustic signal depending on the food dropping below the seacage. The acoustic signal is processed and the rate of food dropping from the seacage is calculated by a processor connected with the acoustic transducer.

NOVELTY - Porous sintered compact is obtained by molding a mixture of molten slag aggregate and sintered material, followed by baking. An aggregate is obtained from molten slag which is ground and classified to predetermined grain size. Particles of molten slag are added to melting material, which melts at low temperature, forming sintered material.

NOVELTY - Water is purified by circulating water into a dissolution unit and dissolving ozone in water. The concentration of dissolved ozone gas is detected and the quantity of ozone dissolved in water is controlled depending upon the detection results.

NOVELTY - A water purificant comprises a mixed solution that includes bittern, and acids and/or salts. The bittern concentration is 1 ppm-100

JP2001206784-A

Porous sintered compact for ceramic industry, is obtained by molding mixture containing ground molten slag aggregate and sintered material, followed by baking.

JP2001157895-A

Purification of water such as underground waste water, involves dissolving ozone in water, detecting dissolved ozone gas and controlling quantity of ozone dissolved in water depending on detection results. Water purificant for, e.g. aquaculture, comprises mixed solution that includes bittern, and acids and/or salts.

IDAKA E

US6254800-B1

WO200126452-A; EP1220604-A; WO200126452-A1; AU200076815-A; EP1220604-A1; US2002108582-A1; EP1220604-B1; US6827036-B2; DE60016006-E; IE83848-B	Aquaculture apparatus useful for fish farming or effluent water treatment systems comprises an elongated tube made of flexible translucent material.	CONNOLLY M	wt.%, and is made from deep marine water that exists at more than 200 meters below the sea level. NOVELTY - Aquaculture apparatus comprises an elongated tube (2) made of flexible translucent material, the tube extending longitudinally along a tube site and having a lower section defining a water course. NOVELTY - Oxygen rich water produced in an algal growth channel is fed into raceway(18) via inlet(24) and distributed to outside raceways(14:16) by adjusting doors(26) where a first flow control device controls the flow through the growth chamber and second flow control(22) the flow within the raceways independent of flowrate in the growth channel where the growth channel is U shaped in plan NOVELTY - A biological filter (10) for filtering a stream of falling liquid comprises a body (26), and first and second filter portions (46, 48) coupled to the body. The body reciprocates between a first position, in which the first filter portion is positioned under the liquid stream, and a second position, in which the second filter portion is positioned under the liquid stream. NOVELTY - Artificial soil material (1) is a blend of dry soil like dredging soil, permeable material like ground trees (3) styrene foam granules (5), fiber material like peat moss (7) and a solidification material such as cement. NOVELTY - Low-pressure oxygenation of a waterflow involves delivering an oxygen flow to a chamber (28) to create an oxygenated atmosphere, delivering a continuous flow of
US6192833-B1	Automated water flow system for aquaculture comprises controlling the water flow rate in the algal growth channel independent of the flow rate in the main raceway.	BRUNE D E	
WO200071224-A; WO200071224-A1; AU200050392-A; US6245236-B1	Biological filter for removing toxins from a liquid comprises body and filter portions coupled to the body.	SCHENCK R C	
JP2000253743-A	Artificial soil material for orchids is a blend of dry soil, permeable material, granule, fiber material and solidification material.		
WO200064246-A; WO200064246-A1; AU200040964-A	Low-pressure oxygenation of a waterflow involves delivering an oxygen to a chamber, dispersing the water to produce a spray of droplets and foam to	MACDONALD I	

<p>JP2000135191-A AU9954004-A; US6228263-B1; ZA9906546-A; AU759811-B; US6197196-B1</p>	<p>mix water with oxygen, and permitting dispersed water spray to fall under gravity.</p> <p>Process liquid supply method for dish washer of domestic and business use, involves passing process liquid through dialysis membrane to obtain process liquid with preset concentration of process agent.</p> <p>Process for treating waste water containing sulfate and metal by subjecting them to biological sulfate reduction in which sulfates are converted to sulfides.</p>	<p>ROSE P D</p>	<p>water into an upper region of the chamber and dispersing to produce a spray of droplets and foam to mix water with oxygen, and permitting the dispersed water spray to fall under gravity to further absorb oxygen from bubbles.</p> <p>NOVELTY - Process agent is dissolved in solvent, inside storage tank (10), so that process liquid is obtained. Then, process liquid is passed through dialysis membrane. The process liquid having predetermined concentration of process agent, is obtained.</p>
<p>JP2000037144-A</p>	<p>Raft for aquaculture of edible plant cum water purification, has shellfish shell which is filled in space surrounded by upper board and beam where aquaplant is planted.</p>		<p>NOVELTY - Process for treating waste water containing sulfate and metal.</p> <p>NOVELTY - Nail like hook is attached on upper board and beam of raft. Net cutting piece is arranged at several places on upper board. Crater is provided to space surrounded by upper board and beam. A shellfish shell is filled in that space. Seed of useful plant, or tuber is embedded , seedlings are planted and are made to float in water area by using rope (8) and board bearing bar (7).</p>
<p>DE29917892-U1</p>	<p>Aquaculture pond has water inlet and outlet at same end above each other, waste-discharge unit, two water troughs, gates, artificial seaweed, mechanical filter in discharge pipe.</p>		<p>NOVELTY - The aquaculture pond has a water-inlet at one end of the pond (1) above the water surface and an outlet at the same end on the ground. The end has two triangular sectioned ground surfaces sloping towards the middle. At the deepest edge running along the middle is a discharge unit (8) for biological waste The water inflow creates waves. Two water troughs (5) along the end of the pond have gates (6) opening along their lengthwise sides to the pond. An artificial seaweed curtain (9) is suspended just below the surface to just above the base of the pond. the outlet contains a mechanical filter in a water discharge pipe (7).</p>

