

# Digging Into the Past: Clam Harvesting in the Annapolis Basin



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## Executive Summary

This report is a reflection on clam harvesting in the Annapolis Basin, with particular emphasis on the commercial clam fishery. A brief chronology of harvesting and management activities is presented with emphasis from the early 1900's to present day.

Beginning thousands of years ago, Aboriginal peoples who inhabited the area around the Annapolis Basin harvested clams from the abundant flats. The French and English settlers who arrived over 400 years ago continued the tradition and utilized the plentiful resource in a number of ways. For many years, clams were harvested mainly for personal use. It was only in the 1800's that the commercial clam fishery began.

In a relatively short period during the 1900's, many changes affected the clam industry. The plentiful harvests of the 1940's and 1950's led to the development of several clam buying and processing plants in the area. Some major environmental changes in the 1960's, such as the construction of a tidal barrage at Annapolis Royal, began to affect the clam flats; however the stocks were still very resilient at the time and continued to support some of the highest recorded landings in history.

During the 1970's and 1980's, an increasing number of clam harvesting areas were being closed due to bacterial contamination, which lead to an increase in clam relay and the beginnings of the depuration harvest. The introduction of the tidal power generating station in the causeway at Annapolis Royal had, as some claim, effects on the flats that we continue to see today.

After the drastic decline of the stocks on many beaches of the Basin in the late 1980's and early 1990's, many conservation measures were introduced in an attempt to better manage the remaining fishery. These include such measures as restricted access licensing, conservation closures, size limits, harvesters associations, and management plans. The industry is still in constant change, as shown by the recent privatization of the depuration industry and the out migration of harvesters from the industry.

A compilation of landings data from readily available sources is presented, followed by a personal reflection from the author to conclude the review. The discussion is based on the past 2 years of meeting and working with individuals in the clam industry, including diggers, public servants, buyers and processors, and community members.



## Introduction

Soft-shell clams have been sustainably harvested from the rich and abundant shores of the Annapolis Basin for thousands of years. The aboriginal peoples in the area followed by the French and then English settlers have historically utilized the abundance of clams in the Basin in a variety of ways. Only in relatively recent times has the harvest of clams and changes to its environment undergone tremendous change, resulting in the commercial and recreational fishery that we see today.

This report is a reflection on clam harvesting in the Annapolis Basin, with particular emphasis on the commercial clam fishery. It is a brief overview of the important events that have shaped the fishery throughout the years and which have resulted in its current state.

## Methodology

Information was gathered using a variety of readily available sources including interviews, literature searches, meeting notes, and historical documents that were made available by the Digby County Clam Diggers Association.

The interviews were conducted in an informal manner, speaking with prominent and knowledgeable people who have been involved in the fishery for many years and who may have observed changes through time. The people interviewed live and work in different areas around the Annapolis Basin, and represent different interests. The following three people were interviewed:

- Terry Wilkins, May 04, 2007, Digby – Terry Wilkins has harvested clams his entire life and has been a commercial clam harvester in the Annapolis Basin since the 1960's. He is the descendant of a family of clam harvesters and was very involved in the activities of the Basin Clam Diggers Association, acting as secretary/treasurer for a number of years. Terry has been keenly interested in research conducted on the clam flats and has observed many changes in the fishery throughout the years.
- Carmen Stanton, May 08, 2007, Port Wade – Carmen Stanton is one of the oldest remaining clam buyers still active in the Annapolis Basin. He was one of the first buyers in the area and remembers early events that started to impact the clam beds and the local fishery. He possesses a wealth of information and is able to remember trends in the fishery as far back as the 1940's.
- Tim Cook, May 03, 2007, Weymouth – Tim Cook brings an interesting perspective having been both a clam harvester and a clam buyer. Since his early childhood, he has harvested clams from the area and in the last decade has owned his own clam buying and processing plant. Tim is very knowledgeable on the events that led to the introduction of depuration in the area and the complex dynamic that has existed between the "depuration" and "non-depuration" industries since then.

Follow up to this brief review might include further interviews with more harvesters, representatives from the depuration industry and government employees that have been particularly involved with the fishery in this area.

Information was also compiled through a literature search both on the internet and with readily available documents at the Clean Annapolis River Project Environment Resource Centre. These included scientific studies conducted over the

years in the Annapolis Basin as well as information on clam management in other areas and provinces. Meeting notes from the last two years of CARP's involvement were also examined and general discussions with harvesters and others have been included in a personal reflection on the current state of the fishery.

Finally, historical documents compiled and made available by members of the Digby County Clam Diggers Association were consulted. As follow up to initial work by Melanie Wiber of the University of New Brunswick to create an itemized list of the documents, they were organized in chronological order. All the documents were placed into files for each year. Undated documents were kept in folders with documents that were similar in context or with which they were received in the original box. All the filing work was completed by Janet Mossman at Clean Annapolis River Project. These combined efforts have made the documents much more searchable and accessible.

## **Chronology of Harvesting and Management Activities**

The information presented in this chronology was compiled from readily accessible sources and is by no means a complete picture of the clamming history in the Annapolis Basin. It is a general overview, which captures the main events that have shaped the current fishery. The information includes both harvesting activities as well as managerial and conservation efforts made by those involved in the fishery.

Possible follow up to this review may include the collection of further information on the pre-colonization use of clams as both a food fishery and for ceremonial purposes by the Mi'kmaq peoples. Further information may also be sought regarding the strong clamming tradition that evolved in the Acadian communities. A large information gap could also be filled from the time the commercial fishery started in the mid 1800's to the earlier recollections of interviewees from the 1940's.

### **Pre colonization**

Little information was found on the pre-colonization use and harvest of clams in the Annapolis Basin. Archaeologist Roger Lewis ([nsarchaeologist@hotmail.com](mailto:nsarchaeologist@hotmail.com)) was contacted regarding historical information on Bear River First Nation clamming activities, however time restraints did not allow a proper search in this area. An in-depth search would likely reveal much more information on this topic.

- As early as 1000 B.C., First Nations harvested clams in this area (DFO, 1997).
- Large mounds of clam and other mollusk shells have been found near settlements of aboriginal peoples. These large piles of shells, called middens, show the importance of clams to their diet over the years, as well as the abundance of shellfish that existed at the time (BoFEP, 2003).
- Aboriginal people would clam during the winter months, possibly due to factors affecting water quality, such as Paralytic Shellfish Poisoning during the warmer months (T. Wilkins, personal communication, May 04, 2007)

### **Post colonization**

- The aboriginal peoples shared their harvesting techniques with the Acadians in the Annapolis Basin in the early 1600's. Clam harvesting, especially for large bar clams, but also for the smaller soft-shell clams, has remained a long-lasting tradition in the post-deportation Acadian community of Baie Sainte-Marie, the body of water directly West of the Annapolis Basin. The strong clamming tradition is shown by Acadians' extensive use of clams in



traditional meals such as clam rappie pie as well as village names like “Grosses Coques”, which means “big clams”. The recreational clam fishery in this Acadian community remains to this day very active.

### 1800's

Limited information is presented here on use of clams in the 1800's. The beginning of the commercial clam fishery occurred in this decade. Although it was likely drastically different from the fishery we know today, it was both a continuation of a long-standing tradition of harvesting clams, as well as the beginning of a very new approach to resource use.

