

--- F.Supp.2d ---

United States District Court,  
D. Maine.  
UNITED STATES PUBLIC INTEREST RESEARCH GROUP, et al., Plaintiffs  
v.  
**ATLANTIC SALMON OF MAINE, LLC.**, Defendant  
United States Public Interest Research Group, et al., Plaintiffs  
v.  
Stolt Sea Farm, Inc., Defendant  
No. CIV.00-151-B-C, CIV-00-149-B-C.  
May 28, 2003.

Environmental organizations brought citizen suit alleging that salmon farms released pollutants into water in violation of Clean Water Act (CWA). After bench trial, the District Court, Gene Carter, Senior District Judge, held that: (1) doctrine of primary jurisdiction did not bar court from considering injunctive relief; (2) farm operators were subject to statutory damages of \$50,000; and (3) immediate and permanent injunction against use of non-North American strains of **Atlantic salmon** was necessary. Judgment for plaintiffs.

#### West Headnotes

#### [\[1\] KeyCite Notes](#)

Action  
Commencement, Prosecution, and Termination  
Stay of Proceedings  
Another Action Pending  
k. Actions and Administrative Proceedings. [Most Cited Cases](#)

Administrative Law and Procedure  
Judicial Remedies Prior to or Pending Administrative Proceedings  
k. Primary Jurisdiction.

Pursuant to doctrine of "primary jurisdiction," court may defer or stay litigation pending administrative agency's consideration of issues presented in suit.

#### [\[2\] KeyCite Notes](#)

[149E](#) Environmental Law  
[149EXIII](#) Judicial Review or Intervention  
[149Ek664](#) k. Primary Jurisdiction. [Most Cited Cases](#)

Doctrine of primary jurisdiction did not bar court from considering injunctive relief aspects of citizen suit alleging that salmon farms released pollutants into water in violation of Clean Water Act (CWA), even though Environmental Protection Agency (EPA) had central responsibility for determining conditions to be placed on salmon farming operations regarding permissible discharge of pollutants, and state was currently working on permit for sea farms to enforce requirements of CWA, where EPA delegated its responsibility to state after failing to act for eleven years on farms' permit applications, and state was more than one year beyond agreed deadline for final permit decision. [33 U.S.C.A. § 1365\(b\)\(1\)](#).

#### [\[3\] KeyCite Notes](#)

[170B](#) Federal Courts  
[170BVI](#) State Laws as Rules of Decision  
[170BVI\(C\)](#) Application to Particular Matters  
[170Bk422](#) Limitation Laws  
[170Bk424](#) k. Federally Created Rights. [Most Cited Cases](#)

When federal statute contains no limitations provision, federal court should apply most appropriate statute of limitations provided by state law, unless there is relevant federal statute of limitations.

[\[4\] KeyCite Notes](#)

[149E](#) Environmental Law

[149EXIII](#) Judicial Review or Intervention

[149Ek668](#) Time for Proceedings

[149Ek670](#) k. Periods Applicable. [Most Cited Cases](#)

General five-year federal statute of limitations applied to citizen action seeking enforcement of civil penalties under Clean Water Act (CWA). [28 U.S.C.A. § 2462](#); [33 U.S.C.A. § 1365](#).

[\[5\] KeyCite Notes](#)

[149E](#) Environmental Law

[149EV](#) Water Pollution

[149Ek223](#) k. Penalties and Fines. [Most Cited Cases](#)

Operators of salmon farms that released pollutants into water in violation of Clean Water Act (CWA) for thirteen-year period were subject to statutory damages of \$50,000, even though violations inflicted significant short-term damage on environment in immediate vicinity of pen sites, endangered survival of wild **Atlantic salmon**, and benefitted operators by enhancing cash flows, where past damage done to areas immediately around pens would be naturally repaired by single-year-class stocking and appropriate fallowing periods on completion of harvesting of fish, damage done to wild salmon in past by escapes of non-North American stock could not be quantified, operators had not shown profit in prior two years, operators timely submitted permit requests to federal and state agencies, but agencies made almost no effort for over thirteen years to provide necessary permit-based standards, operators made some efforts to mitigate negative impact of their operations, and enforced compliance in future with complete and adequate environmental regimen would entail significantly increased costs in farms' operations. [33 U.S.C.A. § 1319\(d\)](#).

[\[6\] KeyCite Notes](#)

[212](#) Injunction

[212IV](#) Preliminary and Interlocutory Injunctions

[212IV\(A\)](#) Grounds and Proceedings to Procure

[212IV\(A\)2](#) Grounds and Objections

[212k138.1](#) k. In General. [Most Cited Cases](#)

In determining whether it is appropriate to order preliminary injunctive relief, court must consider (1) likelihood of success on merits; (2) potential for irreparable harm if injunction is denied; (3) hardship to nonmovant if enjoined as contrasted with hardship to movant if no injunction issues; and (4) effect, if any, of court's ruling on public interest.

[\[7\] KeyCite Notes](#)

[212](#) Injunction

[212I](#) Nature and Grounds in General

[212I\(B\)](#) Grounds of Relief

[212k9](#) k. Nature and Existence of Right Requiring Protection. [Most Cited Cases](#)

Standard for issuing permanent injunction is substantially same as that applied to request for preliminary injunctive relief, except that plaintiff must prove actual success on merits rather than likelihood of success on merits.

[\[8\] KeyCite Notes](#)

[149E](#) Environmental Law

[149EXIII](#) Judicial Review or Intervention  
[149Ek699](#) Injunction  
[149Ek700](#) k. In General. [Most Cited Cases](#)

Immediate and permanent injunction against use of non-North American strains of **Atlantic salmon** in salmon farms was necessary in public interest, pursuant to Clean Water Act (CWA), to protect endangered wild **Atlantic salmon** populations in Maine; injunction would remove principal hazard posed by farms' operations to health of wild populations and would significantly promote health of species. [33 U.S.C.A. § 1365](#).

[\[9\]](#) [KeyCite Notes](#)

[149E](#) Environmental Law  
[149EXIII](#) Judicial Review or Intervention  
[149Ek699](#) Injunction  
[149Ek700](#) k. In General. [Most Cited Cases](#)

Salmon farms operators would not be permanently enjoined, pursuant to Clean Water Act (CWA), from using net pens or chemical, metals, and antibiotics, even if such practices damaged benthos and other marine life, where harm that would be done could be naturally remedied by requiring operators to comply with effective regulatory protocol defined by standards articulated in meaningful permitting process. [33 U.S.C.A. § 1365\(b\)](#). Bruce M. Merrill, Portland, ME, David A. Nicholas, National Environmental Law Center, Boston, MA, Charles C. Caldart, National Environmental Law Center, Seattle, WA, Joseph J. Mann, National Environmental Law Center, Joshua R. Kratka, National Environmental Law Center, Boston, MA, for United States Public Interest Research Group, Stephen E Crawford, Charles Fitzgerald, Plaintiff.

[Jeffrey A. Thaler](#), Bernstein, Shur, Sawyer, & Nelson, [Peter W. Culley](#), Pierce, Atwood, [Elizabeth R. Butler](#), Pierce, Atwood, [Gregory M. Cunningham](#), Bernstein, Shur, Sawyer, & Nelson, Portland, ME, for **Atlantic Salmon** of Maine, LLC Defendant.

[Charles A. Harvey, Jr.](#), Harvey & Frank, Portland, ME, for Biotechnology Industry Organization.

[Michael A. Nelson](#), Jensen, Baird, Gardner & Henry, Portland, ME, for Heritage Salmon Inc.

[Peter W. Culley](#), Pierce, Atwood, [Elizabeth R. Butler](#), Pierce, Atwood, Portland, ME, for Stolt Sea Farm, Inc.

## FINDINGS OF FACT, MEMORANDUM OF DECISION AND ORDER ON REMEDIAL AND INJUNCTIVE RELIEF, ORDER AND INJUNCTION

[GENE CARTER](#), Senior District Judge.

### I. PROCEDURAL BACKGROUND

\*1 These cases are before the Court for determination, after an evidentiary hearing, of issues relating to the remedies and injunctive relief to be granted to Plaintiffs in consequence of this Court's previous determination that Defendants' operation of their salmon farm aquaculture pen sites is in violation of the requirements of the Clean Water Act ("CWA"), [33 U.S.C. §§ 1251 et seq.](#), as alleged in Plaintiffs' Complaint. A bench trial on the subject issues was commenced on October 8, 2002, and concluded on October 17, 2002. The matter was taken under advisement on January 14, 2003. [\[FN1\]](#) The Court herewith renders its findings of fact and decision on the remedial and injunctive relief aspects of the cases.

### II. FINDINGS OF FACT

The facts as established in proceedings herein prior to the hearing on remedial and injunctive relief are cogently stated in the Magistrate Judge's Recommended Decision on Plaintiffs' Motion for Summary Judgment and Defendant's Motion for Summary Judgment, entered on February 19, 2002, and affirmed by this Court's Order Affirming the Recommended Decision of the Magistrate Judge, entered on June 17, 2002. [\[FN2\]](#) The facts as there stated in pertinent part are as follows:

#### A. The Parties

Plaintiffs consist of the United States Public Interest Research Group, a national organization dedicated to environmental protection, and two individuals, Stephen Crawford and Charles FitzGerald, members of USPIRG. (PSMF ¶¶ 144-145.) Collectively, the plaintiffs will be referred to as "USPIRG." USPIRG initiated this citizen suit claiming that ASM's salmon farms release pollutants into the water in violation of the Clean Water Act. (Am. Compl. at 1.)

Defendant, **Atlantic Salmon** of Maine, LLC ("ASM"), owns and operates five salmon farms known as Stone Island, Libby Island, Starboard Island, Cross Island North, and Cross Island. (Pls.' Statement of Material Facts (PSMF) ¶ 1.) These farms are located off the Maine coast in Machias Bay. (Def.'s Statement of Material Facts (DSMF) ¶ 1; PSMF ¶ 12.) ASM's other two salmon farms are called Flint Island and Dyer Island and are located in Pleasant Bay. (PSMF ¶ 1.) ASM also owns one hundred percent of the stock of both Treat's Island

Fisheries and Island Aquaculture. (PSMF ¶¶ 2-3; Def.'s Resp. Pls.' Statement of Material Facts (DRSMF) ¶¶ 2-3.) Treat's Island Fisheries, located in Cobscook Bay, consists of four farms and Island Aquaculture in Blue Hill Bay consists of three farms. (*Id.*) Although an ASM production manager manages these sites (PSMF ¶ 6), it is disputed that ASM is responsible for regulatory compliance. (PSMF ¶ 5; DRSMF ¶ 5.)

Defendant, Stolt Sea Farm, Inc. ("Stolt"), owns and operates three salmon farms known as Johnson Bay, Rogers Island North, and Rogers Island South. (Pls.' Statement of Material Facts (PSMF) ¶ 1.) The farms are located in Cobscook Bay. (*Id.* ¶ 1.) Stolt also owns D.E. Salmon, which consists of two salmon farms known as Booth and Gove Point, both located in Cobscook Bay. (*Id.* ¶¶ 2-3.)

### **B. ASM's Fish Farm Operations**

\*2 ASM's salmon farms consist of two types of sea cages (also referred to as net pens). (DSMF ¶ 2.) One type consists of walkways and square steel frames. (*Id.*) An inner containment net and an outer predator net hang from the steel frame structure. (*Id.*) The other type of sea cage consists of circular Polar Circles, plastic piping, and the same inner and outer nets hanging from the structure. (*Id.*) Both types of net pens are moored to the sea floor. (DSMF ¶ 27; DRSMF ¶ 27.) The open mesh of the nets allows the current to pass through the nets. (*Id.*)

ASM grows salmon at its Maine freshwater hatcheries until the fish become smolts (i.e. young salmon that are ready to migrate from fresh water to salt water). (PSMF ¶ 26.) When the fish become smolts, ASM transfers them from a boat into the net pens by pumping, dumping, or netting them. (*Id.* ¶¶ 27-28.) The salmon are grown in the net pens for about eighteen to twenty-four months and are then harvested for market. (*Id.* ¶ 29.) Each of ASM's farms, except the Libby Island site, produces at least 9,090 harvest weight kilograms (approximately 20,000 pounds) of salmon a year. (*Id.* ¶ 97; DRSMF ¶ 97.)

