History/Analysis of Maine’s Splake Stocking Program

Splake: Magalloway River, 2005

Splake: Sheepscot River, 2005

Splake: Ragged Stream, 2005

Splake: Seboeis River, 2004

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Background

The following is a history, summarization, and analysis of the state of Maine Department of Inland Fisheries and Wildlife (MDIF&W) splake stocking program. Splake (SPK), a freshwater game fish, is a hybrid (S. namaycush x S. fontinalis) that results from the deliberate crossing of lake trout (LKT) and brook trout (BKT) in a hatchery environment.

The analysis performed was primarily administrative in nature. As part of the analysis we collected as much data as possible in regard to Maine’s historic and current use of SPK. In addition, we mined the Internet to collect data from sources outside the MDIF&W. After collecting the data, we consolidated the data, identified trends, and published our findings.

Note: This report is a summary of a much larger document that includes a series of detail tables, etc. If you are interested in obtaining a copy of the full report, please contact the Dud Dean Angling Society at (207) 729-7598.

Goals and Objectives

The primary goal of this study is to show the public what has been done historically, and what is being done today, in regard to the stocking of SPK in Maine’s inland waters. The data itself tells a compelling story while the quotes from the experts raise some serious questions as to when and where SPK should and should not be used.

We see the situation regarding SPK as being endemic of an increasing acceptance of, and dependence on, hatchery-raised fish in Maine (hatcheries now cost over $2,000,000 per year and represent over half of the total fisheries budget). In addition, SPK represent what some consider modern day “fish husbandry” at its worse; i.e., a stocking program with no intention of establishing self-sustaining populations of fish.

What we would like to see come out of this effort is an increased awareness of our current fisheries policies and some level of reform in regard to the use of SPK as a management tool. We are not proposing the elimination of the SPK program. We are however recommending some policy changes that will help protect existing wild salmonid populations; promote the development of self-sustaining salmonid fisheries, reduce our reliance on costly (and inferior) stocked fish, and allow for the continued use of SPK where appropriate.

Disclaimer

The data used in this analysis covered the period from 1981 through 2004 only. Data prior to 1981 concerning the SPK program was not readily available and the accuracy of what was available was questionable. As such, data prior to 1981 was omitted. The period from 1981 through 2004 does however represent the bulk of the SPK program as there were only 2 waters stocked with SPK in 1981.

We must also point out that this (or for that matter any) analysis is only as good as the data it is based on. While we believe the data to be reasonably accurate (enough to identify the approximate size of the program, trends, etc.), we know that there are some inaccuracies. However, as stated, the trends, summaries, and conclusions should not be adversely affected by problems at the data element level.
**Where Have SPK Been Stocked**

**Historic**

There are 97 unique bodies of water in Maine that have been stocked with SPK at least once since 1981. All regions and counties have at least one body of water that has been stocked with SPK. Region E (28 waters) and Piscataquis County (25 waters) account for the highest number of waters stocked with SPK respectively. SPK were first stocked (since 1981) in Region A in 1986, Region B in 1981, Region C 1982, Region D in 1992, Region E in 1986, Region F in 1995, and Region G in 1987.

**Current**

There were 60 unique bodies of water stocked with SPK in 2004. All regions had at least one body of water (actually between 4 and 17) stocked with SPK in 2004. Region E (17 waters) and Piscataquis County (16 waters) accounted for the highest number of waters stocked with SPK in 2004. Four counties (Knox, Sagadahoc, Waldo and York) did not have any waters stocked with SPK in 2004.

**How Many SPK Have Been Stocked**

**Historic**

There have been 1,000,726 (855,033 excluding fry) SPK stocked since 1981. There were 87,362 SPK stocked in the 1980’s, 571,231 (444,794 excluding fry) in the 1990’s, and 342,133 (322,877 excluding fry) between 2000 and 2004. The highest number of SPK stocked in a year both with and without fry was 1998 with 138,587 and 86,650 respectively.

Region A has stocked 71,989 SPK (since 1981), Region B has stocked 210,996 (171,996 excluding fry), Region C has stocked 68,555, Region D has stocked 191,722 (85,029 excluding fry), Region E has stocked 275,685, Region F has stocked 49,539, and Region G stocked 132,240.

**Note:** There was a catastrophic failure in the hatchery system in 1996 that resulted in the near total loss of SPK. This is reflected in the numbers and related graphs.