<p>WO200007689-A; EP1102617-A; WO200007689-A1; AU9951865-A; EP1102617-A1; ZA200100862-A; AU753635-B; US6558558-B1; EP1102617-B1; DE69924736-E</p>	<p>Fluid circulator for, e.g. methane digester has flexible tube having a honeycomb structure, apertures, container and flexible strings as supports, a fluid inlet and a fluid outlet.</p>	<p>HALL A R M</p>	<p>NOVELTY - A fluid circulator comprises a flexible tube (18) having a honeycomb structure; first apertures; second apertures; a container (10) and flexible strings as supports; a fluid inlet (26); and a fluid outlet (28). The first and second apertures are flow means.</p>
<p>US6025152-A</p>	<p>Denitrification of aqueous systems comprises adding mixture of bacteria including <i>Enterobacter sakazakii</i> and <i>Bacillus coagulans</i>.</p>	<p>HIATT W N</p>	<p>NOVELTY - A denitrification method for treating nitrogen containing aqueous systems comprises adding a mixture of bacteria including <i>Enterobacter sakazakii</i> and <i>Bacillus coagulans</i>. NOVELTY - System for filtering aquaculture water comprising aquaculture tank (23); vertical filtration tank (1) which has a top higher than the water level in the aquaculture tank, with a screen (3) which spans the tank horizontally above the height of the water level in the aquaculture tank; bed of buoyant filter media (2) below the screen, of particles larger than the screen openings; inlet (10) to filter tank below filter bed; circulation pump (11) ; gas supply inlet (9) below filter bed; outlet (5) from filter tank above screen. When water is being pumped up through filter tank, filter media is constrained by screen; when pumping ceases, water level in filter tank drops to level in aquaculture tank, allowing agitation of filter media.</p>
<p>US6015497-A WO200002443-A; EP1094701-A; WO200002443-A1; AU9946475-A; EP1094701-A1; EP1094701-B1; DE69900511-E; IT1304565-B; AU754855-B</p>	<p>Filter system for aquaculture tank.</p> <p>Improved apparatus for oxygenating water in a basin, particularly useful in aquaculture and treatment of waste water and industrial effluent.</p>	<p>STEEN A C</p> <p>BECCHI S</p>	<p>NOVELTY - Improved apparatus for oxygenating water in a basin comprises a cover (1) defining a closed volume, where oxygen will be introduced, above a device for oxygenation/mechanical mixing of the water. The cover (1) is mounted above a frame (2) to form a whole raft (11) having floating units (3, 4) with a shutoff valve (5) to regulate the supply of oxygen and controlled by a float.</p>

AU9933146-A	Pond bottom treatment apparatus for cleaning and extracting waste biological-type material from ponds, dams, lagoons, reservoirs and other like-type bodies of water used in aquaculture.	MASSARD J	NOVELTY - A pond bottom treatment apparatus comprising an open bottom housing, a flow inducer to lift or entrain biological-type material from the pond bottom and a piping carrying the flow to a collection point, is new.
WO9950185-A; WO9950185-A1; AU9931284-A	Microorganisms in water killed by applying pulsed rectangular dc waves through electrodes in liquid. Specific bacteriophage production useful as a treatment for aquaculture environments.	TAME D E	NOVELTY - Method of sterilizing or otherwise treating aqueous media by placing one or more pairs of electrodes in aqueous media; and applying a pulsed voltage with sharp transitions between the electrodes.
GB2335852-A		SMIRTHWAIT E M	NOVELTY - Isolation, identification, growth, purification and production process for specific bacteriophage using phage technology is new.
WO9940990-A; WO9940990-A1; AU9926824-A WO9934810-A; EP1047438-A; WO9934810-A1; AU9919562-A; EP1047438-A1; JP2002500088-W; US6495140-B1; EP1047438-B1; CA2317495-C WO9939589-A; WO9939589-A1; AU9922611-A; CN1295441-A; MX2000007765-A1 WO9932603-A; EP1032648-A; WO9932603-A1; AU9920073-A; EP1032648-A1; US6207440-B1; US6268154-B1; US6265206-B1;	Removing anionic pollutants from waste water with polymer.	KOFINAS P	NOVELTY - Removing anionic pollutants from waste water comprises contacting the waste water with an anion-binding polymer which absorbs the pollutants.
	Isolating non-polar extract from plants with organic solvent and polysaccharide gel matrix.	COLLINS F W	NOVELTY - Isolating a non-polar extractive comprises:
	Method of processing krill hydrolysates in combination with dry ingredients to produce fish food, or animal feed.	SAXBY D J	NOVELTY - Method of producing feed product by adding krill hydrolysate to liquid marine protein and dry carrier, and drying mixture. The dryer for agitating, heating and separating particles of the mixture is also claimed.
	A Nitrospira-like bacterial strain capable of oxidizing nitrite to nitrate, useful for alleviating or preventing the accumulation of nitrite in aqueous media.	HOVANEC T A	NOVELTY - An isolated bacterial strain capable of oxidizing nitrite to nitrate, comprising a nucleotide sequence, which is at least 95% similar to a 1654 bp sequence (given in the specification), is new.