- Mid 1800's (approx. 1850): beginnings of the commercial clam fishery (Terry Wilkins, personal communication, May 04, 2007).
- In the early years of the commercial fishery, clams were used as bait for more valuable fish species. Diggers would sell clams for cod bait off the Grand Banks and could make about \$10 a day. At the time, this was more than what most people would earn in a week. It was uncommon for people to eat clams as they were seen as a poor person's food. At the time, clams were only eaten nothing else was available (Digby Courier, Vol. CXIII, No. 35, March 9, 1988).
- During the 1800's, people would use the empty shells of clams to make plaster for walls in their homes and other buildings. It has been very durable over the years. In Clementsport, an old church whose walls were made with clam shell plaster in the 1800's, was still intact in the 1970's. (Steve Hawboldt, July 6, 2007).

### 1940's

The information presented in the following three decades (1940's-1960's), unless otherwise noted, is from personal recollections from Carmen Stanton, who was interviewed on May 08, 2007 at his plant, Dave's Fresh Clams, in Port Wade. Very little information was available on the fishery this early in the documents consulted for this review.

- During the 1940's, clams were very plentiful in the Annapolis Basin and surrounding areas. In the Weymouth River, clams abounded. Surrounding bays were just as plentiful. It was common for fishermen to harvest as many as 8 to 10 dories per tide at Gilbert's Cove alone.
- Clam harvesters used small boats and dories as opposed to all terrain vehicles and trucks to access the clam flats. The impacts to the beaches were minimal.
- The commercial fishery was so important at the time, that the Department of Fisheries and Oceans operated a research station in Weymouth North, a small community approximately 30kms West of Digby.
- In the mid 1940's (approx. 1945), a 2-inch size limit was imposed on clam harvesting in the Annapolis Basin.

### 1950's

During the 1950's, there was a continuation of the plentiful clam harvest, and the beginning of more clam buying and processing in plants. During this decade, there was also a return to unrestricted harvesting of clams of all sizes.

- The size limit, which had been introduced in the 1940's, was removed for clam harvesting. For many years onward, there was no size restriction on harvestable clams. However, the industry at that time was self-regulated to some extent, because most diggers practiced home shucking. Those who shucked clams at home did not want

to have to shuck many small clams, and therefore concentrated their harvest on the larger shellfish. Home shucking, combined with a higher density of clams, made size limit restriction seem less important at that time.

- In 1952, Carmen Stanton started his business: C.E. Stanton. At the time, he both bought clams and harvested clams commercially. He recalled few diggers and buyers at the time, with most diggers practicing home shucking of harvested clams. Some plants had already started to buy clams in the surrounding communities such as Digby, however no plants were operating on the north shore of the Basin. Several plants would open and thrive in following years, only to close again with the decline of the fishery.

## 1960's

Some of the big changes in the Annapolis Basin started occurring in the 1960's, markedly, the construction of the tidal barrage at Annapolis Royal. Despite some of these changes, the harvest of clams continued to be productive, leading to an increase in the number of clam buyers and processors in the area.

- In 1960, a tidal barrage was constructed at Annapolis Royal. It was common practice at the time to construct large barrages across large tidal rivers and estuaries in order to protect agricultural land upstream from flooding behind deteriorating dyke systems (Stephen Hawboldt, personal communication, July 3, 2007).
- Carmen Stanton recalled the clam flats in the Basin to be sandier prior to tidal barrage, after which he believes some sedimentation occurred. The mud flats became muddier than they had been in the past.
- During the mid 1960's, there was an out migration of many clam harvesters toward Ontario, whose forestry industry was thriving at the time. This occurred shortly after the installation of the tidal barrage at Annapolis Royal, and many people speculate the barrage led to a temporary decline in the health of the clam populations in the Basin.
- In the mid-1960's, some re-seeding efforts began on depleted beaches with clam seed being spread on inshore stretches as well as offshore with horses. According to Carmen Stanton, much of the re-seeding at the time took place from Thorne's Cove to the lighthouse near Port Royal.
- By 1966, some beaches on the north shore of the Basin had already started to come back. This was also the year that Terry Wilkins, interviewed on May 04, 2007, began his career as a commercial clam harvester. At the time, he recalls harvesting an average catch of 200 lbs per tide in and around Digby.
- In 1967, Carmen Stanton recalls clam associations beginning to organize in the area. One of the first concerns was the increasing use of 4-wheel trucks to access clam flats and the possible effects that might be having on the beaches.
- In the late 1960's, plants were buying clams from \$0.60-\$1.00 per bucket (15 lbs per bucket). Starting in 1967 and through the 1970's, most beaches had recovered from the slight decline and harvesters could easily collect anywhere between 30 and 40 buckets per tide. More plants opened and began buying clams in Digby and the surrounding area, which increased competition among clam buyers.

## 1970's

During the 1970's, an increasing number of clam harvesting areas were closed in the Annapolis Basin and the first discussions of a depuration operation for the Basin took place. Despite the closures, some of the highest clam landings in history were recorded in this decade.

- In 1973, the Nova Scotia Department of Fisheries, Resource Development Division, did a survey of Soft-shell clam populations in the closed areas of the Annapolis Basin. The closed areas studied included the Raquette, Joggins, Cornwallis, and the North and South shores of the Annapolis Basin. These areas remain closed to this day. The purpose of the study was to determine the state of the stocks in the closed areas and based on those results, examine the feasibility of operating a managed depuration harvest. The results showed the densities in the closed areas were sufficient to keep a depuration plant at capacity, proving its economic feasibility. (MacLeod and Hill, 1973).
- Up to this point in time and for a few more years, there was no harvesting in closed areas. Closed areas in and around the Basin had continuously increased over the years, due to fecal contamination of the water and shellstock. Some illegal digging in these areas occurred, mainly at night. Illegal harvesting, both in closed areas and open areas (harvest of undersized clams) continues to be a problem in the current fishery (Carmen Stanton, personal communication, May 08, 2007).
- From the mid 1970's to the early and mid 1980's, there was over fishing of clams in the Annapolis Basin, shown by historic high landings data. At times, clams harvested from the Annapolis Basin represented almost 70% of clams harvested in Nova Scotia (Terry Wilkins, personal communication, May 04, 2007, Angus *et al.*, 1985).
- At the time, clam harvesters were organized into an association called the Basin Fisher's Association. Anciel Wilkins (Terry Wilkin's father) served as president and the organization focused on clams as well as other species of fish and shellfish (Terry Wilkins, personal communication, May 04, 2007).

## 1980's

The 1980's brought dramatic changes to the clam fishery in the Annapolis Basin, including the introduction of tidal power to the Annapolis Basin, which many feel has had irreversible effects on clam populations. During the 80's, the federal department of fisheries and oceans conducted several scientific studies in the Basin in an attempt to understand the changes harvesters were observing on the flats. As a result of the increasing number of closures in the Basin, several clam processors were investing in clam relay operations and the beginnings of depuration in the area.

- In the 1980's, the Basin Clam Fishers Association was led by Kerry Edwards as president and Terry Wilkins as secretary/ treasurer (Terry Wilkins, personal communication, May 04, 2007). As Terry Wilkins recalls, harvesters conducted re-seeding, but only on a personal level. Despite having obtained permits for association members, there was limited interest from the majority of members to do large scale reseedling in the Basin.
- In 1983-1984, the tidal power station at Annapolis Royal was constructed and opened in 1984. The process involved installing a turbine in the existing barrage at Annapolis Royal and restoring the twice daily flushing in the upper Annapolis River.
- The effects of the tidal power generating station on the local fishery was never well documented; however, it is a common belief among harvesters that large numbers of seabirds flocked to the site during receding tides due to

large numbers of fish being killed as they moved through the turbine. In addition, it is believed that chemical cleaners, used to keep mussels and other marine organisms from attaching to the turbine, were affecting the survival of the small clams moving through (Terry Wilkins, personal communication, May 04, 2007). These claims, although widely believed in the clamming community, have never been scientifically documented.