#### **1. Copper**

The nets that confine the fish, as well as the nets that keep predators away from the fish, are treated with an "antifoulant" called Flexguard II. (PRSMF ¶ 35.) Flexguard II contains copper, which is designed to reduce marine growth that would otherwise "foul" ASM's nets. (*Id.* ¶ 36.) ASM cleans its nets by dropping them to the sea floor and allows them to remain there for up to five months. (*Id.* ¶ 38.) USPIRG claims that copper from the nets is released into the marine environment. (*Id.* ¶ 37.)

#### **2. Feed**

ASM feeds its salmon a meal containing ground-up fish, primarily herring and anchovetta. (Def.'s Additional Statement of Material Facts in Opp'n to Pls.' Mot. Summ. J. (DASMF) ¶ 2.) The fish meal also contains canthaxanthin and astaxanthin, pharmaceutical manufactured pigments that color the fish's flesh pink. (PSMF ¶ 40.) ASM sprays the feed into the net pens from underwater pipes attached to a barge. (*Id.* ¶ 41-42.) Occasionally, the fish are fed by hand or by "blowers" which blow the feed into the salmon cages. (*Id.* ¶ 42.) During feedings, excess feed falls through the bottom of the net pens or is flushed out by the current. (*Id.* ¶ 84; DASMF ¶ 9.) This excess feed can negatively effect the environment. (PSMF ¶ 85.) Each ASM farm, except the Libby Island site, feeds at least 2,272 kilograms (approximately 5,000 pounds) of food during the calendar month of maximum feeding. (*Id.* ¶ 98; DRSMF ¶ 98.)

#### **3. Diseases, Viruses, and Parasites**

Salmon in ASM's pens have contracted bacterial kidney disease ("BKD"), funrunculosis, cold water disease (also known as fexibacter) and vibrio, which can kill fish or have sublethal effects. (PSMF ¶ 43-44.) Diseases that have affected ASM's fish are transmitted through the water, through fish-to-fish contact. (*Id.* ¶ 50.)

\*3 Additional concerns at ASM's farms are viruses and parasites, such as trematode (a type of worm) and sea lice. (*Id.* ¶ 61, 62, 67.) USPIRG claims that fish at an ASM farm have been infected with a viral disease called infectious salmon anemia ("ISA"). (*Id.* ¶ 48.) USPIRG asserts that there is no cure for ISA and it is a significant threat to the remaining endangered wild salmon. (*Id.* ¶ 49.)

#### **4. Chemicals and Fish Wastes**

ASM treats bacterial infections by mixing the antibiotic oxytetracycline (also known as Terramycin ) into the salmon feed. (*Id.* ¶¶ 54, 55, 57.) This feed, like the unmedicated feed, can fall through the bottom of the net pens or be flushed out of the nets into the water by the current. (*Id.* ¶¶ 60, 84; DRSMF ¶¶ 60, 84.)

In order to treat sea lice, ASM uses cypermethrin, a toxic chemical. (PSMF ¶ 68.) The cypermethrin is contained in a product called Excis, which the FDA has not yet approved. (*Id.* ¶ 72.) Excis contains one percent cypermethrin and is used by ASM as an Investigational New Animal Drug ("INAD"). (*Id.* ¶ 73; DRSM ¶ 13.) Although, the designation of cypermethrin as an INAD has expired, ASM wants to continue to use this toxic chemical to control sea lice in its pens. (PSMF ¶ 74.) ASM applies cypermethrin after placing a tarp around a net pen and raising the tarp to confine the salmon in a small area. (*Id.* ¶ 69.) The cypermethrin is then poured from a container into the tarped net pen. (*Id.*) Following the treatment, the tarp is removed and the cypermethrin is released from the net pens into the marine environment. (*Id.* ¶ 70.) In 1995, ASM administered Excis once at one farm site; in 1996, ASM used it once at one farm site; in 1997, it was applied once at three farm sites; in 1998, it was used three times at one farm site, twice at two farm sites, and once at another farm site. (DASMF ¶ 14.) During 1999, Excis was used once at two sites and in 2000, Excis was used once at one

farm site. (*Id.*)

ASM uses two other chemicals which it releases in the bays. When ASM counts the sea lice on its fish, it anesthetizes the fish with a chemical called Fiquel that ASM puts into the water. (PSMF ¶ 65-66.) ASM also puts Parasite-S, a parasite treatment, into the water. (*Id.* ¶ 75.)

Aside from these chemicals, salmon feces and urine fall through the bottom of the net pens or are flushed out by the current and enter the bay water. (*Id.* ¶ 84.) Salmon feces, urine, or other fish wastes exit the net pens at each ASM farm, except the Libby Island site, at least thirty days a year. (*Id.* ¶ 96.)

### **5. Escapees**

Fish can escape through holes in ASM's nets which can be created by wear, chaffing, storms, seals, boats, ice, floating logs, feed pipes, and feed barges. (*Id.* ¶¶ 78-80.) Fish are also able to escape when the sea cages are submerged due to severe icing. (Pls.' Statement of Material Facts Sealed (PSMFS) ¶ 4.) On a few occasions, ASM has discovered holes in its net pens. (PSMFS ¶¶ 1-3; Def.'s Resp. to Pls.' Statement of Material Facts Sealed (DRSMFS) ¶¶ 1-3.) In December 2000, approximately 100,000 fish escaped from ASM's Stone Island farm during a storm. (PSMF ¶ 76.) These fish were Landcatch- St. John hybrids, Landcatch-Penobscot hybrids, and St-John-Penobscot hybrids. (*Id.* ¶ 77.)

\*4 ASM's salmon are different from the salmon that naturally exist in Machias Bay and Pleasant Bay. First, some of ASM's salmon are of non-North American origin. (*Id.* ¶¶ 18, 20.) Second, ASM's farm raised salmon can have shortened and eroded fins, a plumper body, and a smaller head to body ratio than non-farmed salmon. (*Id.* ¶ 24.)

### **C. Stolt's Fish Farm Operations**

Stolt's salmon farms consist of sea cages and working platforms (*i.e.* catwalks) which are moored by chain, line, and mooring blocks. (Def.'s Statement of Material Facts (DSMF) ¶ 2.) Stolt uses two types of sea cages (also referred to as net pens). (*Id.*) One type consists of square steel frames that contain flotation. (*Id.*) An inner containment net and an outer predator net hang from the steel frame structure. (*Id.*) These sea cages are moored in a grid system. (*Id.*) The other type of sea cage consists of plastic collars containing flotation and has the inner and outer nets hanging from the collars. (*Id.*) The net pens are anchored to the bottom of the sea floor. (PSMF ¶ 25.) The open mesh of the nets allows the current to pass through the nets. (DSMF ¶ 2.)

At Stolt's farms, young fish are brought in, grown for about eighteen months to maturity, and then harvested for market. (PSMF ¶¶ 19, 20.) Stolt purchases its salmon from freshwater hatcheries when the fish are smolts (*i.e.* young salmon that are ready to migrate from fresh water to salt water). (*Id.* ¶ 23.) After receiving smolts from a hatchery, Stolt delivers the smolts to the net pens by boat. (*Id.* ¶ 24.) The smolts are "sluiced" from the boat into the net pens through a 6-inch diameter plastic hose. (*Id.* ¶ 26.) Stolt can stock up to twenty-eight pens at a single farm site, and each pen can hold between 5,000 and 16,000 fish. (*Id.* ¶ 27.) USPIRG estimates that at any given time, over a quarter of a million fish can be stocked at one of Stolt's farms. (*Id.* ¶ 28.) Each of Stolt's farms produces at least 9,090 harvest weight kilograms (approximately 20,000 pounds) of salmon a year. (PSMF ¶ 117; Def.'s Resp. to Pls.' Statement of Material Facts (DRSMF) ¶ 117.)

#### **1. Copper**

The nets that confine the fish, as well as the nets that keep predators away from the fish, are treated with an "antifoulant" called Flexguard. (PSMF ¶ 39.) Flexguard contains copper, which is designed to reduce the growth of plant life, mussels, and other life that would otherwise clog the mesh in the nets. (*Id.* ¶ 40.) Copper can be toxic to fish at a certain concentration. (*Id.* ¶ 41.) USPIRG claims that copper from the nets is released into the marine environment. (*Id.* ¶ 42.)

#### **2. Feed**

Stolt feeds its salmon a meal containing poultry parts and a chemical dye called carophyll red that colors the fish's flesh pink. (*Id.* ¶ 47; Def.'s Additional Statement of Material Facts (DASMF) ¶ 1.) Stolt stores the feed on scows, and then delivers the feed by boat from the scows to the net pens. (PSMF ¶ 46.) Stolt's smolts are fed by hand three or four times a day. (*Id.* ¶ 44.) As the fish mature, Stolt switches to a "blower mechanism" feeding one or two times a day. (*Id.*) A blower is a large hopper with an air supply that blows the feed through a pipe into a salmon cage. (*Id.* ¶ 45.) During feedings, excess feed falls through the bottom of the net pen or is flushed out by the current. (*Id.* ¶ 96; DASMF ¶ 2.) Stolt's farms each feed at least 2,272 kilograms (approximately 5,000 pounds) of food during the calendar month of maximum feeding.

\*5 (PSMF ¶ 118; DRSMF ¶ 118.)

#### **3. Diseases, Viruses, and Parasites**

Salmon in Stolt's pens have contracted bacterial kidney disease ("BKD"), flexibacter, and vibrio (*hitra*, *angularium*, or *ordalii*), which can kill fish or have sublethal effects. (PSMF ¶¶ 48-49.) Flexibacter resides in the ambient waters and infects farmed salmon opportunistically when the fish are stressed or physically injured from rubbing against the containment net. (*Id.* ¶ 52.) When bacterial diseases exist in a pen, the bacterial pathogens can be dispersed from the pens by tidal currents or can be spread through feces and urine from infected salmon. (*Id.* ¶¶ 59, 97.) Some bacterial diseases such as BKD, can be spread "horizontally" through the water from fish in one cage to fish in other cages, and "vertically" from the parent or broodstock to later

generations. (*Id.* ¶ 51.)

Stolt's primary concern regarding viral diseases is infectious salmon anemia ("ISA"). (*Id.* ¶ 53.) USPIRG claims that ISA has been found in Stolt's New Brunswick salmon farms and at salmon farms near Treats Island, not over a mile from Stolt's Johnson Bay operations. (*Id.* ¶¶ 55-56.) USPIRG asserts that there is no cure for ISA and it is a significant threat to the remaining endangered wild salmon. (*Id.* ¶ 58.) An additional problem at Stolt's farms is parasites such as sea lice that can damage or kill salmon. (*Id.* ¶ 72-73.) The "intensive culture" of Stolt's farms makes the sea cages an attractive spot for sea lice to gather. (*Id.* ¶ 75.) Once in the net pens, these parasites can be dispersed into the waters by tidal currents. (*Id.* ¶ 76.)