**Note:** Fry (2-3”) were stocked between 1997 and 2001. These are what are referred to as “Unscheduled” or “Surplus” fish. Fry have an extremely low survival rate and cost very little to raise and therefore artificially inflate the numbers.

**Current**

There were 48,467 SPK stocked in 2004. All SPK stocked in 2004 were SY (spring yearlings), FF (fall fingerlings), or FY (fall yearlings). There were no fry stocked after 2001.

Region A stocked 3,210 SPK in 2004, Region B stocked 7,850, Region C stocked 3,925, Region D stocked 6,682, Region E stocked 15,682, Region F stocked 7,500, and Region G stocked 3,450. Region E stocked the highest number of SPK with 15,682 (32% of the SPK stocked in 2004 and approximately twice as much as the second highest). Region A stocked the fewest with 3,210 (7% of the SPK stocked in 2004).
Is the SPK Program Increasing or Decreasing

Number of Waters Stocked

The number of waters stocked with SPK has gone up 15 of the last 23 years, 6 of the last 10 years, and 3 of the last 5 years. The 5 highest number of waters stocked with SPK in a given year occurred in the last 7 years, with 4 of the 5 occurring in the last 4 years. The single highest number of waters stocked with SPK in a given year occurred in 2003.

In each region, the highest number of waters stocked in a year occurred in the last 7 years. In 5 regions (C, D, E, F and G), the highest number of waters stocked in a year occurred in the last 5 years. In 4 regions (D, E, F and G), the highest number of waters stocked in a year occurred in the last 2 years. Region F stocked the highest number of waters in a year in 2004.

In regard to the “Number of Waters Stocked”, we believe that it is fair to say that this aspect of the SPK program is increasing.

Number of Fish Stocked

The number of SPK stocked per year has gone up 12 of the last 23 years, 7 of the last 15 years, 4 of the last 10 years, and 2 of the last 5 years. The five highest numbers of SPK (excluding fry) stocked in a year occurred in 1998, 2001, 2000, 2002, and 1999. The number of SPK stocked per year has however dropped in the past 3 years (from 76,181 in 2001 to 48,467 in 2004).

In regions B, C, and D, the 5 highest number of SPK stocked in a year occurred in the last 10 years. In Region F, the 5 highest number of SPK stocked in a year occurred in the last 5 years. In all but Region A, the highest number of SPK stocked in a year occurred in the last 10 years.

In regard to the “Number of Fish Stocked”, while the number has been climbing steadily since the inception of the program, based on a three-year downward trend that went through 2004, we believe that it is fair to state that this aspect of the SPK program appears to be decreasing (the decline in the number of fish stocked has only been in the last 3 years).

Size of Fish Stocked

The size of the SPK stocked has increased in 3 of the last 5 years and 7 of the last 10 years. The average SPK stocked was 7.81” in 1989, 8.92” in 1991, 9.07” in 1997, 9.41” in 2000, and 9.70” in 2004. This implies that the total inches of fish stocked are not decreasing at the same rate that the total number of fish stocked is.

This situation is worth monitoring as the larger the fish is the more money it cost to raise. Specifically, while the historically used Fall Fingerlings (6-8”) and Spring Yearlings (8-12”) cost $1.06 and $1.30 per fish respectively, the newer Fall Yearlings (12-14”) cost $3.50 per fish.

Fall Yearlings were first stocked in 2002 and have been stocked 12 times since. At $3.50 per fish, a resident angler whom purchases a $22 fishing license must be subsidized after harvesting just 7 fish ($24.50).

In regard to the “Size of Fish Stocked”, we believe that it is fair to say that this aspect of the SPK program is increasing.
Movement of Stocked SPK into Non-Target Waters

SPK have shown up in an alarming number of non-target waters over the past several years. This is due to what biologists refer to as “Out-Migration”. Out-migration is when a fish (stocked or wild) leaves one body of water for another. For reasons that are not clear (temperature, food, etc.), SPK have shown a propensity for leaving the water where they were stocked.

In addition to speculation that it could happen, there have been numerous confirmed and rumored incidences in Maine of stocked SPK migrating into non-target waters. Reports of this have come from anglers, the media and the MDIF&W. In some cases it was a single fish. In some cases it has been a small number of fish. In some cases it has been numerous fish:

- **MDIF&W (Tim Obrey / SPK Specialist):**
  - Splake may temporarily utilize stream and river habitat during the cooler periods….
  - …splake emigrated from Long Pond. Several splake were reportedly caught in Round Pond, which lies a short distance downstream from Long Pond.