- It is also commonly believed among diggers that microscopic spat moving through the turbines were killed due to the large difference in pressure. This has also not been scientifically documented. Despite the lack of research in this area, many diggers would like to see the gates at the power plant left open during clam spawning season to allow for successful transfer and settling of small clams on downstream beaches (Terry Wilkins, personal communication, May 04, 2007).
- The largest impact the tidal power generating station had on the clam fishery may be the effects of sedimentation on downstream clam flats. In 1985, within one year of the installation of the tidal power plant at Annapolis Royal, the lower Annapolis River east of Goat Island was covered in as much as 3m of sediment in some areas, causing 100% mortality of clams (Terry Wilkins, personal communication, May 04, 2007). Within ten years (1985-1995) of the installation of the tidal power plant at Annapolis Royal, the entire Basin was affected by the deposition of sediment over the clam flats. As Terry Wilkins recalls, "Within 10 years, it obliterated the entire Basin". Although a cause and effect relationship was never conclusively established between the sedimentation of the flats and the tidal power generating station, it is widely believed among clam diggers.
- A study done by the Department of Fisheries and Oceans found large tracts of clam flats (approx. 9 kms on both North and South shores of lower Annapolis River east of Goat Island) where no live clams could be found from 1987 to 1989 (Rowell and Woo, 1990). These were once extremely productive clam growing areas.
- In 1984, at the same time as tidal power was being brought to the area, the Fisheries Research Branch of the Department of Fisheries and Oceans, Scotia-Fundy Region, conducted soft-shell clam survey of closed and open areas in the Basin. The purpose of the study was to assess the standing stock of clams in an area that was about to be re-opened after 17 years of closure (Queen Anne Marsh and Pony Road). Also, an analysis of growth rates was conducted on Annapolis Basin soft-shell clams (Angus *et al.*, 1985).
- During the mid 1980's, harvesting in closed areas was occurring on a limited basis through a relay operation run by Allan Franklin of Alan Fisheries. Other clam buyers and processors, including Duncan Casey of Casey Fisheries, would later have relay operations from closed areas to open areas (Terry Wilkins, personal communication, May 04, 2007).
- By some accounts, the population of ribbon worms increased in the Annapolis Basin around the same time as the tidal power development changed the sediment composition on the clam flats (mid-late 1980's). Ribbon worms are known predators of soft-shell clams, and would have increased pressure on the already declining clam population (Terry Wilkins, personal communication, May 04, 2007).
- In 1988, the Physical and Chemical Sciences Branch of Department of Fisheries and Oceans, Scotia-Fundy Region conducted a mortality study in the Annapolis Basin to examine the 100% mortality of clams that occurred at Oak Point in 1986/87. The cause of the mortality remained unknown (Prouse *et al.*, 1988).

- From 1988 to 1993, a sampling regime was put in place by DFO to monitor density, size-structure and distribution of juvenile clams. The goal was to examine juvenile settlement, survival and growth and the potential impacts of the tidal power development on the Annapolis River.
- Carmen Stanton recalled a protest organized by the clam harvesters during this time to express their frustrations with the effects the tidal power development was having on their fishery. Clam diggers gathered on the causeway in Annapolis Royal and dumped loads of empty and rotten clams across the road to raise awareness about their situation (Carmen Stanton, personal communication, May 08, 2007).
- There was a large increase in the membership of the clam harvesters association following the significant changes that occurred in the 1980's. As many as 200 clam diggers became members in an attempt to better understand what was happening to their fishery and to try to improve the situation (Terry Wilkins, personal communication, May 04, 2007).

### 1990's

During the 1990's, several new facets in the fisheries of Annapolis Basin were introduced. In addition to the introduction of depuration and licensing in the clam fishery, this decade also brought the development of salmon and other aquaculture in the area, despite strong opposition from most of the diggers.

- In 1990, a predation study was conducted on Annapolis Basin clam flats as a follow up to the mortality study done in 1988. The predation study found the Oak Point clam flat was unsuitable for clam settlement during 1986-1988 due to a layer of fine watery silt that covered the flat. At the same time, a Nemertean worm was heavily predated the flat, and the clam populations were already under stress due to over fishing in the late 1970's early 1980's (Rowell and Woo, 1990). The North and South Shores of the Basin were also covered in the silt layer.
- To add to the already controversial situation in the clam fishery in the late 1980's, in 1990, there was a proposal to develop large-scale salmon aquaculture in the Basin. Clam diggers were extremely wary of this new development as they had just witnessed the effects of the tidal power generating station and were fearful of what possible further impacts aquaculture would have on their fishery. Clam diggers were asking for environmental liability insurance so that the developers would cover any damages done by the aquaculture development. The industry at the time was only willing to offer insurance coverage of \$1-2M, but diggers felt this was not enough, considering the potential impact / loss of employment. There is a DFO policy that states that traditional fisheries take precedence over aquaculture development; however, this is a policy and not a law, and many diggers felt that the policy was being stretched under the political pressure for aquaculture developments (Terry Wilkins, personal communication, May 04, 2007).
- In 1991-1992, depuration was introduced to the area. At this time, Ford Fisheries operated a small depuration plant in St. Bernard and processed clams from, among others, the closed areas of the Annapolis Basin (Tim Cook, personal communication, May 03, 2007).
- In 1993, a study was done by Thorpe and Robinson to collect information on clam populations, with a focus on clam recruitment. The study was conducted due to concern over the potential impacts aquaculture developments may have on traditional fisheries. (Thorpe and Robinson, 1995)

- Also in 1993, the Department of Fisheries and Oceans began issuing clam harvesting licenses. Licenses were available to anyone wishing to have one; therefore many diggers opted to buy one. Prior to 1993, DFO had a policy of unrestricted access for the clam fishery.  
[www.mar.dfo-mpo.gc.ca/communications/maritimes/back98e/m98012.htm](http://www.mar.dfo-mpo.gc.ca/communications/maritimes/back98e/m98012.htm)
- In the mid 1990's (~ 1995-1996), the province was zoned into clam harvesting areas, despite opposition from clam harvesters. This change meant that clam diggers could no longer follow the trend in clam populations, and travel to where clams were thriving at any given time. Clam diggers were now restricted to their own clam harvesting areas, regardless of what the state of the stocks was. The Annapolis Basin became part of clam harvesting area 2, which was comprised of Digby, Annapolis, and Kings counties (Terry Wilkins, personal communication, May 04, 2007, Tim Cook, personal communication, May 03, 2007).
- During the mid to late 1990's, diggers asked for a new size limit. The diggers had been asking for size limits as yearly as 15-20 years ago, when they wanted a 15% tolerance for undersized clams during the first year after the size limit was put in place. They proposed to then gradually reduce the tolerance level from 10% to 5% and finally down to 1%. The diggers wanted a size limit enforced to eliminate home shucking of clams (Terry Wilkins, personal communication, May 04, 2007). At this time, DFO re-introduced a size limit for harvestable clams of 1¾ inch, with support from the clam diggers (Carmen Stanton, personal communication, May 08, 2007).
- In 1996, given the large increase in the number of harvesters since 1993, the Department of Fisheries and Oceans restricted access to any new clam licenses, with the support of the clam harvesters.  
[www.mar.dfo-mpo.gc.ca/communications/maritimes/back98e/m98012.htm](http://www.mar.dfo-mpo.gc.ca/communications/maritimes/back98e/m98012.htm)
- In 1998, Innovative Fishery Products Inc. (IFP), who would eventually become a large player in the clam industry, bought the Ford Fisheries deputation plant (Tim Cook, personal communication, May 03, 2007). IFP became the sole deperator for contaminated clams in the Basin until the present day. This has allowed the harvest of many clams, which otherwise could not be harvested, and has provided continued harvesting opportunities for diggers, despite increasing beach closures.
- Also in 1998, DFO required clam diggers to organize into clam harvesters associations. The diggers had been having unofficial meetings much earlier than this; however, the clam harvesters associations were a formal way for the clam diggers to participate in a more active way with DFO management (Carmen Stanton, personal communication, May 08, 2007). At the same time, management plans were developed for all areas in the Scotia-Fundy Sector of the Maritimes Region (DFO)  
[www.mar.dfo-mpo.gc.ca/communications/maritimes/news98e/m98012.htm](http://www.mar.dfo-mpo.gc.ca/communications/maritimes/news98e/m98012.htm)
- In 1999, local plants could buy as much as 10,000 lbs per day, with an average of 3,000-4,000 lbs per day; however, a lot of clams had to be bought from outside communities from Yarmouth to Digby. Clams from the Basin alone would not support the many clam buyers and processors in the area (Tim Cook, personal communication, May 03, 2007).
- In 1999-2000, the large quahog growing area at the head of St. Mary's Bay was unclassified under Canadian Shellfish Sanitation Program. It eventually became a closed area, shortly after which it was made available for