#### **4. Chemicals and Fish Wastes**

Stolt treats bacterial infections by mixing the antibiotic oxytetracycline (also known as Terramycin 100) or Romet to the salmon feed or by feeding the salmon a purchased medicated feed. (*Id.* ¶¶ 65-67; DRSMF ¶ 65-67; DASMF ¶ 12.) Antibioticladen feed can fall through the bottom of the net pens or be flushed out of the nets into the water by the current. (PSMF ¶ 70; DSMF ¶ 70.) Stolt stopped using the antibiotic oxytetracycline in either 1999 or 2000. (DASMF ¶ 10; Pls.' Reply to Def.'s Resp. Additional Statement of Material Facts (PRASMF) ¶ 10.) In order to kill sea lice, Stolt uses cypermethrin, a chemical found in agricultural pesticides. (PSMF ¶ 77.) The cypermethrin is contained in a product called Excis, which the FDA has not yet approved. (*Id.* ¶ 78.) Excis contains one percent cypermethrin and is used by Stolt as an Investigational New Animal Drug ("INAD"). (*Id.* ¶ 79; DASMF ¶ 5.) Although, the designation of cypermethrin as an INAD has expired, Stolt wants to continue to use this toxic chemical to control sea lice in its pens. (PSMF ¶ 80.) Stolt applies cypermethrin after placing a tarp around a net pen and raising the tarp to confine the salmon in a small area. (*Id.* ¶ 83.) The cypermethrin, diluted in water, is then poured from a container into the tarped net pen. (*Id.* ¶ 83; DASMF ¶ 3.) Following the treatment, the tarp is removed and the cypermethrin is released from the net pens into the marine environment. (PSMF ¶ 84.) Stolt has used cypermethrin from 1995 through 2000. (DASMF ¶ 9; PRASMF ¶ 9.) Stolt uses a similar tarp technique to treat its fish for gill parasites, but uses formaldehyde. (PSMF ¶ 85; DRSMF ¶ 85.) Like cypermethrin, formaldehyde washes out of Stolt's net pens into the surrounding water after the treatment. (PSMF ¶ 87; DSMF ¶ 87.) In order to control ISA, Stolt's workers and equipment are treated with an iodine-based disinfectant called Germ Kill which washes into the water. (PSMF ¶¶ 63-64; DRSMF ¶¶ 63-64.)

\*6 Aside from these chemicals, salmon feces and urine fall through the bottom of the net pens or are flushed out by the current and enter the bay water. (*Id.* ¶ 96.) Each of Stolt's farms releases substances such as feces, urine, and excess feed, into the waters at least thirty days a year. (*Id.* ¶ 116; DRSMF ¶ 116.)

#### **5. Escapees**

Fish can escape through holes in Stolt's nets, which can be created by seals, storms, vandalism, chafing, and mechanical equipment such as a boat's propeller. (PSMF ¶¶ 88-89; DRSMF ¶¶ 88-89.) In September 1999, approximately 30,000 fish escaped through a hole in a net pen at one of Stolt's Canadian sites. (PRSMF ¶ 91.) Stolt's internal documents report "negative variances" from the number of fish initially stocked in its pens and this loss could be the result of escapes. (*Id.* ¶ 90.) Stolt cannot guarantee that its fish will not escape from its Maine sites in the future. (*Id.* ¶ 92.) Stolt's salmon are different from the salmon that naturally exist in Cobscook Bay. First, some of Stolt's salmon are of non-North American origin. (*Id.* ¶¶ 15-17.) Second, Stolt's farm raised salmon can have shortened and eroded fins, a plumper body, and a smaller head to body ratio than non-farmed salmon. (*Id.* ¶ 21.)

#### **D. EPA Involvement**

In a July 18, 1989 letter from the Director of EPA Region One Water Management Division to William Lawless, Chief Regulatory Branch, Army Corps of Engineers, the Director, in commenting on proposed floating aquatic animal production facilities in a bay, stated that "[u]pon reevaluating the regulations, we have determined that some of these concentrated aquatic animal production facilities may require a permit under the National Pollutant Discharge Elimination System (NPDES) program." (DSMF ¶ 4, Culley Decl. I Ex. 3.) The following month, August 1989, the EPA responded by letter to a parties' notice of intent to sue the EPA for failing to require salmon net pen facilities in Maine to have NPDES permits. (DSMF ¶ 5, Culley Decl. I Ex. 4.) In the letter, the EPA stated that upon its review of the Clean Water Act and the applicable regulations, it concluded that salmon net pen facilities in Maine may constitute "Concentrated Aquatic Animal Production Facilities" under [40 C.F.R. § 122.24\(b\)](#) and Appendix C or under [§ 122.24\(c\)](#). (*Id.*) The EPA noted that the Maine salmon net pen facilities would be required to submit information to enable the EPA to take appropriate action. (*Id.*) However, over a year passed without any EPA action to require information from the salmon aquaculture sector in Maine. (*Id.* ¶ 8.) Fourteen months later, in October 1990, EPA Region One sent letters to ASM and Stolt stating that its facilities are required to obtain National Pollutant Discharge Elimination System ("NPDES") permits and instructed Stolt to submit an NPDES application. (PSMF ¶ 105; DSMF ¶ 9.)

#### **1. ASM's NPDES Application**

\*7 In October 1990, EPA Region One sent ASM a letter stating that its facilities are required to obtain National Pollutant Discharge Elimination System ("NPDES") permits and instructed ASM to submit an NPDES

application. (*Id.* ¶ 9.) ASM submitted its application for an NPDES permit in October 1990, for its Cross Island sites. (*Id.* ¶¶ 10, 18.) In January 1992, ASM submitted an NPDES application for its Starboard Island site and has since submitted NPDES applications for each of its successive sites. (*Id.* ¶ 18, 20.) However, ASM never received any permits or any response from the EPA regarding any of its NPDES applications. (*Id.* ¶ 11.) In 1993, ASM wrote to the EPA and asked for a "letter of assurance" that the farms could operate without an NPDES permit. (PSMF ¶ 91; DRSMF ¶ 30.) The EPA did not respond to ASM's request. (DRSMF ¶ 30.) During these years, the EPA was the only NPDES permitting agency, as delegation to the State of Maine did not occur until January 2001. (DSMF ¶ 21.) Although ASM submitted NPDES permit applications to the EPA for its net pen sites at Cross Island North, Dyer Island, Starboard Island, Libby Island, and Flint Island (Pls.' Resp. to Def.'s Statement of Material Facts (PRSMF) ¶ 27), ASM has not obtained an NPDES permit for any of its Maine salmon farms. (PSMF ¶ 90; DRSMF ¶¶ 26, 30.) The EPA has not contacted ASM to conduct a site inspection nor conducted such inspection [as of February 19, 2002]. (DSMF ¶ 21.)

## **2. Stolt's NPDES Application**

Stolt submitted its application for an NPDES permit on December 17, 1990, for its Johnson Bay farm. (PSMF ¶ 106; DSMF ¶ 10.) However, Stolt never received a permit or any response from the EPA regarding its NPDES application. (PSMF ¶ 107; DSMF ¶ 11.) A few years later in August 1992, in compliance with a request from the Maine Department of Marine Resources ("DMR"), Stolt sent a "Notice of Intent" to DMR stating that Stolt "intends to be covered by and will comply with the terms of the general NPDES permit for offshore net pen facilities in the State of Maine." (PSMF ¶ 108.) During these years, the EPA was the only NPDES permitting agency, as delegation to the State of Maine did not occur until January 2001. (DSMF ¶ 21.) In a September 1994 letter to Stolt, the U.S. Army Corps of Engineers granted navigation permits for Stolt's net pens and explained that Stolt still needed to obtain NPDES permits from the EPA. (PSMF ¶ 110.) Stolt was also advised by one of its operating managers that Stolt's salmon farms located in the State of Washington required NPDES permits, and that its Maine farms would most likely be required to have permits as well. (*Id.* ¶ 111.) To this day, Stolt has not obtained an NPDES permits for any of its Maine salmon farms and is not aware of any permit being issued by the EPA for the salmon farming industry in Maine. (*Id.* ¶¶ 104, 109.)

Recommended Decisions of the Magistrate Judge at 2-8.

**\*8** The Court makes the following additional findings of fact on the basis of the prior record, the evidence heard in the bench trial commencing on October 8, 2002 (Docket Item Nos. 71 and 72, transcripts of proceedings), and careful consideration of the written submissions of the parties in post-trial briefs.

ASM is a Maine company that operates seven salmon sea farm sites, two salmon hatcheries, and one processing plant in the state of Maine. ASM has five sea farm sites in Machias Bay (Cross, Cross North, Starboard, Libby, and Stone Islands) and two in outer Narraguagus Bay (Flint and Dyer Islands). It also operates, and is responsible for, as sole and controlling owner, the site pens of Island Aquaculture Company located in Blue Hill Bay, including two pen sites at Scragg Island in Jericho Bay. See Opinion and Order entered on May 9, 2003 (Docket Item No. 97 in Civil No. 00-151-B-C). ASM has hatcheries in Oquossoc and Embden and a processing plant in Machiasport, processing up to 6,000 fish each day. ASM commenced sea farm operations in Maine in 1987 at the Cross Island pen site. ASM then added the remaining six aquaculture lease sites incrementally through the years, ending with Stone Island in 1998. ASM currently cultivates fish at its Cross, Cross North, Starboard, Flint, and Dyer Island sites, but it has not conducted aquaculture at its Libby Island site since 1997 or 1998, or at its Stone Island site since December 2000.

Stolt Sea Farm, Inc. ("Stolt"), a Delaware corporation with a place of business in Lubec, Maine, operates two sea farm sites at Johnson Bay and Rodger's Island in Cobscook Bay. Stolt commenced aquaculture operations at Johnson Bay in 1989 and commenced operations at Rodger's Island in 1996.

ASM is a Maine limited liability company, most recently a wholly owned subsidiary of Fjord Seafood, USA, Inc., and ultimately, Fjord Seafood, ASA, a Norwegian company. Fjord Seafood, USA assumed 100 percent ownership of ASM on May 2, 2001. Stolt is a wholly owned subsidiary of companies that are owned by Stolt-Nielson S.A., a Norwegian company, and ultimately, Stolt Sea Farm Holdings B.V., a Netherlands corporation. ASM and Stolt each obtained a Maine Department of Marine Resources ("DMR") aquaculture lease for each of its sea farms pursuant to [12 M.R.S.A. § 6072](#). The DMR lease process mandates protection of state water quality requirements and protection of marine organisms as a condition of lease issuance. The lease hearing process requires completion of two environmental site review reports (by applicant and DMR) in order to provide an environmental characterization and baseline measurement of site conditions. Maine law authorizes the DMR Commissioner to grant an aquaculture lease only upon a finding, based on state standards, *inter alia*, that the lease will not unreasonably interfere with water quality or the ability of surrounding areas to support existing ecologically significant flora and fauna. See [12 M.R.S.A. § 6072\(7-A\)\(D\)](#) and (7-B). Maine law prohibits issuance of a lease unless DEP certifies that the project will not violate the standards ascribed to the receiving waters classification. See 12 M.R.S.A. § 7-B; [38 M.R.S.A. § 465-B](#). A DEP Water Quality Certification has been issued under [12 M.R.S.A. section 6072\(7-B\)](#) for each ASM and Stolt farm site, with a finding, based on state standards, that aquaculture operations would not have a significant adverse effect on water quality or violate

water quality standards, with provision for revocation if such standards are violated. The finding is directly contrary to the burden of the considerable evidence in this record which shows clearly that those operations do have a substantial, adverse effect on water quality and do not comply with water quality standards. The record is devoid of any evidence of an effort, other than the implementation of the FAMP monitoring surveys, by DMR or any other agency to determine if, after issuance of the certification, there was, in fact, any adverse impact on water quality. No action to revoke the certifications has ever been taken. ASM and Stolt also have an Army Corps of Engineers ("ACE") permit issued under section 10 of the Rivers and Harbors Act of 1899, [33 U.S.C. § 403](#), for each of their sea farm sites. Each ACE permit contains water quality and benthic monitoring provisions.