- **MDIF&W (John Boland / Director of Fisheries):**
  - Yes [Is the department aware that SPK from Wyman Lake are migrating upriver into the upper Kennebec and Dead Rivers?]
  - Yes [Is the department aware that SPK from Wyman Lake are migrating downriver into the middle Kennebec (Bingham tailwater)?]
  - Yes [Is the department aware that SPK from Deer Pond, Chesuncook Pond, and Ragged Lake are migrating into Caribou, Chesuncook and Ripogenus Lakes?]
  - Yes, unconfirmed but certainly possible [Is the department aware that SPK are migrating into the Rapid River?]

- **MDIF&W (Forrest Bonney / BKT Specialist):**
  - Two pools of splake were raised adjacent to brook trout pools and a few presumably jumped in with the trout, some of which may have been stocked into ponds tributary to Pierce Pond. [Are you aware that SPK have been caught in Pierce Pond?]
  - We could consider reducing the number of fish stocked [What can we do to stop the out-migration of SPK from Wyman Lake into the Kennebec above and below the lake?]

- **Northern Sky News:**
  - Last summer an angler bushwhacked way the heck into an untrammeled section of Maine’s Seboeis River, which once had a great reputation for growing wild brook trout. Even there, he caught a splake, a hatchery spawned lake trout/brook trout hybrid.
  - Splake stocked in Wyman Lake have moved all the way up the Kennebec, threatening and displacing wild, native brook trout. They’ve also dropped down into the Kennebec below the lake.
  - Splake stocked in Sturtevant Pond on the Maine-New Hampshire border have been showing up in the Rapid River, where the world-class brook trout fishery is already being threatened by smallmouth bass.
The following is a list of non-target waters where SPK have been confirmed. There are other waters where the presence of SPK has been reported but not confirmed. Based on what we have seen, it is fair to say that SPK can and do leave their target water when the opportunity for out-migration exists and the conditions warrant it.

### NON-TARGET WATERS WHERE SPK HAVE BEEN FOUND

<table>
<thead>
<tr>
<th>WATER</th>
<th>LIKELY SOURCE</th>
<th>COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>BALD MT POND</td>
<td>UNDETERMINED (POSSIBLE HATCHERY JUMPS*)</td>
<td>BALD MT POND IS ONE OF A HANDFUL OF WATERS IN MAINE THAT HAS BLUEBACK CHAR IN IT.</td>
</tr>
<tr>
<td>CARIBOU &amp; CHESUNCOOK LAKES</td>
<td>DEER P, RAGGED L, CHESUNCOOK P</td>
<td>THE CHESUNCOOK SYSTEM IS CONSIDERED ONE OF MAINE’S FINEST SEMI-REMOTE WILD LLS WATERS.</td>
</tr>
<tr>
<td>DEAD RIVER</td>
<td>WYMAN L</td>
<td>SPK ARE NOW FOUND THROUGHOUT THE LOWER RIVER AND ON TOP OF WILD BKT, LLS, RBT AND BRN.</td>
</tr>
<tr>
<td>KENNEBEC RIVER</td>
<td>WYMAN L</td>
<td>SPK ARE NOW FOUND BOTH ABOVE AND BELOW WYMAN L AND ON TOP OF WILD BKT, RBT, BRN, AND LLS.</td>
</tr>
<tr>
<td>MAGALLOWAY RIVER</td>
<td>STURTEVANT P</td>
<td>THE MAGALLOWAY R IS CONSIDERED ONE OF MAINE’S TOP WILD BKT RIVERS FOR LARGE FISH.</td>
</tr>
<tr>
<td>MUNSUNGON LAKE</td>
<td>ECHO L</td>
<td>THE PRESENCE OF SPK IN MUNSUNGON PUTS MUNSUNGON S, MILLINCOKET S, AND THE AROOSTOOK R AT RISK.</td>
</tr>
<tr>
<td>PIERCE POND</td>
<td>UNDETERMINED (POSSIBLE HATCHERY JUMPS*)</td>
<td>PIERCE P IS CONSIDERED ONE OF MAINE’S FINEST WILD BKT WATERS FOR LARGE FISH.</td>
</tr>
<tr>
<td>RAGGED STREAM</td>
<td>RAGGED L</td>
<td>RAGGED S IS THE SECOND MOST IMPORTANT LLS SPAWNING TRIBUTARY FOR THE CHESUNCOOK SYSTEM.</td>
</tr>
<tr>
<td>RAPID RIVER</td>
<td>STURTEVANT P</td>
<td>THE RAPID R IS CONSIDERED MAINE’S (AND ARGUABLY THE NATIONS) FINEST WILD BKT RIVER.</td>
</tr>
<tr>
<td>SEBOEIS RIVER</td>
<td>UNDETERMINED (NO ADDITIONAL INFORMATION)</td>
<td>THE SEBOEIS R DRAINS INTO THE EAST BRANCH OF THE PENOBSOCTT WHICH IS HOME TO WILD BKT AND LLS.</td>
</tr>
</tbody>
</table>