BR9814463-A;
JP2002505079-W;
AU750945-B;
MX2000006211-A1;
MX238832-B

JP10276579-A

Plant growth promoter used in agriculture and horticulture - contains culture of microorganisms of genus Bacillus that has growth-promoting action on plant body.

Plant growth promoter contains the culture of microorganisms of genus Bacillus that has a growth-promoting action on the plant body.

Integrated aquaculture system comprising fish culturing subsystem with inlet for water and outlet for water degraded by fish excretion; vascular plant system for treating degraded water with inlet and outlet, comprising plant species adapted to remove excess nutrients and pollutants from degraded water to produce water with improved cleanliness; and cultured alga subsystem with inlet for water from aquatic plant subsystem and outlet connected to fish culturing subsystem inlet, for further removing excess nutrients, and for replenishing dissolved oxygen, the water leaving this subsystem sufficiently clean and oxygenated to support growth of desired fish species. A system and two methods are claimed.

US5820759-A

Integrated fish culture and waste water bioremediation system - has fish culture system, water hyacinth system and periphytic algae system operating in throughflow or recycle modes where plants are composted.

ZIVOJNOVIC
H M

The system (10) comprises a collector (12) designed to absorb heat from a solar or a waste heat source, and one or more elements, each containing a phase change substance having a relatively high latent heat of fusion, located within a wall and/or floor of the reservoir and thus being in heat conductive communication with the liquid. There is a heat transfer liquid recirculation system (16) coupled between the reservoir and the collector, the recirculation system designed to recirculate a heat transfer liquid between the reservoir and collector and thus transfer heat between the collector and one or more elements whereby, in use, heat collected by the collector can be absorbed by the heat transfer liquid and transferred via the recirculation system to one or

WO9817960-A;
WO9817960-A1;
AU9746107-A

Temperature central system controlling temperature of liquid within reservoir usable in aquaculture - includes series of collector heat transfer tubes and reservoir heat transfer tubes, with capsules containing phase change substance and reservoir heat transfer tubes set adjacent to each other within heat conductive layer.

MURPHY P L

JP10070969-A	Production of calcium composition - by removing liquid from pulverised animal bone, adding aqueous enzyme dispersion, decomposing organic material and removing aqueous portion.	<p>more elements located within the reservoir. The heat transfer liquid fuses and thus charges the phase change substance which can thereafter be crystallised whereupon it releases its latent heat of fusion and thus heats the liquid in the reservoir thereby controlling the temperature of the liquid.</p> <p>Production of calcium composition comprises (1) removal of liq. from pulverised animal bone free from meat, (2) addn. of an aq. dispersion contg. organic material degrading enzyme(s) and one or more bacteria, yeasts and moulds, (3) decomposition of organic material with aeration and stirring, and (4) removal of aq. portion and washing to give pulverised calcium, in which the procedure may be repeated several times. The enzyme is protease and/or lipase.</p>	
JP10070968-A	Production of calcium composition - by removing liquid from pulverised animal bone, adding enzyme dispersion and removing liquid.	<p>Production of calcium composition comprises removal of liquid from pulverised animal bone free from meat, partic. average sizes of 100-300 mesh, addn. of aq. dispersion(s) of protease and/or lipase, incubation at working temps. with stirring and removal of liq., partic. with centrifugation or filter press.</p>	
WO9808586-A; WO9808586-A1; AU9743286-A; US5792368-A WO9738573-A; WO9738573-A1;	Fluidised bed filter for aquarium system - in which water is pumped into inlet port of cylinder and fluidises the filter medium within cylinder. Aqua-culture system for growing fish and crustaceans - has rigid walled	ROBERTSON M B MEILAHN D E	<p>Apparatus consists of main hollow column (10) with one closed end forming a chamber with one open end. There is an inlet port (20), but no outlet port except for the open end of the chamber or an outlet channel. Filter medium (18) is located in the chamber. The force exerted by the material fluidises the filter medium (18) and the material exits through the open end of the cylinder or the outlet channel. Preferably the material to be filtered is water in an aquarium system. Additionally a sand trap may be located at the periphery of the main hollow column to catch any sand which exits over the top of the column.</p> <p>The aquaculture system comprises a rigid walled floating tank (24) which is held in position</p>

AU9726774-A;
US5762024-A;
CA2251965-C

floating tank with floating pump for clean water supply at selected temperature, and with conical bottom surface for collection of solid waste.

in a body of water (26) by lines (25) attached to mooring buoys (26). Clean water is supplied to the tank by a floating pump, which draws water, which is free from contaminants, from below the water surface. The water which is supplied to the tank renews the oxygen content of the tank water and the displaced water removes the waste products of the animals in the tank.