**\*9** A regulatory scheme to protect the health of both aquaculture production stock and wild stocks has been administered and updated by DMR since 1984. DMR must issue, pursuant to the fish health regulations, a permit for introduction, importation, or transfer of salmon into the coastal waters; must require extensive monitoring and surveillance of sea farm site production fish to ensure disease protection; and it may take any action, including quarantine or eradication of salmon stocks, in order to protect fish health.

Neither ASM nor Stolt holds a federal CWA NPDES permit for aquaculture operations at any of their sea farm sites. ASM and Stolt timely applied for an NPDES permit for each site, but neither the United States Environmental Protection Agency ("EPA") nor the Maine Department of Environmental Protection ("DEP") has yet made a decision on the applications. Although EPA advised Defendants in August 1989 that Maine sea farms "may constitute concentrated aquatic animal production facilities" under 30 C.F.R. section 122.24, and that companies would be required to submit sufficient information to enable EPA to take "whatever appropriate action is necessary." In October of 1990, EPA sent a letter to ASM and Stolt stating that they were required to obtain an NPDES permit for the discharge of pollutants to the waters of the United States and instructing them to fill out an NPDES application form and return it within sixty days. EPA has not advised or suggested at any time that ASM or Stolt should cease operations.

At that time, ASM and Stolt timely submitted NPDES applications for their existing sites at Cross Island and in Johnson Bay. EPA did not act on those applications and, instead, participated with ACE, National Marine Fisheries Service ("NMFS"), United States Fish and Wildlife Service ("USFWS"), DMR, and DEP in a joint effort from 1990 to 1992 to create the State of Maine Finfish Aquaculture Monitoring Program ("FAMP") and a coordinated state and federal permit application. The product of this effort was a 1992 DMR letter to all Maine companies, including ASM and Stolt, advising that federal and state agencies regulating aquaculture in Maine had "finalized a coordinated monitoring program for finfish aquaculture" and stating that the DMR would be the "lead agency" that is "now ready to implement this program."

ASM and Stolt timely filed either a Notice of Intent to be Covered by General Permit or an individual permit application for existing and subsequent lease site applications, and their pen sites were monitored under the FAMP. ASM contacted EPA numerous times after 1992 with respect to its sea farm operations. It filed six applications for new lease sites through 1998, sent a letter in 1993 requesting an EPA letter of assurance that ASM could commence operations at new lease sites upon receipt of ACE or DEP authorizations, and sent a letter in 1995 reminding EPA of its continued operations and change in ownership. EPA never responded. Similarly, Stolt contacted EPA to request new lease sites and notified EPA of continued operations under new ownership. EPA never responded.

**\*10** EPA's response to Plaintiffs' notice of intent to sue acknowledged that Defendants had applied for NPDES permits many years ago and indicated that EPA had not considered the sea farm discharges to be a significant environmental concern, falling into the "minor" permit category that EPA could not address due to resource constraints. EPA offered to serve as a mediator or to facilitate settlement discussions so as to avoid litigation. Plaintiffs did not accept this offer.

The State of Maine has not acted on the pending NPDES permit applications following delegation by EPA of the CWA program to the State in 2001. DEP is more than a year beyond the agreed EPA-DEP deadline for a final permit decision on Maine sea farm sites, although the administrative proceedings to issue a draft general permit are now underway. The EPA has final authority to approve or to disapprove the PDES permits issued by the State of Maine.

ASM and Stolt generally transfer salmon smolt from freshwater hatcheries to their sea farms in October and May. The fish are placed in circular or square cages that are moored on the sea bottom and dressed with containment nets to hold the salmon and predator nets to deter marine predators and birds. The fish are harvested beginning as early as fifteen months following initial stocking. Harvest entails pumping the fish into a harvest barge where they are stunned and their gills are cut, followed by transport to shore in containers. During the growth cycle, fish are fed pellets of feed containing fish meal, fish oil, vitamins and minerals, and, occasionally, soybean meal, wheat, and corn. ASM and Stolt use mechanical feeding systems, feeding tables, and underwater cameras in their net pens to monitor the amount of feed given to the fish, with very short periods of hand feeding of smolt just after stocking in order to minimize the amount of feed used, and thus the amount of feed that falls to the sea bottom. Certain mature fish are selected to breed the next generation.



On occasion, ASM and Stolt have imported salmon eggs or milt (gametes). ASM and Stolt received specific importation authorization from both USFWS and from DMR prior to importation of eggs or milt. ASM imported salmon milt of non-North American origin for several years from 1988 through 1999.

The waste discharged from the aquaculture farming operations of Defendants caused benthic conditions at Defendants' farm sites to deteriorate. Stolt's feed contains fishmeal, fish oil, a wheat or soybean binder, vitamins, minerals (including zinc), pigment, ground up chicken carcasses, and feathers. ASM's feed contains fishmeal, fish oil, vitamins, minerals, soybean meal, wheat, corn, and pigment. Defendants have also discharged garbage and discarded equipment and nets to the sea floor at their various sites. Nets that lie on the sea floor at Defendants' sites trap feces and excess feed and can degrade the benthic environment more severely than would occur in their absence.

**\*11** In September 1998, ASM's own consultant, KPMG, told ASM that its bloodwater treatment was inadequate for disease control and that its discharge of bloodwater directly to the ocean included chemical pollutants such as chlorine. Until late 2000, ASM discharged bloodwater mixed with chlorine and another chemical directly to the ocean. ASM eventually spent \$100,000 to upgrade the wastewater treatment system at its processing plant so that it could treat bloodwater.

Aquaculture net pens create a "footprint" which forms an approximate five-meter shadow in each direction around the net pen. After a growth cycle, the footprint consists of large patches and contiguous mats of bryozoa, anoxia, and black sediments, and the release of methane and hydrogen sulfide gases are all adverse environmental conditions and are all conditions found at Defendants' farm sites that are subject to remediation under the CWA. The majority of the material that falls to the ocean floor is organic, consisting primarily of carbon in the form of fish feed and fish feces.

All of the regulatory agencies acknowledge and recognize that some impact to the bottom is inevitable. Consequently, the agencies have established a "mixing" zone in which it is understood that there will be impact. DMR finds that it is reasonable to have up to fifty percent of the area below the pens covered with organic buildup. In order to remediate these conditions and to allow the ocean floor to recover from the waste discharged by Defendants' salmon farms, Defendants must fallow their farm sites. Most farm sites should be fallowed for twelve to twenty-four months, on average, for the benthos to fully recover from the negative conditions occasioned by Defendants' activities at their fish pens. ASM generally fallows its farm sites, while Stolt does not regularly do so. [\[FN3\]](#)

The FAMP requires monitoring of the benthic conditions beneath and around the net pens. The FAMP has demonstrated that impact from the salmon farms is temporary and that even the temporary impact is generally confined to the footprint of the sea cages. FAMP Divers videotape the ocean floor. Videotapes are then analyzed, and the observations are incorporated into graphic representations of the ocean floor. [\[FN4\]](#) When observing the ocean floor, DMR looks for bryozoa, which is an oxygen-consuming bacteria which may indicate hypoxia (reduced oxygen levels) or anoxia (absence of oxygen). Anoxia is a sign of severe deterioration, but it is not necessarily unacceptable. The beginning of an unacceptable impact occurs when large areas of bryozoa are seen. In the vast majority of cases, the impact is restricted right to the edge of the cage. It is very unusual to have severe impact beyond the footprint of the cage. It is exceptionally unusual to see any evidence of impact at a point sixty meters outside the net pen footprint.

The FAMP consists of monitoring only and does not set forth environmental standards with which salmon farms must comply. The primary purpose of the FAMP is to assess the impact of aquaculture farms on the ocean floor and on water quality around the net pens, to enable DMR to determine whether or not the salmon farms are in compliance with the conditions in their leases, and to allow DEP to determine if water quality standards are being met. The FAMP does not monitor or regulate the utilization of antibiotics, other drugs, pesticides, copper, zinc, oil, gasoline, or other chemicals used by the farms or deal with the control of algal blooms or the impact of aquaculture farm operations on wild salmon. FAMP reports and correspondence from DMR repeatedly informed Defendants of severely deteriorated benthic conditions at certain of their farm sites. [\[FN5\]](#) DMR maintains enforcement oversight over the FAMP and may use lease revocation or denial of a fish transfer permit (required to transport smolt from hatcheries to sea farm sites) if it determines that the environmental impacts of a site are unacceptable. DMR has never issued a notice of violation to either ASM or Stolt in connection with aquaculture operations at their sea farm sites. However, DMR has required remedial plans from ASM when DMR determined that benthic impacts were reaching an unacceptable stage.

**\*12** Fallowing, in aquaculture, is the removal of fish from a sea farm site for a period of time. Given a sufficient amount of fallow time, the ocean floor will recover from the impact caused by the sea farms, including anoxic conditions, when organic loading is removed. The most effective way of accomplishing the removal of organic loading is a regimen of site fallowing following harvest. The time period over which fallowing will result in improvement to the benthos is often site specific but is generally no less than twenty-four months. Single-year-class stocking allows salmon farm operators to fallow farm sites between each generation of fish. Stolt has not ruled out a return to full multi-year-class stocking in the future at its Maine salmon farms.

Wild salmon live in the rivers near Defendants' fish farms, are genetically distinct from salmon populations in

Canada and Europe, and have been recently included on the Federal Endangered Species List. Wild salmon populations living in the rivers near Defendants' farms are small and threatened with extinction, but they are not doomed to extinction if appropriate protective measures are speedily taken. The small size of the salmon populations in Downeast Maine rivers make them severely vulnerable to the negative effects of interactions with farm escapees. Escaped aquaculture salmon have been found in the rivers near Defendants' fish farms, often in numbers that exceed the known numbers of returning wild salmon, and have previously been found by this Court herein to be a "pollutant" under the CWA. The end result of repeated interactions with farm escapees could ultimately be the extinction of these wild populations. Escapees from Defendants' farms can negatively affect the endangered wild salmon by spreading pathogens and parasites and by competing for food, habitat, mates, and spawning sites. These are identified in the testimony as ecological impacts.

After several generations of selective breeding, farm-bred salmon differ genetically very significantly from wild salmon in fitness-related traits such as growth rate, age and size at sexual maturation, and number of eggs produced. ASM and Stolt grow salmon that have been selectively bred for at least four generations. According to Stolt, ASM, and others in the Maine aquaculture industry, as of October 1998, a "characteristic" fish loss profile for salmon farms in Maine is one in which "excluding the ten percent of losses due to disease and temperature extremes, just over one quarter of farm losses can be traced to accidental releases due to storm damage or equipment failure."

Farm escapees can have a negative genetic impact on Maine's wild salmon through cross-breeding. Because farm-bred salmon and wild salmon differ genetically, the offspring of matings between farm escapees and wild salmon are likely to be less fit for survival in the wild than are the offspring of wild salmon. The greater the geographical distance between two populations of **Atlantic salmon**, the greater the genetic differences between them and the less fit their offspring are likely to be for survival in the wild in rivers in which they have not previously habituated. The offspring of matings between a non-North-American-strain **Atlantic salmon** and a North-American-strain **Atlantic salmon** are less likely to be fit to survive in North American rivers than are the offspring of matings between two North-American-strain **Atlantic salmon**.