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10-year aquaculture lease to Innovative Fishery Products, despite strong opposition from clam diggers (Tim Cook, personal communication, May 03, 2007).

## 2000's

Several conservation and management efforts were brought forward in the 2000's, as a response to the state of the fishery. These efforts included the introduction of conservation areas, winter closures, water quality monitoring and stock assessment, and a multi-stakeholder resource committee for the Annapolis Basin.

- In 2000, two important clam growing beaches were designated as conservation areas, at the request of the clam diggers. The diggers wanted a catch limit of 6 buckets (~ 100 lbs) per tide; however, this measure was never implemented (Terry Wilkins, personal communication, May 04, 2007). The lack of a catch limit would later have devastating effects on the clam populations of these two beaches during their 2-month openings.
- In 2001-2002, a winter closure was put in effect, restricting all harvesting activities during the months of January, February and March. No clamming in the winter made it difficult for buyers to be loyal to local harvesters, as they had to find an alternative supply of clams during winter months. In order to continue to have access to those outside markets the following winter, some buyers felt they had to continue buying throughout the year. These buyers were therefore limited on the amount of clams they could process and subsequently the amount of clams they could buy from local diggers (Tim Cook, personal communication, May 03, 2007). This situation still exists t, and can create resentful feelings between harvesters and buyers.
- In late 2005, a handful of clam diggers working with the Bay of Fundy Marine Resource Centre (MRC) approached the Clean Annapolis River Project (CARP) to work collaboratively toward creating a community-based approach to managing the clam fishery (Sullivan, 2006).
- In November 2005, several Annapolis Basin clam diggers went on the Gulf of Maine Clam Management Study Tour, where they were able to visit with four different communities along the coast of Maine who have been successfully managing their clam fishery at the community level (Sullivan, 2006).
- In January 2006, the clam diggers along with CARP and the MRC, created the multi-stakeholder Annapolis Watershed Resource Committee. Over the next several months, the membership of the committee grew and various clamming issues were discussed at meetings. The initial process involved building trust between all the members and gaining credibility and status among the decision makers who manage the fishery. Members of the AWRC include: representatives from both clam harvesters associations, CARP, MRC, the Bear River First Nations, Fisheries and Oceans Canada, Environment Canada, Canadian Food Inspection Agency, the Nova Scotia Department of Fisheries and Aquaculture, the Nova Scotia Department of Environment and Labour, the Municipality of the District of Digby, and the four local active clam buyers and processors, both depuration and non-depuration (Sullivan, 2007).
- In the Spring of 2006, the Digby County Clam Diggers Association organized a re-seeding effort on several open area beaches. Clams below legal size were transferred from an open area beach to depleted flats on Goat Island, Queen Anne Marsh, and Smith's Cove. Several diggers participated in this one-day event (Ken Weir, personal communication, December, 2006).

- Starting in June of 2006, the water quality monitoring program was expanded in lower Annapolis River closed area with the help of Clean Annapolis River Project and Environment Canada. Bi-weekly water sampling attempted to better understand the levels and/or sources of contamination, and examined the possibility of operating a conditional opening in parts of the closed area during certain times of the year (Sullivan, 2007).
- During July and August 2006, CARP conducted a stock assessment at two open area beaches: Deep Brook and Karsdale. Density levels were found to be below sustainable harvest levels at both sites, with low levels of small clams, suggesting poor recruitment at the beaches sampled (Sullivan, 2007).
- In October of 2006 a memorandum of agreement was signed for the conditional opening of Goat Island (signatories include DFO, EC, CFIA, CARP, Digby and Annapolis Clam Diggers Association). The island was opened for a period of two months (October and November), with CARP conducting the bi-weekly shellstock and water sampling required under the Canadian Shellfish Sanitation Program (Sullivan, 2007)
- In the Spring of 2007, despite very strong community opposition, aquaculture leases in closed clam harvesting areas of Annapolis Basin issued to the sole private depuration company in the area. This was following several months of lobbying by diggers, municipal governments, environmental organizations, and the community as a whole to put a stop to leases.
- The average price in 2007 for clam diggers was approximately \$1.00-\$1.20/lb. Prices have fluctuated throughout the years, but have generally kept up with cost of living, except in the last few years (Terry Wilkins, personal communication, May 04, 2007).
- At present, local clam buyers cannot depend solely on the local source of clams. They must buy clams, in some cases, from as far as New York and throughout the Maritimes in order to support the business (Tim Cook, personal communication, May 03, 2007).

## Landings Data

There is no readily available compilation of landings data for soft-shell clams harvested in the Annapolis Basin. Data have often been clumped regionally as well as with other species of clams. Some records show landings for the Scotia-Fundy region or the Annapolis Basin. More recent records, on the other hand, are recorded for each clam harvesting area; however this is a relatively new system, as the province was only zoned in the mid 1990's. The following is a compilation of readily available landings data from a range of years and over different geographical zones.

Another issue is the accuracy of the landings. Older landings are probably under represented because not all diggers sold their clams to registered shucking plants. Clams that were shucked at home were often sold to the 'in province' markets and not represented in official landings records (MacLeod and Hill, 1973). The current system no longer permits home shucking; however, not all diggers report their complete catches to the dockside monitoring companies. The result is consistently under represented and inaccurate landings data (SWNS Soft-shell Clam Advisory Committee Meeting Minutes, November 1, 2006). In addition, landings data does not necessarily capture the harvesting effort (number of diggers and hours put in).



As a follow up to this preliminary review, archived DFO landings records might be researched back to the first years of record keeping. Landings values might also be estimated for soft-shell clams only and specifically in the Annapolis Basin, where possible.