**Notes:**

- The Governor Hill Hatchery raised both BKT and SPK. SPK were also raised in the Embden Hatchery for a brief period of time. Bald Mountain Pond received BKT from the Governor Hill Hatchery in 1998 and 1999.
- While Pierce Pond has not been intentionally stocked with BKT for many years, it was the victim of an accidental BKT stocking in 1995. The fish came from the Governor Hill Hatchery and were targeted for North Otter Pond.
The Dietary Habits of Splake

It is unclear as to exactly what SPK do and do not eat. However, there appears to be consensus that after SPK reaches a certain size; they rely almost exclusively on small fish. To assume that SPK would not prey on a given species of minnows would be naïve. The reality is that what SPK eat is most likely as much about opportunity as it is preference.

In addition to cases where predation on game and forage fish by SPK has been confirmed, there have been many unconfirmed incidences. Reports and actual proof of this have come from anglers, the MDIF&W, and other experts:

- **MDIF&W (Tim Obrey / SPK Specialist):**
  - Splake fed on *other fish species*, such as white perch and yellow perch…
  - Splake feed *primarily on smelts, white perch, yellow perch, and minnows.*
  - They [SPK] rarely feed on other coldwater gamefish.
  - …*splake exhibit very flexible food habits and although they are most likely to feed on smelts and white perch, they will also feed on yellow perch, sunfish, and minnows.*
  - Splake are stocked in an effort to reduce the number of illegally introduced smelts.

- **MDIF&W (Ron Brokaw / Regional Biologist):** Sure enough, one of the splake they obtained in the gill net sample had a fresh [Atlantic] salmon smolt in its stomach.

- **Brynildson and Kempinger (1970):** …by the time fish [SPK] had reached 3 – 4 years of age, fish comprised almost 100% of the splake diet. Splake have the capability to utilize many different prey types and diet is often reflective of the relative availability of prey.

- **Northern Sky News:** Splake are such efficient predators that Colorado fisheries managers stock them to control overabundant brook trout…

- **Satterfield and Koupal (1994):** …*splake stocking may also be an effective means of reducing brook trout density.*

- **Kerr and Grant (2000):** Splake are largely piscivorous and are know to *prey on other fishes* including alewives, yellow perch, pumpkinseed, smelt, sculpins, sticklebacks, trout-perch, brook trout and various cyprinids. They have also been noted to feed upon the eggs of both lake trout and other splake.

- **Spanger and Berst (1976):** The planted fish [SPK] were piscivorous throughout age groups II – V with *rainbow smelt* (Osmerus mordax), sticklebacks (Pungitius sp.) and alewives (Alosa pseudoharengus) the *dominant food* organisms.

- **Lake Superior Technical Committee (2002):** The issues, in Lee’s opinion, with splake in Lake Superior are; (1) genetic because of the potential to interbreed with lake trout and brook trout, *predation effects*, and competition for food with native fish.

- **Fly Rod & Reel (2005):** Not only do they [SPK] compete with brook trout, they eat them – so voraciously, in fact, that managers actually *use splake to control stunting when brookies become superabundant in Western lakes.*
Do Splake Compete With Other Salmonids

Much has been written in regard to potential competition between SPK and other salmonids such as BKT, LKT, and rainbow trout. The primary concern is in regard to food, habitat and spawning. It is fair to assume that any fish competes to some degree with other fishes. This becomes an issue when the competition has a detrimental effect on a “preferred” species.

In addition to cases where competition between SPK and other fish for food, habitat and spawning has been confirmed, there have been many unconfirmed incidences. Reports and actual proof of this have come from anglers, the MDIF&W, and other experts:

- **MDIF&W (Tim Obrey / SPK Specialist):**
  - Splake have been reported on traditional lake trout spawning shoals during October in Lake Huron and in brook trout spawning areas in Redrock Lake in Ontario,…
  - There is a considerable overlap in food habits of splake and landlocked salmon. Both rely heavily on smelts at certain times of the year.