**\*13** The USFWS and the NMFS have determined that non-North American strains of farmed salmon constitute a major threat for the wild salmon in Downeast Maine rivers. Indeed, the State of Maine's policy is to remove and destroy any aquaculture escapees found in Downeast rivers. [\[FN6\]](#) Defendants have known since 1988 that the federal government has consistently taken the position that salmon farms in Maine should not grow non-North American salmon. The joint application form developed, but not yet implemented, for ACE section 10 permits, DMR leases, and MPDES permits for salmon farms in Maine requires farm operators to represent that they will not grow non-North American Salmon in the subject pens. [\[FN7\]](#)

Almost all of the fish grown at ASM's farms are European-strain salmon or a cross of European-strain salmon with North-American-strain salmon. ASM also maintains stocks of fish it believes are all or predominantly all of North American origin, known as Penobscot River strain and St. John River strain. ASM sold four million St. John River-strain eggs to other companies in 2001. Stolt and ASM grow the strains of fish they grow because they believe these strains will maximize their profits. Stolt grows only North American strains of salmon at its New Brunswick farms. Until 1999, Stolt grew only North American strains of salmon at its Maine salmon farms. In 1999, Stolt began growing salmon of European origin because of its availability. Stolt's ACE permit for its Johnson Bay farm prohibits the growing of salmon whose original source as fertilized eggs or gametes was outside North America. [\[FN8\]](#)

Transgenic, or genetically modified, strains of salmon differ genetically very significantly from wild salmon because genes from other species have been inserted into their DNA. Escapees of transgenic strains of farm salmon could negatively affect Maine's wild salmon by interbreeding, because the offspring of matings between transgenic farm escapees and wild salmon are less likely to be fit for survival in the wild than are the offspring of wild salmon. Defendants have not ruled out the growing of transgenic fish at their farms.

The State of Maine biologists can accurately distinguish between wild **Atlantic salmon** and aquaculture escapees found in Maine rivers. However, currently available identification techniques do not enable them to determine from which farm an aquaculture fish escaped. The development of an adequate system of tagging farm-raised salmon to permit their identification to a particular site is economically and technically feasible. ASM and Stolt are participating in a study with the agencies to research methods of marking farm-raised **Atlantic salmon**. Methods of marking or tagging other than with coded wire tags are being investigated because of concerns that coded wire tags may be rejected by the fish, may migrate into the flesh of the fish, may not receive FDA approval, may be perceived negatively by customers who eat the fish, and may interfere with vaccines administered to the fish.

**\*14** Pathogens arising inside a net pen can spread to and infect wild fish swimming outside the net pen. A single diseased farm escapee could spread disease to wild salmon. Feces from diseased salmon can spread pathogens. Sea lice can carry the ISA virus. ISA is a clear threat to wild salmon. In 2000-2002, in response to the threat of ISA, the United States Department of Agriculture ("DOA") and DMR cooperated to create a specific, detailed ISA prevention program requiring: single-year-class stocking; use of certified disease-free fish

for stocking; heightened monitoring of production fish to identify disease outbreaks; site sanitation; biosecurity protocols to suppress disease transfer; and reporting and action plans for expedited response to ISA detection. The frequent removal of dead fish (so-called "morts") from the net pens lowers the disease risk they pose. The veterinarian hired by Stolt and ASM to conduct biosecurity audits of their salmon farms testified that, if it were possible, hourly mort collection would be desirable. Morts in Stolt's and ASM's net pens present a "major" risk for spreading disease, including ISA. Stolt confirmed the existence of ISA at its Rodgers Island site on August 30, 2001. ASM's own consultant, KPMG, recommended in 1998 that ASM remove morts daily from its net pens as a biosecurity measure. The ACE permits for all of Stolt's and ASM's salmon farms require daily removal of morts. Stolt currently removes morts from its net pens once per week in bad weather and twice per week at other times of the year. ASM removes morts from its net pens twice per week on average. It does daily mort removal only after there has been a disease outbreak.

One way to reduce disease is to require the farms to adhere to a stocking density. At Stolt's salmon farms in New Brunswick, Canada, the leases Stolt obtains from the government of New Brunswick contain an operating condition that limits the stocking density in each net pen to a maximum of 18 kilograms of salmon per cubic meter of water (Kg/m<sup>3</sup>) inside the pen. [FN9] Stolt's goal is to comply with a maximum stocking density of 18 kg/m<sup>3</sup> at its Maine salmon farms. Stolt has exceeded this limit on occasion at its Maine salmon farms. ASM's goal is to comply with a maximum stocking density of 25 kg/m<sup>3</sup>. ASM has exceeded this limit on occasion at its Maine salmon farms.

Single-year-class stocking of salmon farm sites, with no overlap of fish from different year-classes, also reduces the risk of disease and the risk of parasite infestation. [FN10] By April 2001, ASM had not yet fully implemented single-year-class stocking of salmon at all of its farm sites. Although Stolt began moving toward single-year-class stocking in 2000, the company may still try to overlap its year-classes with no true fallowing period.

When Defendants use drugs in their aquaculture operations, they discharge tons of feed impregnated with hundreds of pounds of drugs into their pens. Neither Stolt nor ASM monitors fish or shellfish near their Maine salmon farms for the presence of antibiotic residues. Stolt's and ASM's ACE permits prohibit prophylactic use of antibiotics. Stolt has used antibiotics prophylactically at its Maine salmon farms in the past. Neither Stolt nor ASM post warning signs at its farm sites notifying the members of the public when it uses medicated feed or discharges chemicals. Neither Stolt nor ASM monitors the environment for the effects of its chemical usage at farm sites.

\*15 Stolt and ASM also use cypermethrin to treat outbreaks of sea lice at their farm sites. Cypermethrin is highly toxic to arthropods, including adult and larval lobsters. A cypermethrin plume can remain toxic to sensitive marine organisms for several hours after release. Larval lobsters and other small marine organisms can become entrained in a cypermethrin plume and be unable to escape it. [FN11] Neither Stolt nor ASM has ruled out using cypermethrin to treat sea lice in the future. Cypermethrin is a "pollutant" under the CWA, the discharge of which into Maine waters has an adverse ecological effect.

At any given time, ASM has 1,000,000 to 2,000,000 fish in the water. ASM uses approximately 7,000 tons of feed, company-wide, at its sites. ASM's annual production is approximately 5,000 tons (10,000,000 pounds) of salmon. ASM stocked new fish at Cross Island North in October 2002 and stocked new fish at Starboard Island, Flint Island, and Dyer Island in the spring of 2002. At any given time, Stolt has approximately 500,000 fish in the water. Stolt's annual production has been approximately 1,000 tons (2,000,000 pounds) of salmon. Stolt stocked new fish in April and May 2002.

ASM has estimated that an individual 24-by-24-meter square net pen at a farm site generates nearly two metric tons (1,837.5 kilograms) of waste products each month. ASM, at the time of the hearing, had fish in sixty-eight pens and Stolt had fish in thirty-two pens. Some of those pens are 24-by-24-meter square pens and some are the larger 70-meter or 100-meter circular pens, which hold more fish and generate more waste.

Defendants have realized a significant economic benefit, in the form of a substantial cash flow, by operating without MPDES permits, although the record made in the various proceedings herein is insufficient to permit the Court to determine the precise amount of such benefit. Neither ASM nor Stolt have operated profitably in 2001 or 2002.

### III. ANALYSIS

#### A. Primary Jurisdiction

This Court has jurisdiction over Plaintiffs' action pursuant to [33 U.S.C. §§ 1365\(a\)](#), which expressly authorizes a "citizen suit." The CWA states:

any citizen may commence a civil action on his own behalf (1) against any person (including (i) the United States, and (ii) any other governmental instrumentality or agency to the extent permitted by the eleventh amendment to the Constitution) who is alleged to be in violation of (A) an effluent standard or limitation under this chapter or (B) an order issued by the Administrator or a State with respect to such a standard or limitation,

...

The district courts shall have jurisdiction, without regard to the amount in controversy or the citizenship of the

parties, to enforce such an effluent standard or limitation ... and to apply any appropriate civil penalties under [section 1319\(d\)](#) of this title.

The CWA provides for limited circumstances in which governmental action will bar a citizen suit. See [33 U.S.C. §§ 1365\(b\)\(1\)](#) (prior to giving sixty days notice of the violation or when the agency or the state has commenced and is diligently prosecuting an action), 1319(g)(6)(B). Thus in certain statutorily defined circumstances in which federal or state agencies are attentively looking after the citizens' interests, citizen suits may not be permitted. Defendants here contend that the Court should deny Plaintiffs' request for injunctive relief on the basis of primary jurisdiction because the State of Maine DEP is working on an MPDES permit enforcing requirements of CWA. Plaintiffs respond that the only situation in which primary jurisdiction has been invoked to successfully dismiss a citizen suit involves a collateral attack on agency orders. By contrast, Plaintiffs assert, the instant cases were filed before the initiation of the NPDES permitting process now pending before the DEP and that "the relief sought will not conflict in any way with that process." Plaintiffs' Post-Trial Reply Brief (Docket Item No. 82) at 3.

**\*16 [1]** Pursuant to the doctrine of primary jurisdiction, a court may defer or stay litigation pending an administrative agency's consideration of the issues presented in the suit. See [Ass'n of Int'l Auto. Mfrs., Inc. v. Comm'r. Mass. DEP, 196 F.3d 302, 304 \(1st Cir.1999\)](#). The doctrine is typically applied, "whenever enforcement of the claim requires the resolution of issues which, under a regulatory scheme, have been placed within the special competence of an administrative body." [United States v. Western Pac. R.R., 352 U.S. 59, 64, 77 S.Ct. 161, 1 L.Ed.2d 126 \(1956\)](#). "The primary jurisdiction doctrine is intended to 'serve[ ] as a means of coordinating administrative and judicial machinery' and to 'promote uniformity and take advantage of agencies' special expertise.'" [Pejepscot Indus. Park, Inc. v. Maine Central R.R., 215 F.3d 195, 205 \(1st Cir.2000\)](#) (quoting [Mashpee Tribe v. New Seabury Corp., 592 F.2d 575, 580 \(1st Cir.1979\)](#)). Although the Supreme Court has prescribed no fixed formula for determining whether a court should defer to an administrative agency, in [Pejepscot Indus. Park](#) the Court of Appeals for the First Circuit relied on three factors to guide the decision on whether to refer an issue to an agency under the primary jurisdiction doctrine:

(1) whether the agency determination [i]es at the heart of the task assigned the agency by Congress; (2) whether agency expertise [i]s required to unravel intricate, technical facts; and (3) whether, though perhaps not determinative, the agency determination would materially aid the court.

*Id.* (citing [Commonwealth of Mass. v. Blackstone Valley Elec. Co., 67 F.3d 981, 992 \(1st Cir.1985\)](#) (quoting [Mashpee Tribe, 592 F.2d at 580-81](#)) (alterations in original)).

The Court believes that the scientific and ecological impact issues implicated in the remedial aspects of this case are, *ideally* and in the first instance (with one exception), properly for the special expertise of the administrative agency and that a decision by EPA or DEP, except in the case of the exception, could assist the Court. The Court also notes that an EPA determination of what conditions should be placed on the salmon farming operations regarding the permissible discharge of pollutants has been certainly a central responsibility of the EPA. It has, for no apparent reason in the circumstances, evaded for years its functions in that regard. The EPA has, in fact, recently delegated the task of setting conditions for, and issuing, the NPDES permits to the State of Maine and has retired to the sidelines of this pressing controversy, while ultimately retaining veto power over the NPDES permits issued by Maine.