Production of a protein feedstock (I) comprises: (a) comminuting fishery waste (II); (b) adjusting to an acidic pH to encourage microbial digestion; (c) microbially digesting at 25-38 C; (d) screening to give a liquid phase, and (e) ageing the liquid phase. Also claimed are: (1) (I) obtained by the above process; (2) a fertiliser composition comprising (I) emulsified with an oily phase (preferably a fish or vegetable oil, especially a master composition comprising the oil phase and an emulsifier) forming 0.5-5 vol.% of the composition; (3) production of an oil master composition for use in oil-in-water emulsion fertiliser compositions, by treating a vegetable oil with sufficient surfactant (preferably nonionic) to emulsify the oil in an aqueous phase, removing precipitated gum and adding an antioxidant (preferably dl-tocopherol acetate); (4) comminuter apparatus including a housing having an inlet opening including a shearing edge; a shearing blade rotatable in the housing, having a leading edge extending outward from a hub portion of the blade having an outer edge portion curving in the direction of rotation and adapted to cooperate with the shearing edge, and mincing blades mounted for co-rotation with the shearing blade, and (5) a nematocidal soil treatment involving applying (I) to the soil.

The feeding system for cultured species, e.g. fish, has an aquaculture system (1) housing the fish. The fish are fed by a centralised feed

WO9724933-A;
WO9724933-A1;
ZA9700080-A;
AU9711863-A
WO9719587-A;
EP883338-A;
WO9719587-A1;

Protein feedstock production from fishery waste used as fertiliser, feed supplement or nematocide - by comminuting, acidifying, microbially digesting, screening and ageing. Computerised system for controlling feeding in cultured fish tank - has sensor located in tank and sensing feed rate

ANVARI F

BLYTH P J

<p>AU9676129-A; NO9802353-A; EP8833338-A1; AU706385-B; US6000362-A; JP2000500349-W; US6443098-B1; JP3493029-B2 EP847446-A; WO9702356-A; WO9702356-A1; AU9661824-A; EP847446-A1; AU701745-B; BR9609323-A; JP11508772-W; MX9800127-A1; KR99028736-A; NZ310923-A; TW424110-A; US6444448-B1; CN1192247-A; EP847446-B1; DE69630455-E</p>	<p>from supply and varying feed rate according to needs of cultured species.</p>	<p>system, e.g. a canon (3) or hopper. A sensor (5) is located at a depth below the normal feeding depth of the fish. A funnel (6) collects a sample of the feed passing through the system. The sensor is able to detect data relating to the amount of feed passing through the system and convey (7) this to a control unit (8).</p>	
<p>US5579723-A</p>	<p>Auto-lytic prodn. of beta-glucan-mannan compsn. from cells, e.g. yeast - gives immuno-stimulatory, anti-infective, hypo-cholesteraemic and metal excreting prod., opt. added to food or animal drinking water. Attractant, stimulant, incitant or excitant cpds. for crustacea - of genus Penaeus, comprising N-acetyl-D-glucosamine, methionine or deriv., tri:methylamine oxide hydrate or DMSO etc., used in aquaculture.</p>	<p>WHEATCROFT R</p>	<p>Prodn. of an immunostimulatory -glucan-mannan (BGM) prepn. comprises autolysis of microorganism cells at pH 5-6 and temp. 35-60 C for 6-48 hrs. and sepg. the solid material from the autolysed prod.</p>
<p>JP8228634-A</p>	<p>Floating/sinking type fish cultivation unit used as pool for sea bathing, aquaculture - connects fishing net and buoyant body to anchors using ropes.</p>	<p>ELLIS J C</p>	<p>The preservation unit has a tyre (1) which is joined to a middle rim which is made up of steel or resin. An end rim is set up at both ends of the tyre to form a buoyant body. System (10) comprises a single sludge reactor (14) producing mixed liquor which flows into a clarifier (15) having both clarification and settling zones. The settled sludge is removed to a sludge lagoon (6) and the clarified supernatant fraction flows to an aquaculture pond (12) to polish the</p>
<p>WO9626906-A; WO9626906-A1; AU9649971-A; US5736047-A</p>	<p>Hybrid biological nutrient removal system - using reaction and clarifying tanks followed by polishing pond means, useful for treating waste water flows.</p>	<p>NGO V H</p>	