- **MDIF&W (Ron Brokaw / Regional Biologist):**
  - While it is true that splake compete for smelt and other forage with the toge…

- **Leik (1959) and Burkhard (1962):** …splake competed for food with rainbow trout especially during the spring and fall when both species were feeding in shallower waters.

- **Satterfield and Koupal (1994):**
  - Density of stock-length brook trout, as measured by gill net catch per unit effort, declined in all waters from a pre-splake introduction average of 42 fish per net night to 23 fish.
  - …suggesting that splake populations with a substantial proportion of quality length fish can affect brook trout population structure.
  - …if splake populations are established in small waters containing brook trout, anglers may have to accept lower brook trout catch rates.

- **Hanson (1972):**
  - The main impact of the splake’s introduction and interaction with the brook trout may have been the early and prolonged presence of the splake on the brook trout spawning grounds that forced the brook trout to spawn in a very short period of time.
  - [SPK on BKT redds] could reduce the overall capability of the brook trout population to compensate for unfavourable conditions at the time of spawning, hatching and emergence.
  - The dominance of splake over the limited spawning grounds forced many brook trout to spawn under suboptimal conditions which could limit the overall success of brook trout spawning.
  - …splake used the same spawning areas as brook trout and actually suppressed all spawning by early maturing brook trout.

- **Lake Superior Technical Committee (2002):**
  - The issues, in Lee’s opinion, with splake in Lake Superior are; (1) genetic because of the potential to interbreed with lake trout and brook trout, predation effects, and competition for food with native fish.
Can Splake Reproduce

There is consensus that SPK are “capable” of reproduction. There also appears to be consensus that SPK have successfully reproduced in the hatchery environment. There is however some debate as to whether SPK reproduce in the wild. While some expert’s claim that SPK have reproduced in the wild, the MDIF&W claims that they have not.

In addition to cases where successful SPK reproduction has been confirmed, there appears to be cases where SPK have reproduced with one or both of the parent species (BKT or LKT). This is what biologists refer to as “backcrossing”. When backcrossing occurs, it results in a new hybrid (SPK/BKT, SPK/LKT).

Statements from the MDIF&W

• **MDIF&W (Tim Obrey / SPK Specialist):**
  ⇒ This hybrid trout [SPK] is genetically stable and capable of reproducing. However, splake reproduction has never been documented outside of the hatchery environment.
  ⇒ Although they [SPK] are the only salmonid cross capable of reproducing for an indefinite number of generations, successful reproduction has only occurred in hatcheries.
  ⇒ Although it [spawning] has never been documented in the wild, it has been done successfully in the hatchery situation.
  ⇒ Because of these factors it is highly unlikely that self-sustaining populations of splake will become established in Maine.

  **Note:** As evident by the use of the term “highly unlikely”, even the MDIF&W who has stated that natural reproduction of SPK has not occurred stops short of saying that it could not occur.

• **MDIF&W (Fishes of Maine):** Spawning [of SPK] has been successfully accomplished in the hatchery, but there has been no documented evidence of splake reproduction occurring in the wild.

Experts Who State that SPK “Can” Reproduce in the Wild

• **S. J. Kerr (2000):** The F1 splake [used in Maine] is a fertile hybrid and there is the potential for hybridization with either parent species in waters where they coexist. Genetic impacts may be of particular concern with brook trout.

• **Karas (1997):** First generation splake are fertile, and in experiments this fertility has extended as far as four generations.

• **Behnke (2002):** These fish [SPK] are fertile and may reproduce in nature.

• **Huckins (2005):** There’s the potential for interbreeding [between SPK and BKT], and I also question it [stocking SPK] on ecological grounds.

• **Wilton (1971):** Unlike many hybrids, the splake is able to reproduce and while it prefers the gravel seepage shoals usually used by brook trout for lake spawning, in the absence of these it will use the boulder shoals favored by lake trout.
• **Lake Superior Technical Committee (2002):**
  ⇒ The issues, in Lee’s opinion, with splake in Lake Superior are; (1) genetic because of the potential to interbreed with lake trout and brook trout, predation effects, and competition for food with native fish.
  ⇒ …published studies indicate at least a possibility that splake could have a major genetic, predatory, or competitive impact on native lake trout and brook trout.