As discussed above, in the fall of 1990, EPA sent letters to Stolt and ASM stating that they were required to obtain NPDES permits for their farm sites and instructing them to fill out an NPDES application form and return it within sixty days. Stolt and ASM timely submitted NPDES applications. EPA did not act on these applications and, instead, participated with ACE, NMFS, USFWS, DMR, and DEP in a joint effort from 1990 to 1992 to create the State FAMP. Thereafter, in 1992, DMR sent letters to all Maine companies, including ASM and Stolt, advising that federal and state agencies regulating aquaculture in Maine had "finalized a coordinated monitoring program for finfish aquaculture" and stating that the DMR would be the "lead agency" that is "now ready to implement this program." Joint Ex. 193. The letter also stated, however, that Defendants should "submit a notice of intent to be covered by the U.S. Environmental Protection Agency (USEPA) National Pollutant Discharge System (NPDES) general permit when it is issued." Joint Ex. 193.

**\*17** ASM and Stolt timely filed either a Notice of Intent to be Covered by General Permit or an individual permit application for existing and subsequent lease site applications, and participated in the FAMP. ASM contacted EPA numerous times after 1992 with respect to its sea farm operations. It filed six applications for new lease sites through 1998, sent a letter in 1993 requesting an EPA letter of assurance that ASM could commence operations at new lease sites upon receipt of ACE or DEP authorizations, and sent a letter in 1995 reminding EPA of its continued operations and change in ownership. EPA never responded. Similarly, Stolt contacted EPA to request new lease sites and notified EPA of continued operations under new ownership. EPA never responded. In 2001 EPA delegated to the State of Maine the task of issuing the NPDES permits under the CWA. The State has yet to provide any definitive action on the issues passed to it, so there is no way to know whether EPA has, or will have in the future, any inclination to act on the basis of its reserved veto power. The past record of its performance casts the likelihood that it will do so severely in doubt. Although DEP is now

working on a draft permit, DEP is more than a year beyond the agreed EPA-DEP deadline for a final permit decision on Maine sea farm sites.

[2] The Court concludes that deferring the injunctive relief aspects of this case on the basis of primary jurisdiction is not warranted given the history of the administrative agencies' inexcusable delay in effectively addressing the issues raised by Defendants' past methods of operating their pen sites and getting to the issuance of meaningful, effective regulations and permits. On the record of the past two and one-half years, this Court is clearly better posed to address those issues and prescribe the appropriate remedial relief for Defendants' violations than are the regulatory agencies. They have sat overlong on their hands in this respect.

### B. Statute of Limitations

[3] [4] The CWA contains no statute of limitations. Ordinarily, when a federal statute contains no limitations provision, a federal court should apply the "most appropriate" statute of limitations provided by state law, unless there is a "relevant" federal statute of limitations. *Johnson v. Railway Express Agency, Inc.*, 421 U.S. 454, 462, 95 S.Ct. 1716, 1721, 44 L.Ed.2d 295 (1975). Defendants contend that the relevant federal statute of limitations is 28 U.S.C. § 2462. That section states:

Except as otherwise provided by Act of Congress, an action, suit or proceeding for the enforcement of any civil fine, penalty, or forfeiture, pecuniary or otherwise, shall not be entertained unless commenced within five years from the date when the claim first accrued....

28 U.S.C. § 2462. Many courts have already held that [section 2462](#) applies to citizen actions seeking the enforcement of civil penalties under the CWA. See, e.g., *Public Interest Research Group of N.J. v. Powell Duffryn Terminals, Inc.*, 913 F.2d 64, 74-75 (3rd Cir.1990) (applying same five-year federal statute of limitations period to citizen suit brought under CWA), *cert. denied*, 498 U.S. 1109, 111 S.Ct. 1018, 112 L.Ed.2d 1100 (1991); *Sierra Club v. Chevron U.S.A., Inc.*, 834 F.2d 1517, 1521 (9th Cir.1987) (five-year statute of limitations found in 28 U.S.C. § 2462 is the relevant federal limitations period for a citizen suit under CWA); *United States v. Reaves*, 923 F.Supp. 1530, 1533 (M.D.Fla.1996) (five-year statute of limitations applicable to the CWA); *United States v. Aluminum Co. of America*, 824 F.Supp. 640, 644 (E.D.Tex.1993) (same); *United States v. Windward Properties, Inc.*, 821 F.Supp. 690, 692 (N.D.Ga.1993) (same); *United States v. Hobbs*, 736 F.Supp. 1406, 1408-09 (E.D.Va.1990) (same); *National Wildlife Federation v. Consumers Power Co.*, 657 F.Supp. 989, 1010 (W.D.Mich.1987) (same), *rev'd on other grounds*, 862 F.2d 580 (6th Cir.1988); *Atlantic States Legal Found. v. Al Tech Specialty Steel Corp.*, 635 F.Supp. 284, 287 (N.D.N.Y.1986) (same); *Connecticut Fund for the Environ. v. Job Plating Co., Inc.*, 623 F.Supp. 207, 213 (D.Conn.1985) (same); *Sierra Club v. Simkins Indus., Inc.*, 617 F.Supp. 1120, 1124-25 (D.Md.1985) (same), *aff'd*, 847 F.2d 1109 (4th Cir.1988); *Chesapeake Bay Found. v. Bethlehem Steel Corp.*, 608 F.Supp. 440, 450 (D.Md.1985) (same); *Friends of the Earth v. Facet Enterprises, Inc.*, 618 F.Supp. 532, 536 (W.D.N.Y.1984) (same). This Court agrees.

\*18 The Court must next determine, for purposes of [section 2462](#), when Plaintiffs' "claim first accrued." If the statute of limitations has commenced to run on these continuing violations, the claims that accrued prior to June 1, 1995, are barred. [FN12] *Sierra Club v. Chevron U.S.A., Inc.*, 834 F.2d 1517, 1524 (9th Cir.1987). It appears that there has been a preference among courts deciding the issue for a discovery rule in determining when accrual occurs. See, e.g., *Windward Properties, Inc.*, 821 F.Supp. 690, 694 (N.D.Ga.1993). This rule is often based upon the perception that a strict interpretation of the limitations period in [section 2462](#), which provides that a claim accrues at the time of the violation, "would have the effect of significantly thwarting the purposes of the CWA." *Id.* Other courts hold that accrual occurs at the time the violation occurs. See *United States v. The Telluride Co.*, 884 F.Supp. 404, 408 (D.Col.1995).

The Court need not decide the issue in this case since it cannot be disputed, on the record here, and the Court finds, that Defendants' violations of the CWA, as found by the Court in the Recommended Decision, have been continuous and are still ongoing; thus, no "accrual" has occurred in this case, and the statute of limitations has not yet begun to run on Plaintiffs' claims in any event. [FN13] See *Reaves*, 923 F.Supp. 1530, 1534 (M.D.Fla.1996). Hence, no claim shown by the record to have occurred since October 1990 is barred by the statute of limitations. [FN14]

### C. Statutory Damages

[5] [Section 1319](#) of the CWA sets forth six factors that a court must consider when determining the amount of civil penalties to impose against a defendant:

[1] the seriousness of the violation or violations, [2] the economic benefit (if any) resulting from the violation, [3] any history of such violations, [4] any good-faith efforts to comply with the applicable requirements, [5] the economic impact of the penalty on the violator, and [6] such other matters as justice may require.

[33 U.S.C. § 1319\(d\)](#). The Court has carefully considered each of these factors in reaching the decision that, on all of the facts of these cases, any award of statutory damages should be nominal in amount relative to Defendants' maximum exposure to a damage award under the statute. [FN15]

There are significant mitigating circumstances underlying Defendants' conduct in violating the CWA for purposes of implementation of the Act by the imposition of statutory damages. The violations here are of a significant nature, principally because they do violate the Act and because they do inflict a significant short-

term damage on the environment in the immediate vicinity of the pen sites and endanger the survival of the wild **Atlantic salmon**. [FN16] That environmental harm need not be, with the implementation of compliance with the Act after issuance of proper MPDES permits, of long duration; in fact, not of as lengthy duration as in the past without such regulation or compliance. The record clearly shows, and the Court finds, that with the use of a single- year-class regimen in stocking, with harvest followed by a twenty-four month fallowing period, the injury done to the benthos and the surrounding environment is naturally repaired with only a single exception. That exception arises from the past use of non-North American genetic strains of salmon which escape into the wild in the course of the aquaculture process and adversely affect the spawning pattern of the endangered wild salmon in nearby rivers and, by inbreeding with wild salmon, damage their genetic adaptability to the circumstances of their survival in nearby Maine coastal rivers. [FN17] This is the only aspect of Defendants' current operations that portend long-term or permanent harm to environmental interests. The past damage done in other respects to areas immediately around the pens will be naturally repaired by single-year-class stocking and appropriate fallowing periods on completion of harvesting of fish currently stocked at the pen sites. So the seriousness of these violations, with the single exception mentioned, is nominal and will in future be much reduced under an effective regulatory regimen imposed by the decree of this Court and the, hopefully, continuing effective and focused activities of the regulatory agencies.

**\*19** The damage done to the wild salmon in the past by escapes of non-North American stock cannot be quantified with any precision and is, in any event, a factor that is cumulative with other unrelated factors in its impact on the ultimate survival of the wild salmon. Further, the future hazard posed by escapees can be permanently abated by banning immediately the use of any salmonid stocks of non-North American origin, which the Court will do. Finally, the damage done in the past in this respect cannot be directly addressed by the application of the proceeds resulting from an award of damages in these cases. [FN18]

The record here is less than clear and complete on the second factor, the economic benefit resulting from the violations. It is clear that there has been a benefit in that the violations lessen overhead expenses throughout the aquaculture process, thus increasing, as the Court has found, Defendants' economic advantage in the aquaculture operations. Defendants have clearly benefited from substantial cash flows enhanced by the illegal aspects of their operations. However, the record also shows only that Defendants have not operated profitably in the last two years. The record is silent on the profitability of Defendants in their respective operations at any other time. The Court fairly infers that economically, and for the next few years, their aquaculture operations are destined to be a continuing economic struggle in which they will be challenged to make any significant profit. To the extent that past acts in violation of the CWA have been used with the expectation that they would operate to enhance profitability, those expectations have obviously been dashed and those illegal practices, in fact, will be abated by an effective regulatory regimen imposed by the decree of this Court and the continuing activities of the regulatory agencies.

With respect to the third factor, the violation history of Defendants, that has been continuous. The Court finds that Defendants are not to be wholly faulted or penalized significantly for the duration of the violative conduct since 1990. The central proposition established by the proof here as to Defendants' violative conduct is not only that it was *permitted* to continue, but that it was *required* in practical terms. The procrastination of the agencies in timely specifying the terms of NPDES or MPDES permits sufficient to address the cessation of the violations, which still has not been achieved, rendered Defendants' violative conduct inevitable unless one were to indulge a foolishly naïve expectation of Defendants' effective self-regulation. In the absence of any governing standard for their conduct, there is, the Court believes, in the usual and expectable course of commercial behavior in a competitive economic environment, substantial reason to anticipate the violative conduct and some level of excuse for it. It would be inequitable and unjust to impose severe penalties of an economic nature on these Defendants, in their current economic circumstances, when the gravamen of the proof is that they were left in limbo as to what the agencies expected of them by way of compliance with the CWA. The record is convincing that the agencies themselves didn't know what they should expect of Defendants, and they made almost no effort, if any at all, for many years to come to grips with their duties to provide the necessary permit-based standards.

**\*20** The Court is troubled to discern if it has any prudent basis or reason to believe at this point, in view of the sorry past record of the agencies' nonperformance of their duties, that the ongoing MPDES activity is, or will be, any more concretely or timely focused than it has been in the past or that the ultimate results of that activity, if any, will any more seriously and effectively address the needed regulatory agenda than has previously been the case. [FN19] The Court cannot precisely determine if the agencies' incentive to absent themselves from the field of their statutory duties is due merely to bureaucratic inertia and malaise or to a withering of purpose in the face of the political forces that have obviously been at play, at the behest of both parties on occasion, in the regulatory controversy. Such a determination is of no moment, however, as the incentive, whatever its wellsprings, has here produced a result that has rendered to date the agencies' performance of their roles as guardians of the public interest in the environment effete and meaningless. The Court is hopefully reliant on the proposition that by requiring that future operation of the pen sites be

carried out *only* with PDES permits, sufficient force and incentive may be applied to the agencies by the industry members and others to force them out of their regulatory hibernation and bring forth some constructive effort for the future regulatory program. Surely, if the agencies do not do so, and promptly, the restrictions of the CWA, combined with the effects of further regulatory inaction, will spell the doom of this industry. One would hope that these agencies, state and federal, will perceive more finely than they have in the past wherein lies the future controlling public interest in this controversy and the need for them to take action.