<p>WO9613970-A; WO9613970-A1; AU9641448-A</p>	<p>Removing pollutants from waste water for biomass prodn. - comprises subjecting algal spores on growth surface to light, adjusting pH and harvesting algal turf, useful in removing e.g. phosphorus@ and heavy metals from water.</p>	<p>ADEY W H</p>	<p>effluent to provide a further redn. in contaminants. Removing pollutants from water comprises: (i) forming a growing surface for algal spores overlain by a thin layer of water; (ii) subjecting the spores to light so as to grow algal turf; (iii) adjusting the pH of the water to 9-10.5; and (iv) harvesting a part of the algal turf after the pollutants have pptd. on the walls of the growing algae. Also claimed is a method for producing biomass comprising steps (i)-(iii) as above and harvesting part of the resulting algal turf.</p>
<p>RD381042-A EP766651-A; WO9535263-A; WO9535263-A1; US5482630-A; AU9528684-A; US5556536-A; NO9605489-A; EP766651-A1; JP10504229-W; CN1154096-A</p>	<p>Rapid pressure swing adsorption process for prodn. of oxygen@-enriched air - in which compressed feed air is dried using desiccant at ambient temp. and subsequently regenerated by heating with dry gas.</p>		<p>In a rapid pressure swing adsorption process (RPSA) producing oxygen-enriched product gas from ambient air, the compressed feed air is dried prior to introduction into the RPSA process using a conventional thermal swing adsorption (TSA) scheme. The water is selectively adsorbed from the air on a desiccant, e.g. alumina, at near ambient temp.. The adsorbent is regenerated thermally by heating with a dry gas. The heat of regeneration is obtained by recovering part of a burner waste gas.</p>
<p>CA2118783-A; CA2118783-C; US5593574-A</p>	<p>Redn. of nitrate to nitrogen@ in a fluid medium e.g. aquarium water - using anaerobic bacteria in a controlled system. Water treatment system esp. for use with fish culture tank - has floating media pellets cyclically and repeatedly dynamically loaded by overhead distribution of particulate-contg. waste from tank.</p>	<p>LEE P G</p>	<p>Clarified waste water which still contains fine particulates and dissolved waste, is treated in a biofilter. This comprises a tank (140) containing water and a floating bed of biofilter media pellets having a density of 0.91-0.93. A manifold (120) delivers the waste water to an overhead spray</p>
		<p>VANTOEVER J W</p>	

EP686344-A; EP686344-A1

Antialgal compsn. for e.g. pulp and paper mfr., cooling water, etc. - comprises di:phenyl-ether e.g. oxyfluorofen and halo-di:alkyl-hydantoin.

SHERBA S E

EP784598-A;
WO9609988-A;
US5462666-A;
WO9609988-A1;
AU9537602-A;
NO9701468-A;
EP784598-A1;
MX9702325-A1;
AU716311-B;
CN1179769-A;
MX201283-B

Purification of nutrient-rich water - by successive treatment with insoluble basic salt and supported aerobic and anaerobic microorganisms.

KIMMEL R C

system (128) which distributes it over the top of the bed. Areas of the pellets are cyclically and repeatedly dynamically loaded by the spray to gently agitate them. Filtered water is removed through an outlet (156) below the media pellets and above the tank bottom.

Nutrient-rich water containing N and P cpds. and other minerals is treated by (a) feeding the water to a first reaction vessel (I) having a first zone (Ia) containing a substantially insoluble basic salt, and a second zone (Ib) containing aerobic microorganisms on an inert substrate; (b) controlling flow of water to maintain the pH in (Ia) for precipitating P cpds. and other minerals, and to biologically oxidise nitrogen cpds. to nitrites and nitrates in (Ib); (c) separating pptd. P and minerals from the water; (d) feeding the water to a second vessel (II) having a first zone (IIa) containing basic salt and a second zone (IIb) containing anaerobic microorganisms on an inert substrate; (e) controlling the water flow to maintain pH and P pptn. conditions in (IIa), and to biologically reduce nitrites and nitrates to nitrogenous gas in (IIb); (f) - as (c); (g) feeding the water to a third vessel (III) having a zone (IIIa) containing basic salt and a zone (IIIb) containing aerobic microorganisms on an inert support; (h) aerating (IIIb); (i) controlling water flow to maintain pH and P pptn. conditions in (IIIa) and to biologically oxidise unoxidised nitrogen cpds. to nitrates in (IIIb); (j) - as (c); and (k) removing water from (III). The six specified zones may be in 6 separate reaction vessels rather than in the three vessels (I), (II) or (III). Suitable apparatus is claimed.

US5445740-A	Biological waste water treatment esp. for high density aquaculture of catfish, tilapia, alligators, clams - has water tank with floating media covered with biofilm, floc, screen limiting upward movement of media and rotary liq. circulator that does not damage biofilm floc.	MALONE R F	<p>A biofilter has a tank (2) with liq. inlet (26) and outlet (10), a sludge outlet (36) and a floating media pack (12) covered with a biofloc film when the tank is filled with liq.. A screen (13) is positioned above the pack and is sized so the pack cannot pass through it. A rotary liq. circulator operates at less than 200 rpm to keep vol. of the pack constant and not damage the film during backwashing. In one aspect the tank has a side wall whose lower sloping part, the inlet is below the media device, the outlet is above the screen and the sludge outlet is at the bottom. Also claimed is a method of operating the biofilter as above.</p> <p>One or more heated electrically-responsive temp.-sensitive sensing elements are provided. At least one of the heated electrically-responsive temp.-sensitive sensing elements generate an electrical signal in response to temp. changes produced by the removal of heat by fluid flow to be measured. Cyclically relative motion is produced between the fluid flow and the at least one heated electrically-responsive temp.-sensitive sensing element.</p>
US5390541-A	Flow meter for measuring extremely low flow rates - using electrically responsive heated elements and measurement of magnitude of cyclic electric signal corresp. to fluid flow.	FELLER M F	<p>Biofilter has a filter media pack within a tank having a constriction sepg. the tank into a filter chamber above an expansion chamber. An inlet supplies liq. to be filtered into the lower part of tank and filtered liq. leaves by an outlet with screens preventing the passage of filter media from the tank via the inlet or outlet. A sludge line controlled by a valve is connected to the tank below the lower filter to remove sludge from the tank, and an air inlet feeds water into the expansion chamber to disturb the filter media pack during backwash of the biofilter.</p>
WO9407801-A; EP662930-A; US5232586-A; WO9407801-A1; AU9453703-A; EP662930-A1; CA2145503-C	Bio-filter having filtration chamber above expansion chamber - is sepd. by constriction which converges filter media during backwashing.	MALONE R F	<p>The system includes a combined rotating biological contactor and evaporative cooler used in treating recirculating water. The contactor</p>
US5227055-A	Aquaculture reuse system for rearing fish - comprises rotating biological contactor nitrifying water and removing	TIMMONS M B	