**Experts Who State that SPK “Do” Reproduce in the Wild**

• **Handbook of the Canadian Rockies (ISBN 0-9692631-1-2):** Splake are fertile hybrid trout produced at the Banff hatchery in 1946 by artificially crossing male brook trout with female lake trout. Natural hybridization of these two is not known. Splake were introduced in Banff and Jasper parks, but only Lake Agnes, a small tarn above Lake Louise, is known to have an established splake population.

• **Spangler and Berst (1978):** First generation (F1) splake are known to have established self-sustaining populations in Agnes Lake, Alberta, which was stocked in 1951. The reciprocal cross (i.e., female lake trout x male brook trout) has also been used to establish a self-sustaining population of splake in Lake 17 near Espanola, Ontario.

• **Fuller and Williams (1999):**
  ⇒ Natural spawning of this hybrid [SPK] has occurred in Lake Huron.
  ⇒ …this hybrid [splake] could affect the genetics of co-occurring parent species.

• **Martin and Baldwin (1960):** Hybrids [SPK] were observed spawning on rocky shoals in early November and had spawning characteristics of each parent. Hybrid eggs hatched by the end of April.

• **Berst and McCombie (1975):** …this pond [Glasgow Glen Pond] supported a sport fishery for planted rainbow trout (Salmo gairdneri), splake (Salvelinus namaycush x S. fontinalis) and brook trout backcrosses (splake x S. fontinalis).

• **Buss and Wright (1958):** Fertile hybrids found among the fish tested were splake (lake trout x brook trout) and the backcross progeny of splake x brook trout.

• **Hanson (1972):** The higher average number of vertebrae and pyloric caeca of the Redrock [Lake] brook trout compared to other brook trout is consistent with the hypothesis that backcrossing of the indigenous brook trout and the introduced splake has occurred.

• **Fly Rod & Reel (2005):** Splake were supposed to have been sterile; but, like the monsters of “Jurassic Park,” they’ve found a way to reproduce.

• **Fly Rod & Reel (2005):** …in some parts of Lake Superior they’re [SPK] apparently mixing their warped genes with those of lake trout and brook trout.
What Do Anglers Think About Splake

Another interesting aspect in regard to SPK is how those who stand the most to gain by them (anglers) feel about them. Support for SPK within the angling community ranges from outright opposition, to passive protest (simply do not fish for them), to acceptance. However, in no case that we found did SPK rank above naturally occurring species such as BKT, rainbow trout, brown trout, or salmon in regard to popularity.

In addition, while support for SPK among fisheries managers seems fairly consistent, there are many professionals who warn against the improper use of SPK and the potential impact on native and wild salmonids:

- **MDIF&W (Tim Obrey / SPK Specialist):**
  - So few anglers targeted splake in 1994 that regional use estimates were not calculated.
  - The [Coldwater Working Group] was polled in regards to their feelings about the future of the splake program. The results are listed below [3-Maintain, 1-Expand, 3-Cut]
  - There is a lack of understanding of the role and importance of splake to Maine’s inland sport fisheries by the general public that often results in little support or outright opposition for new and/or existing programs.

- **MDIF&W (1990 Angler Survey):** Splake ranked 13th when anglers were asked which species they chose to fish for.

- **MDIF&W (1999 Open Water Fishing Survey):** Splake ranked 11th when anglers were asked which species they chose to fish for. [SPK fell below all other salmonids, both bass, smelt, pike and white perch]

- **MDIF&W (Russell Danner / Fish & Wildlife Pathologist):** Its really a shame that they [SPK] are not better received by anglers, we could raise many more if there was a demand.

- **George Smith (Executive Director - Sportsman’s Alliance of Maine):**
  - In 1998, SAM’s membership survey included this question: If you had to choose, would you prefer rainbow trout or splake. 86% chose rainbows, and 14% choose splake.
  - SAM opposes the use of splake in Maine waters and has tried every way possible to eliminate them, including advocating for their elimination in the deliberations of the Hatchery Commission.
  - …but the Commission did vote to reduce splake stocking by 50 percent. Unfortunately MDIF&W has ignored the Commission’s recommendation.

- **Maine Council – Trout Unlimited:** No [Do you support the SPK program?]

- **The Maine Sportsman (Readership Poll):** Should MDIF&W stop stocking splake? YES 35, NO 52

- **TripTracks (Online Angler Survey):** Percent of anglers reporting that targeted SPK: 1.1%. [SPK fell below smallmouth and largemouth bass, pickerel and toge]
Recommendations Regarding the Use of Splake

Stocking Splake as an Alternative to Brook Trout

If the intention of the SPK program is to provide fishing where stocked BKT cannot be used (see below), we do not believe that this is what is being done today in many cases. Specifically, the highest number, and densest concentration, of waters stocked with SPK is in Piscataquis County, home to what is arguably our finest BKT habitat.