In the prior circumstances, Defendants have had only the requirements of their State leases for the pen sites and their ACE permits relative to them, along with the FAMP reports of survey, to guide them in defining their efforts to survive in the real world of regulatory jeopardy and to divine what was required of them to comply with environmental requirements peculiar to their industry. They were under no compulsion, official or otherwise, to do anything other than what served their own perceived self-interests. Defendants have not been wholly enthusiastic, in fact, about gratuitously complying with those standards which were applicable to them in their operations. Nor have they been cooperative with the listless and sporadic efforts to jumpstart the permitting process.

It is naïve in the extreme to believe that profit driven, commercial enterprises, will generally gratuitously seek to overcome the inertia against meeting ill-defined environmental requirements such as was produced by these conditions. It is expressly to combat such inertia that Congress enacted the CWA: to provide for the development and application of a comprehensive, scientifically based, and equitably framed regulatory protocol that would, with meaningful enforcement, permit such activities as aquaculture, among others, to be carried on for profit while requiring proper observance of the conditions required to maintain the health of the environment. The failure of the agencies to provide the required protocol over the last thirteen years has fully defeated Congress's purpose and the public interest. In the absence of any regulatory effort, inertia has reigned supreme, and the entities causing the environmental harm have been given a free pass to continue their heedless despoiling of the environment.

**\*21** Defendants have exploited throughout the thirteen-year period the absence of any effective regulatory action. They have never pressed for action beyond seeking, in one case, assurances that their operation without issuance of the permits they knew to be required would not subject them to some kind of adverse agency action. When they received no response to the request, they proceeded blithely on without pressing for issuance of the permits. It is obvious to the Court that they were not anxious to have the permitting effort go forward effectively on the few occasions when it seemed that the process might be in the throes of doing so. In those situations, Defendants framed and presented, as they were legally entitled to do, adversarial positions in the process with the agencies, but these only served to further derail the agencies' efforts, and the Court believes that that was in large part the result anticipated by Defendants in taking those positions. They made no effort to press, in their own interests, for a defining regulatory agenda; rather, they chose to operate in a no-man's land between a state of environmental self-help and regulatory guidance. Theirs is not, perhaps, the most direct cause of the regulatory collapse that occurred in the circumstances. Nevertheless, they have knowingly operated for over a decade in violation of the CWA's requirements and in a manner that has caused substantial temporary environmental damage and permanent harm to the survival of the wild salmon. Some considerable fault can and must be attributed to them for these results.

The Court finds, however, that they have made some, occasional, efforts to mitigate the negative impact of their operations. They have been somewhat responsive to the need for responsible housekeeping practices at their pen sites, though their efforts have sometimes left much to be desired. They have acted, on most occasions, to address with reasonable expedition the most negative findings of the periodic FAMP survey reports, though they might have done more. In addition, ASM moved, after some delay, to remediate the state of the bloodwater discharge from its processing facility, perhaps one of the most egregious negative environmental impacts of its operations. It did so voluntarily by putting in place an expensive purification system at the plant.

The Court finds that overall, while Defendants were less than enthusiastic in minimizing the environmental impact of their operations, their conduct does not reach the level of bad faith. Rather, they performed as self-interested businesses, impeding the regulatory process by legal means where it was in their perceived interest to do so and hoping that the ultimate outcome of the regulatory procedure would be shaped by such resistance and legal process to a resolution that would not be too costly to their continued operations. [\[FN20\]](#) This reduces to a condition of lack of enthusiastic cooperation in an effort to define the terms of the agencies' regulatory regimen. It is short of bad faith and, in view of the magnitude of the default of the regulatory agencies, is not, the Court finds, so deeply reprehensible over the entire period of the violations since October of 1990 as to warrant awards of statutory damages of the magnitude Plaintiffs seek.

**\*22** It is apparent from the record that any large statutory penalty would have a severely negative impact on Defendants. Both have been unprofitable in their operations for the last two years. The economic viability of their aquaculture operations are likely to be further challenged by the result of these proceedings. It is clear that enforced compliance in the future with a complete and adequate environmental regimen will entail

significantly increased costs in their operations and will largely obviate the continuance of the violations of the CWA. It would be inequitable for this Court to imperil the very existence of these companies, by the imposition of huge awards of statutory damages, if they can be speedily brought into compliance with environmental requirements of a reasonable nature.

Taking all of these factors into account, the Court concludes that there must be a fine imposed on each Defendant to vindicate the force and enforceability of the CWA, to punish Defendants appropriately for the actual seriousness of their violations, taken in context, and to provide general deterrence to others against violating the Act. Everything considered, the Court finds that a statutory damages award of Fifty Thousand Dollars (\$50,000.00) against each Defendant is adequate, fair, and appropriate in the circumstances.

#### D. Completion of Pending Operations

In their post-trial briefs, Plaintiffs state they "are asking this Court to determine whether (and under what conditions) Defendants should be allowed to continue operating until receiving NPDES permits." Plaintiffs' Post-Trial Brief (Docket Item No. 82) at 3, n. 4. Defendants now have salmon in various pen sites at various stages of maturation to the point of harvest. Harvest occurs fifteen to eighteen months after the fish are placed, as smolt, in the pens. Such stocking generally occurs in October or May of each year. Hence, the fish presently in the pens will be completely harvested by approximately April of 2004, a period of about one year from the present.

These fish represent an asset of intrinsic worth and of significant value to Defendants' commercial enterprise. [\[FN21\]](#) The continuing damage done to the benthos by their maintenance in the pens to the point of harvest will be temporary and mostly reparable, especially if during that period Defendants are required to scrupulously follow and strictly comply with all of the existing regulatory requirements applicable to those pen sites, including lease terms and permit requirements, as this Court's Order will require them to do.

With circumstances in that posture, there is little, if any, significant benefit to be gained by the immediate destruction of those fish, and preventing their harvest would deal a potentially devastating blow to the economic viability of Defendants' enterprises and cause the wastage of a valuable commodity. If Defendants can be brought to cooperate with a reasonable regulatory effort, there is no reason to imperil Defendants' continued existence. Further, the sheer wastefulness of destroying the fish, as an asset of significant intrinsic value, would be prudentially irresponsible absent some compelling reason to do so.

**\*23** The Court is satisfied and finds that there is no substantial and long-term harm to be done to the environment, or to the implementation of CWA policy and enforcement, by allowing these fish to be harvested within the usual schedule of operations of the pen sites if Defendants are required to follow, and will follow, existing regulatory requirements and the pen sites are allowed for an appropriate period of time after completion of harvest. To deny Defendants that opportunity to salvage the existing stocks would inflict an unfair, unwarranted harm upon them to little environmental or enforcement purpose of substance. Equity will not countenance such a result.

#### E. Injunctive Relief

[\[6\]](#) [\[7\]](#) Plaintiffs in these cases seek both civil penalties pursuant to [33 U.S.C. § 1319\(d\)](#) and injunctive relief pursuant to [33 U.S.C. § 1319\(b\)](#). The Court of Appeals for the First Circuit has fashioned a four-part inquiry for determining whether it is appropriate to order preliminary injunctive relief. Under this formulation, the court must consider (1) the likelihood of success on the merits; (2) the potential for irreparable harm if the injunction is denied; (3) the balance of relevant impositions, *i.e.*, the hardship to the nonmovant if enjoined as contrasted with the hardship to the movant if no injunction issues; and (4) the effect (if any) of the court's ruling on the public interest. See [Ross-Simons v. Baccarat, Inc., 102 F.3d 12, 15 \(1st Cir.1996\)](#) (citing [Weaver v. Henderson, 984 F.2d 11, 12 & n. 3 \(1st Cir.1993\)](#) and [Narragansett Indian Tribe v. Guilbert, 934 F.2d 4, 5 \(1st Cir.1991\)](#)). The standard for issuing a permanent injunction is substantially the same as that applied to a request for preliminary injunctive relief, except that the plaintiff must prove actual success on the merits rather than the likelihood of success on the merits. See [K-Mart Corp. v. Oriental Plaza, Inc., 875 F.2d 907, 914-15 \(1st Cir.1989\)](#). Plaintiffs have already succeeded on the merits of their CWA claims. Recommended Decisions (Docket Item Nos. 49 and 47) and Orders Affirming them (Docket Item Nos. 53 and 51) in the respective case files.

Plaintiffs contend that without an injunction, imminent irreparable harm threatens (1) the survival of the wild **Atlantic salmon**, and (2) the benthos and other marine life. Defendants respond arguing that Plaintiffs have failed to show any irreparable injury. The Court will now consider the remaining elements of injunctive relief on the two categories that Plaintiffs claim are subject to imminent irreparable harm.

##### 1. Threat to Wild Atlantic Salmon

Plaintiffs rely on three factors which they claim constitute sufficient evidence that Defendants' operations irreparably threaten wild **Atlantic salmon**: (1) fish escaping from the farms threaten wild salmon by potentially spreading disease and competing for food, habitat, mates, and spawning sites; (2) salmon produced as a result of cross-breeding are less fit to survive in the wild than are wild salmon; and (3) even in the absence of a fish escape, the farming operations discharge diseases and parasites directly from the farms. After reviewing the



evidence presented in the remedial phase of the case, the Court concludes that without regulation, the salmon farming operations present an imminent threat of irreparable harm to the wild **Atlantic salmon** populations in Maine. This danger is appreciably increased by the use of non-North American **Atlantic salmon** in the farming operations. The irreparable nature of the harm to the survival of the wild salmon will be effectively addressed by an injunctive ban on the stocking of non-North American stocks or genetic strains. Once the hazards of non-North American stocks are removed from the scene, the effects of escaped farm salmon are then manageable in terms of controlling or negating their impact through a future effective, regulatory protocol.

**\*24 [8]** The Court finds that an immediate and permanent injunction against the use of non-North American strains of **Atlantic salmon** is necessary in the public interest because it will remove the principal hazard posed by Defendants' operations to the health of the wild **Atlantic salmon** populations, in significant part in Maine, a listed endangered species, and will significantly promote the health of the species. An injunction against the stocking of any non-North American strains of **Atlantic salmon** also serves to balance the interests of the parties in this case by allowing the farming operations to continue to operate and stock their net pens with salmon as long as those salmon are of North American origin.

## 2. Threat to the Benthos and Other Marine Life

**[9]** Plaintiffs contend that in two ways Defendants operations harm the benthos and other marine life: (1) the net pens themselves create negative environmental conditions; and (2) various chemicals, metals, and antibiotics discharged from the farms are harmful to marine life. After reviewing the evidence presented during the remedial phase of trial, the Court concludes that without regulation the salmon farming operations present, in certain respects, an imminent threat of irreparable harm to the environment. The Court finds, for reasons previously stated, that it is not contrary to the public interest to allow the existing stocks to be harvested in due course and that equity requires that Defendants have a chance to do so. Permitting that result will not occasion *irreparable* harm. The harm that will be done can be naturally remedied by requiring that Defendants thereafter comply with an effective regulatory protocol defined by standards articulated in a meaningful permitting process, hopefully to be *soon* forthcoming from the regulatory agencies. Requiring operation of the pen sites in compliance therewith will cure the irreparable aspect of harm that would result if substantially unregulated operation of the pen sites were to be allowed. In making these findings, the Court has carefully considered and balanced the hardships that the resolution of the issues presented impose on the respective parties to the litigation and has done so in the context of the public interest and the purposes of the CWA.