**Table 1: Soft-shell Clam Landings, Bay of Fundy (Metric Tons)**

(Source: DFO, 1997)

Year	Soft-shell Clam Landings Bay of Fundy (tons)
1961-1970 (avg.)	1,137
1971-1980 (avg.)	2,041
1981-1990 (avg.)	2,906
1992	1,488
1993	1,098
1994	1,370
1995	1,621

**Table 2: Soft-shell Clam Landings, Annapolis Basin 1961-1972 ('000 lbs)**

(Source: MacLeod and Hill, 1973)

Year	Soft-shell Clam Landings Annapolis Basin ('000 lbs)
1961	340
1962	284
1963	323
1964	484
1965	645
1966	930
1967	1,823
1968	2,119
1969	4,198
1970	3,612
1971	3,415
1972	503

**Table 3: Soft-shell Clam Landings in the Annapolis Basin and Nova Scotia, 1976-1982 (Metric Tons)**

(Source: Angus *et al.*, 1985)

Year	Soft-shell Clam Landings Annapolis Basin (tons)	Soft-shell Clam Landings Nova Scotia (tons)
1976	552	945
1977	849	1,313
1978	903	1,573

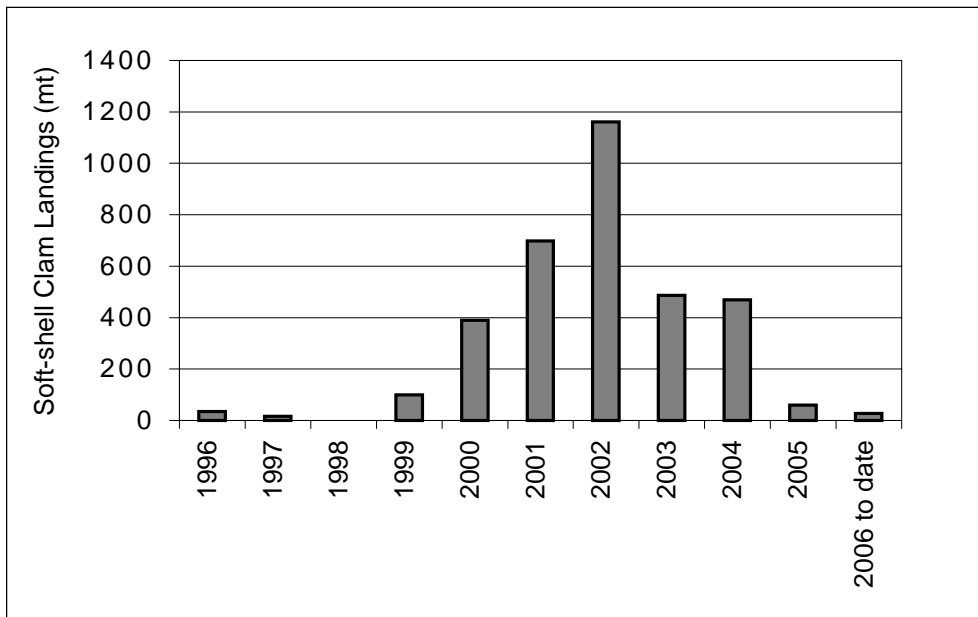
1979	726	1,279
1980	1,458	2,141
1981	1,336	2,135
1982	1,234	2,366

**Table 4: Clam Landings Data for Clam Harvesting Area 2, 2003-2006 (kgs)**  
 (Source: SWNS Soft-shell Clam Advisory Committee Meeting Minutes, November 1, 2006)

Year	Clam Landings Clam Harvesting Area 2 (kgs)
2003	268,402
2004	119,776
2005	59,658*
2006	27,743*

\*Value is incomplete for year reported

**Figure 1: Soft-shell Clam Landings (Metric Tons) for the Annapolis Basin (no data in 1998)**  
 (Source: Bill Whitman, personal communication, November 2006)



### Current Day

The following is a personal reflection on the current state of the fishery based on the past 2 years of meeting and working with individuals in the clam industry, including diggers, public servants, buyers and processors, and community members. The discussion is also based on personal observations and my understanding of the fishery as a relative newcomer and outsider to these issues.

- Over harvesting / no catch limits – The soft-shell clam fishery is one of the only fisheries not restricted by any type of quota or catch limit. This has often lead to over fishing of the resource, as many harvesters feel that if they do not harvest as much as they can, another harvester will; a classic example of the tragedy of the commons. The lack of catch limits facilitates and encourages the continuation of this trend. A particular example is the harvest in the conservation closures of the Annapolis Basin at Queen Anne Marsh and Oak Point. These two beaches were designated by clam harvesters as conservation closures, in order to limit harvest times and therefore enable increased clam growth and reproduction in those areas. In 2005, when the two beaches were temporarily opened, the lack of catch limits allowed some diggers to take advantage of the abundance clams and harvest several hundred pounds per tide. Such behaviour of even just a few diggers, encourages others to follow; otherwise they may lose their share of the resource. In a matter of weeks, the diggers had removed virtually all clams of any significant size on the two beaches that were supposed to be ‘conserved’. As with many issues in the clam fishery, the introduction of a catch limit is a very contentious issue among harvesters.
- Privatization / leasing of beaches – There appears to be a growing trend in many fisheries, including clamming, toward privatization. In the clam fishery, privatization has been taking the form of aquaculture leases of entire clam growing areas, mainly in closed areas, private depuration companies. This has occurred despite very strong opposition from clam diggers and significant community-wide concern. The first lease in this area was issued in the late 1990’s; and almost ten years later, all the closed areas of the Annapolis Basin of any significance are now leased to a private company. This trend is causing drastic changes in the clamming tradition. Clam harvesters who are used to being independent and self-employed, must now become employees of a private company in order to harvest clams on the beds they have known for decades. In addition, there is no information available to show that leasing of beaches will result in the improvement of these beaches and the industry as a whole. Under such a leasing system, it is unlikely that the leaseholder will attempt to remediate sources of contamination.
- Number of licenses – The number of licenses is a common issue discussed among clam harvesters. There are 279 clam licenses in clam harvesting area (CHA) 2, the most of any CHA in Nova Scotia (Fisheries and Oceans Canada, 2006). The large number of available licenses is indicative of the lucrative fishery that once existed in the Annapolis Basin; however, this level of harvesting, coupled with other environmental and managerial considerations, has proven to be unsustainable and continues to impact the fishery today. Many feel the large number of licenses is allowing for a fishing effort, which the resource cannot support, demonstrated by a ‘yo-yo’ effect in the clam fishery. In recent years, clam fishermen have described cycles of high landings and harvesting effort followed by a period of depressed landings and effort. When clam densities are thriving, there is an influx of the “non-active” clam diggers who profit from the clams on a short-term basis. These clam diggers own licenses; however, only use them when clamming is “good”. The resource is therefore put under immense harvesting pressure, which results in significant reductions in densities. The non-active or part-time clam diggers then move on to other forms of employment (ie: other fisheries, forestry, etc), leaving the full time harvesters to struggle while the clam stocks gradually rebuild. The cycle then repeats itself.

Many harvesters are now asking for the number of licenses to be significantly reduced; however, there are limited options. The Department of Fisheries and Oceans, which has bought back excess licenses in some fisheries, is either unwilling or unable to do so for clam licenses. Even though the price of a clam license is relatively low (\$1,500 - \$2,500), the clam diggers have limited options to buy them out.

- Landings / Dockside monitoring – The current system requires all clam diggers to report their landings to designated dockside monitoring companies. It is well known in the clamming community however, that not all clam diggers do it in a consistent manner, resulting in significant underestimates of landings for the area. This tendency can have serious implications for the clam fishery. DFO determines what proportion of its resources is allocated to a given fishery based on landings data and the associated value of the fishery. Locally, the lobster fishery generally receives the largest proportion of resources, while the clam fishery receives significantly less. It is therefore in the best interest of clam harvesters to consistently report their landings to dockside monitoring companies, in order to provide a more accurate account of both the resource being harvested as well as its associated value in dollars.
- Enforcement / Illegal digging – The issue of illegal digging and lack of enforcement is a top priority among many diggers. Although a number of harvesters have at one point in their careers been guilty of such activity, the majority recognize that without proper enforcement, illegal harvesting continues to have strong negative impacts on their fishery. The illegal harvest most often takes place by digging undersized clams (less than 1¾ inch), digging in closed areas, or digging at night. Many diggers have stated they are not concerned about doing those illegal activities because the likelihood of being caught by an enforcement officer is extremely low. Diggers have often suggested that improved enforcement would not necessarily require a lot of time from enforcement officials, as they would simply have to do random checks more often. This may change the perception among clam diggers that they will never get caught doing the illegal activity.
- Winter vs. Spring closures – The January to March winter closure in effect in the Annapolis Basin was initiated by the clam diggers as a conservation measure, as it is believed by some that a large number of clams die from exposure to cold temperatures when they are left at the surface in over-turned sods. Clam diggers as well as buyers have varying opinions regarding the timing of the closure and its effects on the clam stocks and the industry as a whole. Some people would rather restrict harvesting when clams are spawning in spring and early summer, and when some water quality issues arise. This is common practice in other areas, such as Southern New Brunswick. The local clam buyers and processors have a particular interest in the winter closure, as it influences where they must buy their clams. As one buyer explained, when the closure comes into effect, they must find alternative supplies of clams, and therefore turn to other areas where harvesting continues throughout the year. When spring arrives and local diggers can once again supply them with clams, they must continue buying from outside sources to ensure continued access the following winter. Given that the processors have limited capacity in the volume of clams that can be processed, they are limited in the amount of clams they can buy from local diggers. This often frustrates the diggers and can create friction between the two.