	contaminants to maintain water temp. at pref. level, and water treatment appts..		nitrifies dissolved nitrogenous waste in the contaminated water and maintains the water at a temperature near the wet-bulb temp. of the surrounding air. The contactor has tubular contacting media mounted on a rotatable shaft and coated with bacterial film.
US5178093-A	Aquaculture device for raising fish and marine life - has water retaining vessel with discrete open-cell foam substrate provided with surface contact area for circulation through vessel.	REESE K	A water retaining aquaculture vessel has a bottom and side wall along with an air lift system. Particular material is removed from the bottom of the vessel through conventional extraction apparatus. Discrete open-cell foam substrate members are provided with surface contact area for continuous circulation through the aquaculture vessel. An appts. prepares a particulate, proteinaceous product from raw protein-contg. animal parts. It consists of a mulling device for grinding the parts, and a hydrolyser which enzymatically hydrolyses the protein to form an aq. suspension. Non-digestible solids are removed from the suspension in a separator. Oil is added to the separator outlet to form a protein-oil suspension which is then concentrated to partially dehydrate it forming an oleaginous suspension of partially hydrolysed protein. Finally, a portion of the oil is removed to form the particulate, proteinaceous product.
US5113755-A; CA1314256-C EP488606-A; EP488606-A1; AU9188235-A; BR9105079-A; CA2054523-A; JP5025006-A	Appts. for producing proteinaceous prod. from animal trimmings - has mulling, hydrolysing, screening, concentrating and oil sepn. stages.	ANDERSON P S	Compsn. comprises 4,5-dichloro-2-n-octyl -3-isothiazolone (I) and a fatty acid cpd. (II) of formula $C_nH_{2n+1}CO_2H$ ($n = 2-9$) in a ratio of 0.001:100 to 10:100, pref. 0.01:100 to 1:100.
US5104668-A	New antimicrobial compsn. - comprises 4,5-di:chloro-2-N-octyl-3-isothiazolone and fatty acid cpd. pref. in synergistic combination. Removing embryonic artemia brine shrimp eggs from cyst casings - by rehydrating unhatchable cysts in non-saline water, mechanically rupturing cysts and sepg. slurry from casing fragments.	SHERBA S E COLE D	Embryonic Artemia brine shrimp eggs are removed from their cyst casings by (a) rehydrating unhatchable cysts in non-saline water until the weight doubles; (b) mechanically rupturing the rehydrated cysts without damaging the internal egg contents to produce an aq. slurry of cyst contents and casing fragments and (c)

<p>EP454888-A; CA2015776-C; CA2015776-A</p>	<p>Low cost non-toxic stable ligno-sulphate-urea-formaldehyde compsn. - use as binder for feed, board mfr., as dust redn. coating, etc..</p>	<p>SCHMITT L G</p>	<p>sepg. the slurry from the casing fragments to obtain a slurry of cyst contents. A non-toxic, stable compsn. includes in soln.; (a) 55-95 pts. methylol lignosulphonate-urea-formaldehyde polymer; (b) 1-28 pts. sugars; and (c) 1-30 pts. oligosaccharides.</p>
<p>CA1341186-A1; US5055186-A; CA1341186-C EP575314-A; WO9111396-A1; WO9111396-A; AU9171416-A; SE9102542-A; DK9101620-A; FI9203336-A; NO9202904-A; NO172687-B; JP5504295-W; EP575314-A1; EP575314-B1; DE69104629-E; ES2064083-T3; US5458779-A; US5543039-A; SE504409-C2; CA2074470-C; JP3183406-B2; FI112355-B1; EP575314-B2; DK175924-B; FR2679547-A1; CZ9102189-A3; SK9102189-A3;</p>	<p>Processing chamber for fluidised bed treatment of liq. - using gas bubbles to prevent the outlet manifold becoming clogged.</p>	<p>VANTOEVER J W</p>	<p>Chamber (70), for treatment of liq. by fluidising pellets with microorganism growth thereon, has an inlet for the liq. to be treated, a fluidising wash of the side walls to cause fluidisation of pellets in the chamber, and an outlet manifold (84) near the bottom of the chamber for the removal of processed liq. A gas bubble generator is associated with the outlet manifold to prevent clogging by the pellets used in the chamber.</p>
	<p>Purificn. of waste water - in reactor contg. enlarged surface carriers bio-film.</p>	<p>ODEGAARD H</p>	<p>Waste water is fed through a reactor containing carriers having a biofilm which promotes a desired conversion of impurities. The carriers are particulate elements having a larger surface than smooth elements of the same overall dimensions and having a density of 0.90 to 1.20, the carriers being kept suspended in the water in the reactor.</p>

HU66837-T; CZ281167-B6; SK279389-B6; HU220664-B1

US4894149-A Bacterial filter comprises middle divided perforated tube - with filter media between outer imperforate tube with outlet and inner divided perforated tube with inlets at each end.