## IV. ORDER AND INJUNCTION

For the reasons set forth above, it is hereby **ORDERED** that:

(1) Defendants **Atlantic Salmon** of Maine, LLC, and Stolt Sea Farm, Inc., each pay into the Treasury of the United States, within thirty (30) days of the date of the docketing of this Order and Injunction, damages in the amount of Fifty Thousand Dollars (\$50,000.00).

(2) In the operation of all pen sites in which Defendants are, on the date of this Order and Injunction, stocking fish to be raised for harvesting (excluding the pen sites of ASM at Scragg Island that are the subject of the Court's Opinion and Order Enjoining **Atlantic Salmon** of Maine, LLC, From Further Violation of the Court's Order of February 13, 2003 (in Civil No. 00-151-B- C)), Defendants shall scrupulously follow and strictly comply with all existing regulatory requirements applicable to those pen sites including, but not limited to, the provisions of the State of Maine lease for each such pen site, the ACE permit for each such site, the requirements imposed as the result of the operation of the FAMP, and any and all changes, amendments, or additions to such requirements which may become applicable between the date of this Order and the completion of the harvest of all of the fish presently stocked in such pen sites.

**\*25** (3) Each Defendant shall accomplish, in an expeditious and timely fashion, the completion of harvest, as presently scheduled, of all fish which such Defendant is stocking, as of the date of this Order and Injunction, in any pen sites subject to the provisions of paragraph (2) above and shall not restock any such pen site for a period of twenty-four (24) months from the date of completion of said harvest, *provided however* that ASM shall fallow its pen sites at Cross Island for a period of thirty-six (36) months, during which period, such Defendant shall cause and allow said pen site to remain fully fallow, and shall promptly after completion of harvest cause all unnecessary and discarded equipment and debris resulting from the operation of the pen site to be removed from the area thereof including the ocean floor.

(4) ASM shall cause and allow its Scragg Island pen sites to remain fallow for a period of six (6) months following the removal therefrom, as required by this Court's Order of May 9, 2003, of the smolt recently stocked therein and shall restock said pen sites only in compliance with paragraphs 5, 6, and 7 *infra*.

(5) Neither Defendant shall stock or restock any pen site that is subject to paragraphs (2), (3), and (4) above, nor any new pen sites established hereafter, until an MPDES or an NPDES permit has been issued to it therefor and thereafter shall cause all subsequent operation of such site to be conducted in strict compliance with such permit, the requirements imposed in addition thereto by this Order and Injunction, and all other applicable rules and regulations.

(6) After the date of this Order and Injunction, Defendants shall stock at any pen site in waters adjacent to the

Maine coast *only* a one-year-class of fish at any one time and shall not add to any pen site, once so stocked, any fish of any other year-class.

(7) Defendants shall not at any time after the date of this Order and Injunction, irrespective of the provisions of any permit, ruling, rule, or regulation, or any state law, stock in waters adjacent to the Maine coast any salmonid fish of non-North American stock or genetic strain.

Non-North American stock or genetic strain is hereby **DEFINED**, for purposes of this Order and Injunction, as any **Atlantic salmon** (*salmo salar*) which possesses genetic material derived partially (hybrids) or entirely (purebreds) from any Atlantic stock of non-North American heritage regardless of the number of generations that have passed since the initial introduction of the non-North American genetic material into the stocks.

(8) Plaintiffs shall recover their reasonable attorneys' fees herein, as hereafter to be provided for pursuant to Local Rule 54.2, and costs pursuant to Local Rule 54.3.

The Court retains jurisdiction of this action for purposes, if need be, of the enforcement of this Order and Injunction.

[FN1.](#) Since that time, various proceedings have been before the Court with respect to Defendant ASM's stocking of salmon smolt in certain of its pens pending the resolution of the remedial and injunctive relief aspects of this case. Those aspects of this matter have been pending before the United States Court of Appeals for the First Circuit in proceedings that are distinct from the matter as it is presently pending in this Court. Those proceedings were terminated by Defendant ASM's recent withdrawal of its appeal.

[FN2.](#) See, in Civil No. 00-151-B-C, Docket Item Nos. 49 and 53 and, in Civil No. 00-149-B-C, Docket Item Nos. 47 and 51. These entries are the Recommended Decisions of the Magistrate Judge and the Orders Affirming the Recommended Decisions in each case.

[FN3.](#) ASM's Cross Island site must be fallowed for twenty-four to thirty-six months for the benthos to recover there. ASM stocked smolts at Cross Island in November 2000, after only a three-month fallowing period, which the Company admits was not sufficient.

[FN4.](#) The FAMP monitoring reports are forwarded to EPA.

[FN5.](#) On November 30, 2001, DMR informed ASM that, at its Cross Island site, environmental conditions under the polar circles of the site showed continued severe organic loading, including bacterial mats, excessive feed, and anoxic conditions.

[FN6.](#) In December 2000, the EPA determined that salmon farm MPDES permits must prohibit non-North American strains of salmon.

[FN7.](#) The Canadian province of New Brunswick prohibits the growing of non-North American strains of salmon at New Brunswick salmon farms in an effort to protect wild salmon.

[FN8.](#) Heritage Salmon has agreed not to grow non-North American or transgenic salmon at its

Maine salmon farm; to employ a containment system designed, constructed, and operated so that fish do not escape to open water; to report all known escapes; and to tag its fish with whatever type of tags the agencies determine are needed. Heritage Salmon farms are located in Cobscook Bay.

[FN9](#). Heritage Salmon has agreed not to exceed a stocking density of 18 kg/m<sup>3</sup> at the time of lowest dissolved oxygen.

[FN10](#). Letting salmon farm sites lie fallow for at least thirty days breaks disease and parasite cycles.

[FN11](#). It is illegal to use cypermethrin in the salmon farms in Canada.

[FN12](#). If the statute of limitations had commenced to run, June 1, 1995 is the beginning date for determining the amount of civil penalties to be awarded in this case because "in citizen enforcement actions the five- year statute of limitations period [set forth in [28 U.S.C. § 2462](#)] is tolled sixty days before the filing of the complaint, to accommodate the statutorily-mandated sixty-day notice period." [Sierra Club v. Chevron U.S.A., Inc., 834 F.2d 1517, 1524 \(9th Cir.1987\)](#). Since Plaintiffs filed their Complaints in these actions on July 31, 2000, the statute of limitations, if running, was tolled as of June 1, 2000. Applying the five- year statute of limitation to June 1, 2000, the Court concludes that if the claims have accrued, the beginning date for the penalty against Defendants would be June 1, 1995.

Defendants assert that April 26, 2000, the date on which Plaintiffs actually delivered notice of intent to sue, is the date which tolls the statute of limitations. The Court disagrees. In this case, Plaintiffs filed their Complaints more than sixty days after filing notice of intent to sue. Under Defendants' approach, citizen plaintiffs would be able to file notice of intent to sue and then delay in pursuing their rights without any adverse effect.

[FN13](#). Some courts that opt to apply a discovery rule generally make "accrual" the time of the filing of the DMRs, which Defendants are required to file pursuant to NPDES permits. The record here does not show that any DMRs have been filed, presumably because no NPDES or MPDES permits have been issued. Thus, the application of such a discovery rule would yield the same result: that the statute of limitations has not yet started to run because no claim has "accrued."

[FN14](#). The letters as authored by EPA notifying Defendants of the requirement that they obtain permits bear no date, but the date stamp on the one sent to ASM (Joint Ex. 563) indicates that it was received on October 22, 1990.

[FN15](#). The maximum penalty is \$25,000 per day for violations occurring on or before January 30, 1997, see [33 U.S.C. § 1319\(d\)](#), and \$27,500 per day for violations occurring after January 31, 1997, see [40 C.F.R. §§ 19.2, 19.4](#).

Assessing only a single violation each day since October 22, 1990, each Defendant stands exposed to a damages award in excess of \$9,500,000. In all the circumstances of the cases, the Court finds such an award to be wholly unwarranted.

[FN16](#). The Court is satisfied that imposing a prospective ban on stocking of non-North American stocks or genetic strains will not conflict in future with the primary jurisdiction doctrine. The extensive record made in these proceedings shows beyond any reasonable doubt that use of those stocks imperils the survival of wild salmon, a listed endangered species. In one of the few positive actions taken by the administrative agencies, they recognized that fact. The proposed MPDES permit (Defendants' Ex. 21) provides for such a ban as of July 31, 2003. Every other regulatory agency that has faced up to the issue has proposed a ban on the use of those stocks. No further study, nor any peculiar agency expertise, is required to recognize the compelling thrust of the evidence and actual practice in other jurisdictions that establishes that such a ban is required to enhance

the survivability of the wild salmon. There will be no need to revisit that issue to test its continuing viability in the foreseeable future.

[FN17](#). A similar hazard of potentially long-term duration exists with respect to the use of transgenic salmonids. The record is not as persuasively developed as to the existence and severity of impact of this hazard at this writing, however, and the Court believes that those issues should be further addressed by the agencies in the future if they can bring themselves to take some effective action in setting the terms of a proper body of permit requirements that will adequately and seriously address the environmental aspects of salmon aquaculture. In any event, the record does not give sufficient guidance to the Court to make a decision as to whether the use of such salmon strains should be prohibited under the Act at this time. The Court notes that the proposed draft MPDES permit bans the use of "transgenic salmonids" (Defendants' Ex. 21 at 22). The Court presumes that the issue of their use will eventually be addressed and resolved in the permitting process.

[FN18](#). The statutory damages are required to be paid to the United States Treasury. [PIRG v. Powell Duffryn Terminals, Inc., 913 F.2d 64, 81-82 \(3rd Cir.1990\)](#), and cases there cited.

[FN19](#). Counsel have provided to the Court, as this opinion and Order is about to be published, the DEP's May 12, 2003, letter circulating the redrafted, proposed MPDES permit. The Court has not had time to study it in detail. It suffices to say that the Court is not reassured by the contents of that document that a definitive permit will be promulgated anytime soon. Nor, in perhaps the most important substantive aspect of its contents, protection of the wild salmon, is the Court reassured that the DEP will finally take stringent and immediate action in respect to an immediate ban on stocking non-North American stocks or genetic strains. The contents of the record before this Court demonstrate in the most compelling manner the need of an immediate ban. The newly proposed permit extends the timing of the effective prohibition on the use of such stocks by thirteen months. There is no proper justification for such a delay in implementation of the ban, and the allowance of this delay will do incalculable harm to the survivability of the wild salmon. The Court has not considered the contents of this belated submission for any purpose other than the above ruminations.

[FN20](#). The conduct of Defendants only deteriorated to bad faith, and then only with respect to ASM, in April of 2003 when ASM stocked over

100,000 smolt at Scragg Island pen sites in violation of a Court order. That single instance of bad faith has been effectively addressed by this Court's Order of May 9, 2003, and the Court believes the smolt have been removed by ASM as ordered. See letter of P. Culley, Esq., dated May 20, 2003 (Docket Item No. 111 in Civil No. 00-151-B-C). That spasm has been, so far as the Court is concerned, adequately and responsively addressed by the Court and ASM.

[FN21](#). ASM's annual production of salmon for market amounts to 5,000 tons. Stolt's annual production is 1,000 tons. The stocks presently in the water must represent at least a year's production for both companies. Hence, one can reasonably extrapolate that the existing stocks, conservatively estimated, have an intrinsic value of several million dollars and at maturation will represent a very substantial operating investment to each company.

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