Given the situation that arises during the winter closure, many clam buyers would like to see conditional openings operated in some of the closed areas during the winter months when the water quality might be within acceptable guidelines. This would also be to the advantage of the clam diggers, as they would be able to harvest independently from the depuration company and would therefore get a better price for their catch. It is a common belief among buyers and others however, that the diggers prefer a winter closure simply because they are able to collect employment insurance during the colder months when clam digging is less enjoyable.

- Re-seeding – Unlike other fisheries that have collapsed, such as Nova Scotia’s ground fishery and the Atlantic cod fishery, the clam fishery can be relatively easily brought back; however this requires strong commitment from all parties as well as proper management. Depleted clam flats can be restocked with small clams from other areas or

from hatcheries, and being relatively stationary, they will remain in their burrow, grow, and spawn in the spring. Over a few years, a clam flat can be rehabilitated. Without proper management of re-seeded areas however, they can be quickly depleted again. This technique has been applied to various beaches in Maine and New Brunswick with great success (Sullivan, 2006).

## **Bibliography**

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Angus, R.B., C.M. Hawkins, P. Woo, and B. Mullen. 1985. Soft-shell clam survey of the Annapolis Basin, Nova Scotia – 1983. Can. MS Rep. Fish. Aquat. Sci. 1807: viii + 133 p.

Bay of Fundy Ecosystem Partnership (BoFEP). 2003. Living Lightly on Land and Water: Native People and the Bay of Fundy. In: Fundy Issues # 24, Granville Ferry, Nova Scotia.

Department of Fisheries and Oceans (DFO). 1997. Bay of Fundy Soft-Shell Clams. DFO Atlantic Fisheries Stock Status Report 96/127.

Department of Fisheries and Oceans (DFO). 1998. Soft Shell Clams. Retrieved June 18, 2007, from [www.mar.dfo-mpo.gc.ca/communications/maritimes/back98e/m98012.htm](http://www.mar.dfo-mpo.gc.ca/communications/maritimes/back98e/m98012.htm)

Department of Fisheries and Oceans (DFO). 1998. Commercial soft-shell clam harvesters support new management measures – Access to new licenses is restricted. Retrieved June 18, 2007, from [www.mar.dfo-mpo.gc.ca/communications/maritimes/news98e/m98012.htm](http://www.mar.dfo-mpo.gc.ca/communications/maritimes/news98e/m98012.htm)

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LeBlanc, K. 1999. Water quality and resource valuation for soft-shell clams (*Mya arenaria*) of particular Charlotte County Harbours. Eastern Charlotte Waterways Inc., St. George, New Brunswick.

LeBlanc, K., M. Ouellette and the Miramichi River Environmental Assessment Committee. 2005 (A). Population description and resource valuation of the American oyster (*Crassostrea virginica*) in the Miramichi estuary, Miramichi, NB. Miramichi River Environmental Assessment Committee, Miramichi, New Brunswick.

LeBlanc, K., M. Ouellette, G.A. Chouinard, and T. Landry. 2005 (B). Commercial harvest and population structure of a northern quahog (*Mercenaria Mercenaria* Linnaeus 1758) population in St. Mary's Bay, Nova Scotia, Canada. J. Shellfish Res. 24(1): 47-54.

LeBlanc, L. 2006. Méthodologie d'évaluation de myes communes (*Mya arenaria*) du Parc national du Canada Kouchibouguac, N.B. (PNK), New Brunswick.

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- Rowell, T.W. and P. Woo. 1990. Predation by the nemertean worm, *Cerebratulus lacteus* Verrill, on the soft-shell clam, *Mya arenaria* Linnaeus, 1758, and its apparent role in the destruction of a clam flat. Journal of Shellfish Research, Vol. 9, No. 2, 291-297.
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- Thorpe, B.E. and S.M.C. Robinson. 1995. Recruitment Levels of the Soft-shell Clam (*Mya arenaria*) in the Annapolis Basin, Nova Scotia. St. Andrews Biological Station, St. Andrews, New Brunswick.
- Young, J.H., D. Walter and R. Gaudet. 2002. Re-evaluation report; Nova Scotia Shellfish Growing Sector 18-010-001 (Annapolis Basin). Environment Canada, Environmental Protection Branch. Manuscript Report No. EP-AR-2002-9.
- Young, J.H. and R.J. Gaudet. 1998. Re-evaluation report; Nova Scotia Shellfish Growing Sector 18-010-001 (Annapolis River and Basin). Environment Canada, Environmental Protection Branch. Manuscript Report No. EP-AR-98-11.

## **Chronology of Historical Documents Available by Contacting Digby County Clam Diggers Association**

Current President: Kenneth Weir, RR#1 Plympton, Nova Scotia, BOW 2R0, 902-837-1074

### **1970's-**

Photocopy of Chapter 16 of unspecified document, entitled: Environmental Implications of Development, and annotated in pencil "Tidal Dams". Undated. Refers to work done in the mid-1970s to assess the implications of Fundy tidal power. (10 pages, single sided).

### **1979-**

Clam Spat Collection Project, South Western New Brunswick – report referring to a 1979 experiment. (3 pages, one sided).

### **1980-**

Two envelopes of banking statements and receipts for the Basin Clam Diggers Association, dating from early 1980s (One having handwritten "Ronnie banks" on side)

### **1981-April**

Photocopy of Clam Gardening, UNC Sea Grant Publication 81-03 by John Foster, dated April 1981.

Environment Canada Memorandum from J. P. Donnelly, Supervisor, Field Surveys, Water Pollution Control Division to P. C. Fahie, Chairman, Maritime Shellfish Committee of the DFO, regarding Sanitary Update on Moose River, Cornwallis Area, dated April 23, 1981.

### **1982-**

Undated document entitled: An Economic Overview of the Bay of Fundy Soft-Shell Clam Industry. Period covered is from 1982-1986.

Copy of the above economic overview.

### **1982-March**

Photocopy of The Soft-Shell Clam and Its Environment, a study in Jonesboro, Maine. Marine Advisory Program, Maine Sea Grant publication by Jane Arbuckle, dated March 1982.

### **1983-**

Government of Canada 1983 Fact Sheet on Red Tides, Underwater World, Published by the Communications Directorate of the DFO

Province of Nova Scotia, 1983 Chapter A-26 of An Act Respective the Encouragement and Regulation of Aquaculture. As amended 1984.

Various banking and commerce statements and receipts date to 1983.

### **1983- July**

Letter from the Eastern Fishermen's Federation (undated) requesting payment for membership cards. Attached receipt for 200 membership cards is dated July 29, 1983



### **1983- August**

Single page memo dated August 17, 1983 outlining the benefits of the Basin Clam Diggers Association.