MDIF&W (Tim Obrey / SPK Specialist): In 1990, the Department of Inland Fisheries and Wildlife began a pilot program to determine if splake could provide acceptable fisheries in waters where stocked brook trout had failed.

In fact, waters such as Ragged Lake, Holeb Pond, Big Wood Pond, Holbrook Pond, Deer Pond, Chesuncook Pond, Millinocket Lake, etc., have all at one time or another supported fisheries for stocked and in some cases even wild BKT. This is where we have some of our greatest concerns about the current management of the SPK program.

We also found that in a number of cases SPK have been provided with a higher level of regulatory protection than the previously stocked (or wild) BKT (see below). This raises the question as to whether BKT would have provided an “acceptable fishery” if they had been provided with the same level of protection that the SPK are getting today.

MDIF&W (Tim Obrey / SPK Specialist): In 1996, the Class 1 trout regulations, which included a 2 fish bag limit; 12 in minimum length limit where only 1 fish may exceed 14 in, replaced General Law regulations on most splake waters.

Note: In few if any cases were the regulations liberalized on a body of water after SPK were introduced. Therefore it is fair to assume that many of the former BKT waters that are now being managed for SPK went from G/L to the more restrictive regulations noted above.

In addition, we identified some concerns from within the fisheries management community in regard to the use of SPK that should be considered:

- *Michigan Department of Natural Resources (1987):* Compared with other species, splake are costly to produce so their use should be limited to those situations in which they are clearly superior.

- *Ontario Ministry of Natural Resources (1978):* Much of this [decline in SPK] is believed due to the adverse effect of a furunculosis outbreak on survival of yearling splake. The disease caused heavy losses in the hatchery…

- *Kerr and Grant (2000):* Splake have been found to host at least 21 different parasites and be infected with several diseases including kidney disease and furunculosis.

We feel that the MDIF&W should review where SPK are currently being stocked to determine what waters could support a BKT fishery if management accordingly. When you consider that BKT are the most sought after freshwater game fish in Maine (SPK are #11), and a primary reason why non-resident anglers come to Maine to fish, this simply makes sense.

Stocking Splake as an Alternative to Rotenone
Between 1998 and 2004, the MDIF&W stocked 11,000 SPK in Thissell Pond (Piscataquis County) in an attempt to eradicate illegally introduced smelts that had put a popular wild BKT fishery at risk. The project took 7 years to complete and cost the department approximately $11,660.

According to the MDIF&W (Denny McNeish), dry rotenone cost approximately $2.50 per pound and the typical cost per “acre foot” is $3.37 to $6.75. Thissell Pond is 141 acres with an average depth of 21 feet (or 2,961 “acre feet”). The cost to chemically treat Thissell Pond to remove unwanted smelts would have been between $9,978.57 and $19,986.75 (or a mid-point of $14,982.66).

While it has taken 7 years for the SPK to eradicate the smelts (if in fact they are completely gone which is unclear at this time), chemical reclamation would have been a one-time event. In addition, although SPK stocking has been suspended as of the end of 2004, SPK will be present in the system for some number of years to come.

Lastly, it is unclear at this time whether the wild BKT population will rebound or not, and as such whether subsequent BKT stocking will be required. It is also important to note that Thissell Pond had been successfully chemically reclaimed in the past.

While SPK may be an effective predator of smelts and other undesirable species, the use of them as a way to control (more so than eradicate) populations should be limited to waters where traditional methods are not scientifically feasible. In addition to the obvious economic concerns, the length of time it takes to accomplish the desired result is not conducive to the end goal; i.e., restoring the fishery to its pre contamination state as quickly and efficiently as possible.

Stocking Splake Where Out-Migration is Possible

We believe it is irrefutable that SPK have shown a predisposition to out-migrate from their stocked water into other apparently more desirable water (or in search of such). The reasons could be temperature, food, or any number of things. Regardless, there can be no denying the potential negative impact of SPK or any other species ending up in non-target water.