BLOCK S J

Filter comprises inner and middle perforated tubes (40, 46), laterally divided (50), and an imperforate outer tube (48). The inner tube has first and second inlets (22, 24) at opposite ends and the outer tube has an outlet (32). Filtration media is provided in the middle tube and can be a gravel, e.g., of desert origin. The dividers can be of resilient material, e.g., neoprene rubber. The filter can be used in aquaculture with a prefilter and aeration device.

IL75435-A Determn. of duckweed clones for protein prodn. in aqua:culture - includes using containers contg. waste nutrients etc. and culturing in presence of ammonia, measuring dry mass of duckweed produced etc..

PORATH D

Determining the suitability of a duckweed clone for aquaculture comprises (a) providing a number of containers with minerals and organic waste material intended for use as duckweed nutrient; (b) separately placing a predetermined density of biomass of a specific duckweed clone in an aq. medium in each container; (c) adjusting and maintaining the ammonium concn. in the container in range of about 25 to about 200 mg ammonia per litre; (d) measuring dry mass output, protein output and relative growth rate of various duckweed clones in the containers as a function of time; and (e) selecting and cultivating duckweed clones which at an initial density of between about 400 g/m² and 600 g/m² yield a dry mass output of at least 7.5 g/m²/day, and a protein output of at least 2.5 g/m²/day, and exhibit a relative growth rate of at least 0.15 g/g/day in the aq. medium.

US4913093-A Intensive aquaculture system e.g. for fish - introduces newly-hatched fish into tank and periodically sub-divides first fish population and transfers into another tank.

VANGORDER S

The method comprises the steps of introducing a first fish population of fingerlings into a first tank; periodically subdividing the first fish population into a multiple of it and introducing each subdivided fish population into a separate tank of a corresp. number of additional tanks as the fish capacity of the first fish population

EP328474-A1;
EP328474-A;
FR2626869-A;
JP1281198-A;
US4995980-A;
EP328474-B;
DE68901146-E;
ES2032234-T3;
JP2665789-B2

Water purificn. - involves aerobic and anaerobic fermentation in single process esp. used for aqua-culture.

JAUBERT J

FR2612812-A

Pelleting waste gypsum after removal of adherent impurities - by double washing and filtration, useful e.g. in waste water treatment, as fire extinguisher, fertiliser, etc..

TILLIE E L

EP225237-A;
FR2589460-A

Liquid treatment water injector with venturi - leading via expansion and flow shaping chambers to flat jet nozzle.

DODIER J

becomes equal to or somewhat greater than the tank capacity of the first tank.

Water to be treated circulates in a vessel fitted with an aeration device and is illuminated with a sun lamp at its surface. Organic material in suspension falls onto a suspended bed raised above the vessel(s) floor. Microflora within the bed react with the organic material. Aerobic fermentation occurs on the bed surface and anaerobic fermentation deep within the bed, and in the oxygen poor dark zone under the bed. The system can be used in aquaria or aquaculture tanks, in either closed or open circuit systems. It is particularly useful when water changes are impractical or undesirable. The process can also be used in purifying domestic or industrial waste waters and is particularly useful in reducing nitrate and ammonia levels. Several process chambers can be mounted in line to facilitate continuous treatment of effluent. Alternatively the bed supporting the microflora, and enclosing the dark zone, can be mounted vertically in the enclosing chamber, economising on space in a continuous treatment system.

Prod'n. of pellets from residual phosphogypsum involves modifying the filter design such that the CaSO_4 hemihydrate/dihydrate (formed by reacting phosphate rock with H_2SO_4) is subjected to a double washing, followed by two successive filtrations at the end of the chemical reaction. This treatment results in removal of impurities (esp. CaF_2) coating the hemihydrate crystals so that conversion to pellets is facilitated. The process can be applied to synthetic gypsum cake (followed by adding an organic or inorganic binder and pelleting in a drum).