Basin Clam Diggers Association list of Board of Directors for the year 1983-84, as approved at the Annual Meeting in Clementsport on August 18, 1983. Claude Ogilvie is listed as president.

Fax dated August 19, 1983, informing DFO Yarmouth of the organization of a Basin Clam Diggers Association having been formed with 103 members and President Claude Ogilvie of Granville Ferry and requesting DFO representation at a meeting to be held September 14th.

### **1983- September**

Handwritten minutes of the General Meeting of September 1, 1983 (five pages, both sides).

Newspaper article dated Wednesday, September 21, 1983 entitled: "Red Tape Frustrates Diggers", Digby Courier.

### **1983- November**

Minutes of the November 25, 1983 Meeting of the SWNS Soft Shell Clam Advisory Committee.

### **1984- March**

Newspaper article-maine legislature to decide merit of 2" clam law-march 1984

### **1984- July**

Letter from Joseph J. Southall, Chairman, Annapolis Basin Shellfish Advisory Committee distributing the minutes of the last meeting of the Committee, dated July 18, 1984.

### **1984- August**

An open letter on DFO letterhead, to All Members Annapolis Basin Shellfish Advisory Committee, dated August 17, 1984 and advising of an amendment to the minutes such that "there did not seem to be any support from the Clam Diggers in Annapolis Basin for further Resource Inventory Studies." Signed by T. W. Hombek, Secretary of the Committee.

### **1985-**

Undated document listing the Basin Clam Diggers Association as officially formed with 118 members, under a listed set of directors with Claude Ogilvie of Karsdale listed as President. All executive members are listed with address and phone numbers ~ 85

Photocopy of "Underwater World, The Soft-Shell Clam", dated 1985 and published by the DFO Communications Directorate.

Original of above document.

A few pieces of banking correspondence and/or receipts dating to 1985. (Letter and receipts from Bank of Commerce, and reservation for fire hall)

### **1985-February**

Letter from R. C. MacLean (Inspector) with no addressee listed, dated February 1985. It mentions an enclosure of the Nova Scotia Fish Inspection regulations, which became law on January 1<sup>st</sup>, 1985. It discusses a four year phase-in period for bringing processing plants up to new standards.

### **1985-April**

Brochure on Maritime Shellfisheries Guide, dated April 1985 and including map of closed areas (for public?) sponsored by DFO, Environment Canada, and provinces and listing contract information in all three provinces.

### **1985- August**

Letter dated August 1, 1985 from Joseph Southall, Chairman of the Annapolis Basin Shellfish Advisory Committee to all members of the organization, with minutes of the June 26, 1985 meeting attached. (six pages)

### **1986-**

Coil Ring Notebook containing Basin Clam Diggers Association Meeting handwritten notes from October 26, 1983 to September 14, 1987. Most notes pertain to 1986.

Summary, Fish Habitat Management Policy, DFO dated 1986. (Two pages, both sides, brochure).

### **1986- May**

Notice from Digby Courier of changes to newspaper column width and pricing, dated May 6, 1986.

### **1986- April**

Minutes of the Annapolis Basin Shellfish Advisory Committee Meeting held April 22, 1986.

Government of Canada Memorandum to Members of the Annapolis Basin Shellfish Advisory Committee dated October 20, 1986 and providing data required for soft-shell clam stock assessments

### **1986- November**

Letter dated November 7, 1986 from Anciel Wilkins, President of the Basin Clam Diggers Association to the Hon. Gerald Comeau, M.P. Requesting financial assistance to conduct an assessment of the clam industry in their area. (four copies all with original signatures)

Same as above letter 6 copies in total: Letter from Anciel Wilkins, President of the Basin Clam Diggers Association to the Hon. Gerald Comeau, dated November 7, 1986 and asking for funds to undertake research on the clam industry as a lead in to creating a long range management plan for the industry.

Copy of the above letter from Wilkins to Comeau.

### **1987-**

Hand written notes on foolscap, labeled: "Questions" and "Refer to Habitat Protection from Research". The questions have to do with the impact of salmon cage aquaculture in the Annapolis Basin and seem geared to being posed at an upcoming meeting. (one and a half pages, single sided).

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DFO Fisheries Management Plan: 1987. Scotia Fundy Region. Soft Shell Clam. Dated 1987. (14 pages)

Copy of the above management plan.

Hand written notes on foolscap, labeled: "Questions" and "Refer to Habitat Protection from Research". The questions have to do with the impact of salmon cage aquaculture in the Annapolis Basin and seem geared to being posed at an upcoming meeting. (one and a half pages, single sided).

Membership form from the Maritime Fishermen's Union filled out in the name of Terry Lee Wilkins (undated).

### **1987- January**

Letter from Gerald Comeau, M.P. Southwest Nova to Anciel Wilkins, on House of Commons letterhead, enclosing the ministerial response to the request made on December 3, 1986 and January 19, 1987

### **1987- February**

Letter from J.-E. Hache, Regional Director-General of the Scotia-Fundy Region, DFO to the Hon. Gerald Comeau, M.P. and dated February 5, 1987, advising the minister to reject the request for funding for clam research on the basis that his office was already undertaking such research.

Maritime Shellfisheries Guide Handout dated to February 1987, contains information on contaminated clam bed areas.

### **1987- March**

Basin Clam Diggers Association, Membership Update, March 1987. Includes a list of objectives for the association, including: "To have instituted fishery management measures such as, minimum Soft Shell Clam sizes and licensing for diggers". Includes list of officers for the association (Anciel Wilkins, president). Mentions 36 members. (4 copies).

### **1987-April**

Single sheet from longer report by D. Scarratt dated April 1987

Guide to Completing Travel Expense Claim (dated April 1, 1987) and including a guide to Maritime hotels and their government rates.

Minutes of the April 16, 1987 Meeting of the SWNS Soft Shell Clam Advisory Committee. Note that these minutes include an entry expressing the frustration of the harvesters that after 12 years of the Advisory Committee, and continued representations by the harvesters and processors, there were still no licensing requirements for diggers or size limits in place. (6 pages, one sided with numerous pages of attachments, perhaps incomplete).

SWNS Soft Shell Clam Advisory Committee Meeting Agenda for Thursday, April 16, 1987.

SWNS Soft Shell Clam Advisory Committee Meeting, April 16, 1987, attachment 1 (appears to be parts of an article by J. Medcof and J. MacPhail on the Fishing Efficiency of Clam Hacks and Mortalities Incidental to Fishing

### **1987-July**

Letter from Gerald Comeau, MP to Terry Wilkins dated January 13, 1987 and enclosing the response of the Director General of the Scotia Fundy Region, DFO (J.E. Hache) to several issues raised on the clam diggers' behalf by the MP

### **1987- August**

Receipt from the Digby Fire Department dated 10 August 1987, made out to Basin Clam Diggers Association for \$25.00 rental of room for meeting.

Newspaper article from the Digby Courier, Wednesday August 19, 1987 entitled: "Basin Clam Diggers Want Tidal Power Project Closed

Letter from Dr. Merryl J. Lawton, MLA for Digby to Gerald Comeau, MP on NS House of Assembly letterhead, and dated August 19, 1987, enclosing a petition from local clamdiggers and processors concerning the closure of the tidal flats in the Annapolis Basin. Also asking to be advised on the clam diggers request for 2" limits and licensing.

Meeting of the Representatives of the Bay of Fundy Clam Industry on Factors Affecting the Industry, August 19, 1987, Agenda and list of attendees (three pages, single sided).