Specifically, the issue as to whether SPK can reproduce or interbreed with parent species is far too significant to ignore. If there is any chance at all (and apparently there is), this should not be taken lightly. It can also be argued that competition with other salmonids for food and habitat is a given. Lastly, predation by SPK on juvenile salmonids has been proven, even here in Maine:

- **Ontario Ministry of Natural Resources (1999):** …it [SPK] is to be used only to provide hatchery-dependent, put-grow-and-take fishing opportunities in lakes where naturally reproducing stocks of lake trout or brook trout are not present and cannot be re-established.

- **S. J. Kerr (2000):** Splake should not be stocked in waters having a resident, naturally reproducing population of either brook trout or lake trout.

- **Wilton (1971):** …concluded that the introduction of splake should not be considered in lakes already containing self-sustaining populations of either parent species.
We also believe that there is a public relations and credibility issue here. Specifically, how can we expect anglers to dispose of unused bait properly, not transport live fish, not move fish from one body of water to another, and not introduce new species, when the MDIF&W’s own stocking policies are by default resulting in the same thing (a moved fish is a moved fish).

As such, we feel strongly that the MDIF&W should immediately discontinue the stocking of SPK in any waters where out-migration to non-target waters that contain wild salmonids has been confirmed. In no case should any wild salmonid population be put at risk as a result of an unintentional but preventable byproduct of a state-sponsored stocking program.

**Closing Statement**

As stated in the beginning of this paper, our intention is not to terminate the SPK program. Most members of DDAS agree that there is a place for SPK in our overall fisheries management strategy. Specifically, SPK have proven to be popular with certain factions of the ice fishing community and large lake trolling community. In addition, there are clearly places where the use of SPK poses no threat to wild salmonids or other managed species.

However, we feel that the program has drifted considerably from its stated intention (…provide acceptable fisheries in waters where stocked brook trout had failed.) As such, we feel that the SPK program needs to be reevaluated and reformed in regard to where we should and should not use them. This should be done to protect our native and wild salmonid fisheries, enhance our fishing economy, and in fairness to the angling public who pays for these projects.

Lastly, it is important to note that while the MDIF&W has repeatedly stated that there are no “documented” cases where SPK have reproduced in the wild; DDAS was able to find at least 9 cases where it was in fact “documented”. While we cannot state for certain whether these reports are accurate, we can state that they are “documented”. However, some of the reports come from what should be considered reliable sources and should be treated as such.

**Note on Author**

Bob Mallard owns and operates Kennebec River Outfitters, Inc. Kennebec River Outfitters is a full-service fly shop and outfitter located in Madison Maine.

**Source Data Note**

The data used to develop the charts and graphs in this paper came from internal MDIF&W databases known as the “Stocking” and “Species” databases. These databases are available in part at [www.pearl.maine.edu](http://www.pearl.maine.edu) and through the MDIF&W.

**Dud Dean Angling Society (DDAS) Mission Statement**

Dud Dean Angling Society was formed in 2005. The purpose of the organization is to lead the charge for a higher quality coldwater fishing experience in our state on three levels: the protection of our unspoiled native salmonid waters; the protection of our wild salmonid waters, and the identification and nurturing of our stocked waters that show the capacity to support hold-over salmonid populations.
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OBREY, TIM, Fisheries Biologist. MDIF&W No Date. Why Splake?


FIGURE 1. DISTRIBUTION OF ALL SPLAKE WATERS IN MAINE
### WATERS STOCKED WITH SPK SINCE 1981

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<td>81</td>
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<td>82</td>
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<td>D</td>
<td>2004</td>
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</table>

Note: Waters identified in **RED** were stocked with SPK in 2004.
WATERS STOCKED WITH SPLAKE SINCE 1981 (BY REGION)
WATERS STOCKED WITH SPLAKE SINCE 1981 (BY REGION)
WATERS STOCKED WITH SPLAKE SINCE 1981
(ALL REGIONS)

Number of Waters

0 10 20 30 40 50 60 70

Attachment F
WATERS STOCKED WITH SPLAKE SINCE 1981
(REGION: A)

Number of Waters

0 5 10 15 20 25
WATERS STOCKED WITH SPLAKE SINCE 1981
(REGION: B)

Number of Waters
Attachment I

WATERS STOCKED WITH SPLAKE SINCE 1981
(REGION: C)

Number of Waters
WATERS STOCKED WITH SPLAKE SINCE 1981
(REGION: D)
WATERS STOCKED WITH SPLAKE SINCE 1981

(REGION: E)
WATERS STOCKED WITH SPLAKE SINCE 1981
(REGION: F)
WATERS STOCKED WITH SPLAKE SINCE 1981
(REGION: G)