A water injector for liquid treatment has an inlet for pressurised water, a venturi connecting the inlet to an expansion chamber, and a flow

FR2588548-A	Controlled regeneration of waste waters contg. (in)organic pollutants - by action of light, oxygen and solid oxidn. catalyst.	BERNARD M L	<p>shaping chamber connecting the expansion chamber to a flat nozzle 2-50 cm. above the surface of the liquid in a reservoir and at an angle of 20-40 deg. to it.</p> <p>Controlled regeneration of water contg. (in)organic substances with polluting props. comprises subjecting the water to the conjugated action of light, oxygen and a solid oxidation catalyst. Pref. the catalyst is a simple or complex oxide of a transition element of atomic no. 21-58 or of thorium.</p> <p>The membrane (I) contains a crotonate ester polymer with repeating units of formula (I) R=alkyl, cycloalkyl, aryl, aralkyl, fluoroalkyl, trialkylsilyl, trialkyl-s-lylalkyl, or siloxane-contg. alkyl. Pref. R=1-10C alkyl; 5-10C cycloalkyl; Ph; - (CH₂)_m-(CF₂)_n-Z where Z=F or H, m=1 or 2, n=1-10; where R₁-R₃=1-4C alkyl; I_b where R₄-R₆=1-4C alkyl and p=1-10; or I_c where R₇-R₁₁=1-4C alkyl, q=1-10, r=1-100. Polymer contains not less than 50 mol % repeating units of formula (1), and partic. consists only of such units. Polymer has intrinsic viscosity 0.05-10 at 25 deg.C (I) is 0.05-30 microns thick. (I) has O₂-permeation coefft. more than 10⁻⁹ cub. cm. (STP) cm/cm² sec cm Hg and ratio O₂:N₂ permeation coeffts. more than 3.5.</p>
DE3541011-A; JP61125423-A EP165160-A1; EP165160-A; PT80539-A; FR2564695-A; ZA8503893-A; ES8606977-A; US4716854-A; CA1260325-A; EP165160-B; DE3579756-G; KR9000901-B	Selective membrane for sepn. of gases(s) partic. oxygen from nitrogen - comprises polymer of crotonate ester.	ITOH H Y	<p>The farm consists of at least two floating modules (12,14) which are arranged in a line running at right angles to the average direction of the currents in the surface layer of the sea. The modules are sufficiently far one from another that waste products from one module do not affect any other module.</p>
GB1594832-A	Deep sea fish farm - includes floating modules located in line perpendicular to surface currents. Circular aquaculture tank with frusto-conical floor - has hopper beneath floor to collect waste and nozzles to	BOURDON A	<p>The aquaculture tank is circular in plane and has a series of nozzles (10) beside the peripheral</p>

create circular flow path.

GB2023981-A;
DE2925759-A;
FR2429559-A;
CA1082999-A;
GB2023981-B

Removing solid waste from aquaculture tank - by fast opening and closing of valve at bottom of tank to produce pulsed wave.

GUERRA R J

wall (2). These create a spiral flow of water which exits through an outlet pipe (12) situated at the vertical axis of symmetry of the vessel.

A system for removing waste solids from the bottom of an aquaculture tank consists of a tapered, funnel shaped bottom member (14) and a fast opening and closing valve (20) at the base of the member. Settled waste is dislodged and removed from the tank in a double pulsed flushing operation in which the valve is first opened and then rapidly closed to produce a pulsed valve to breakup slurry.

Liquid waste is pretreated by pumping it through a pipe into an aerator. The waste is horizontally discharged from a reduced diameter nozzle within the aerator into an elongate mixing chamber having a uniform-cross-section. The shearing action on the horizontally discharged gas first breaks up organic solids. Air is aspirated into the mixing chamber around the nozzle and this becomes mixed with the waste first due to the turbulence within the mixing chamber and secondly by passage of the mixture abruptly from the mixing chamber into a large cross-sectional area at ambient pressure.

US4082662-A

Compact aspirator for waste liquid aeration - with elongate mixing chamber downstream of aspiration point.

PRINCE J E

A liquid waste treatment unit includes a frame-mounted pump having an inlet and an outlet. The inlet is connected to a waste liquid source and the outlet is adjustably connected to a horizontal aerator. The aerator includes a nozzle discharging into the opening of a mixing chamber which has a uniform cross section. The outlet of the mixing chamber communicates directly with an ambient press. zone having a greater cross sectional area. The aerator nozzle has an outer dia. of 80%-90% of the inner dia. of the opening of the mixing chamber. The appts. may be used in the treatment of liquid sewage, to aerate water to reduce its mineral content, or in an

US3996139-A

Waste liquid aeration and return system - including aspirator having elongate mixing chamber.

US3957017-B1;
US3957017-A;
JP51069098-A

Contaminant filter in closed-loop aquaculture system -
filter being of foam formed by reacting hydroxylated ether
with diisocyanate.

aquaculture system. Additionally the aerator may be used to infuse cool air into hot waste liquid to reduce its temp. The system provides a self-contained extraction, aeration and return unit which may be fitted into existing liquid circuits.

Marine animals are placed in a container holding water and are retained there by a screening device. Waste passes from the container to a biological filter which has a liquid inlet at its base above which is a liquid permeable support on which rests a porous medium on which grows nitrosomonas and nitrobacter organisms. A liquid outlet is positioned above the porous medium. The water is transferred to a polyurethane foam filter made by reacting a poly(oxypropylene)glycol with a tolylene diisocyanate. Water from the foam filter is returned to the animal-holding container. The system is used for the farming of aquatic animals such as prawn larvae. The foam filter serves to extract certain toxic chemicals from the water. These include chlorinated hydrocarbons, polychlorinated biphenyls, phthalate esters and certain toxic heavy metals such as iron, coppers etc.