Letter from Gerald Comeau, MP to Dr. Merryl Lawton, MLA, dated August 28, 1987, as a follow up to telephone conversations regarding 2" size limit and licensing of clam diggers and mentioning local difficulties with getting PSP monitoring test results

### **1987- September**

Letter dated September 08, 1987 from H. H. Scarth, Chief of the Resource Allocation Branch, Fisheries and Habitat Management, DFO forming an invitation to a workshop to discuss outstanding issues in the Bay of Fundy soft shell clam fishery.

Bay of Fundy Soft-Shell Clam Workshop, Session C, Seasons and Other Measures, An Introductory Paper by J. E. Jefferson, dated September 25, 1987 (3 copies)

Hand sketched graphs- Smiths cove- September 16, 1987

### **1987-November**

Letter from H. H. Scarth, Chairman of the Bay of Fundy Soft-Shell Clam Workshop, on DFO letterhead and dated November 9, 1987 and addressed to all Participants of the Workshop. Enclosing a summary of the concluding remarks on the workshop and establishing a number of actions for industry and DFO.

### **1987- December**

Agenda for the December 11, 1987 meeting of the Southwest Nova Scotia Soft Shell Clam Advisory Committee.

### **1988-**

Government of Canada 1988 Proposed Commercial Fisheries Licensing Policy for Eastern Canada. Fisheries and Oceans. Published by the Communications Directorate for the Government of Canada. (47 page booklet)

Amarantunga, Tissa undated Information on the Biology and Landings of the Soft Shell Clam. Biological Sciences Branch, DFO. (6 pages)

**1988-March**

Newspaper article from the Digby Courier, Wednesday, March 9, 1988 entitled: Basin Clamdigger Fears End of the Industry”.

**1988-May**

DFO News Release dated May 26, 1988 entitled: New Management Plan to Benefit Clam Industry, and including the above “concluding remarks on the recent workshop by H. H. Scarth”.

**1988-July**

Letter from J. E. Hache, Regional Director, Scotia Fundy DFO to (distribution list attached), dated July 8, 1988 regarding proposed Commercial Fisheries Licensing Policy for Eastern Canada. Attachments include a News Release dated June 24, 1988 announcing a second round of consultation on the proposed policy.

Letter from J.E. Hache, Regional Director General Scotia Fundy Region, DFO to “Dear Sir/Madam” and dated July 11, 1988, announcing the minister’s acceptance of recommendations arising from the workshop on managing the soft shell clam industry, with attachments on developing enhancement techniques and the May 26, 1988 DFO Press Release on the management plan.

**1988-August**

SWNS Clam Advisory Committee Meeting Agenda, August 3, 1988 (one page).

Letter from H. H. Scarth, DFO inviting people to a Second Soft Shell Clam Workshop (focused on a comprehensive management plan), dated August 11, 1988, with draft agenda and distribution list attached

Licensing Overview for the Soft Shell Clam Fishery, Saint John, New Brunswick, August 23 and 24, 1988, Scotia Fundy Region. (six pages, one sided).

Soft shell clam workshop II, August 23-24, 1988, Draft Agenda (two pages).

Letter (undated) from G. E. Jefferson, Acting Chief of the Resource Allocation and Licensing Division, DFO Scotia-Fundy Region to Participants of the Soft Shell Clam Workshop of August 23 and 24, 1988. Attached are the minutes of the workshop and several appendices, including proposals for regulating the industry.

**1988- October**

Set of maps showing Clam Flat Closures for the Annapolis Basin Area, date October 30, 1988. (5 pages)

**Late 80’s/early 90’s**

Handwritten paper referring to boat safety course and listing phone number of Mike Lowe at Ocean Enterprises (undated, 1 pg).

Marine Resource center document titled “MRC overview-Draft” referring to Vandana Shiva’s Earth Democracy, with attached forms (6 pgs).

Newspaper Article-“Changes Promise relief from sewage fumes” by Tracy Durkee, unknown source and date

Confidential Soft-Shell Clam Survey Form (7 copies) and envelopes, providing a contact name of Tissa Amarantunga of the DFO, Halifax Office (undated).

Two pages extracted from the Fisheries Act, (undated).

Poem by Terry Lee Wilkins (undated) entitled: "I am the Fisherman" (3 copies)

One blank copy of Soft Shelled Clam Self Reporting Document Monthly Report. (one page).

List of Bay of Fundy Soft Shell Clam Workshop Participants (undated) and including participants from the Western Charlotte County Clam Diggers Association, Lepreau Clam Diggers Association, Five Islands Commercial Clam Diggers Association, Basin Clam Diggers Association as well as processors and bureaucrats.

Hand written notes from meeting, on Best Western pad stationary (Truro Nova Scotia), but undated and meeting is not identified.

Same as above on Rodd Hotel and Resorts pad stationary (mentioning Bill Whitman (sic) and Teresa Banberry ?)

Various hand written notes (perhaps proposals made during meetings?) referring to various proposals such as applying for grants to test beaches in the Annapolis Basin, better or more stable pricing, more testing of closed area beaches

Numerous loose pages of various sizes and types with handwritten meeting notes.

Detailed map of Annapolis Basin Area showing Open, Closed and Conditionally Open beaches (undated). 2 copies.

Photocopy of Chapter 3 from Practical Shellfish Farming, by Phil Schwind, published by International Marine Publishing Company of Camden, Maine (no date listed).

Terms of Reference, SWNS Shellfish Advisory Committee, with membership list attached. (undated) (two pages, single sided).

SWNS Soft-Shelled Clam Advisory Committee Terms of Reference, but undated

Development and Implementation of Five-Year Clam Enhancement Plan, Scotia-Fundy Region. (4 pages, single sided).

Soft Shell Clam Workshop II, List of Working Groups and their members (undated).

Letter from Terry Lee Wilkins of the Basin Clam Diggers Association to unspecified person(s) requesting permission to put spat collectors in the Bear River (with drawing of proposed collectors attached) – undated.

Labor Standards Division, NS Department of Environment and Labor brochure: "How to File a Complaint under the Labor Standards Code" (undated).

Name card in the name of Terry Wilkins.

Soft Shell Clam Workshop List of Participants

Draft of Licensing Considerations for the Soft Shell Clam Fishery, Scotia Fundy Region (undated). Attachment included is the Nova Scotia Regulations.

Fact Sheet (DFO) on Sewage and Shellfish Growing Areas (single sheet).

Brochure for Minas basin working group-Bay of Fundy ecosystem partnership (BOFEP) blue

**1990- February**

Letter dated February 06, 90 from C. D. Comeau containing Minutes of the Southwest Nova Scotia Soft Shell Clam Advisory Committee Meeting, October 10, 1989. (6 pages)

**1990- November**

Town of Scarborough, Maine Shellfish Conservation Committee, Seed Transplant Project, November 1990. (8 pages)

**1991-October**

Minutes of the SWNS Soft Shell Clam Advisory Committee Meeting, October 8, 1991

1993- Set of four documents apparently having to do with disaster readiness, including: Coast Guard Bulletin announcing Community Action Partnership Program; Community Action Partnership Program Outline (CAPP Protecting our coastal waters) and including amendments to coastal shipping act; a US Report on Experiment in Democracy: The Citizen Oversight Council as a Means of Mitigating Environmental Impacts of Terminal and Tanker Operations (dated 1993 Oil Spill Conference); Tri-State Bird Rescue and Research, Inc Announcement of Services and Requirements after Oil Spills.

Draft Basin Fishers' Association Proposals for Guidelines for Aquaculture in the Annapolis Basin. (4 pages)

Backgrounder-Fisheries Resource Conservation Council, undated but referring to 1993 in text.

**January 1993-**

Regulations respecting fishing in the Provinces of Nova Scotia, New Brunswick and Prince Edward Island and in adjacent tidal waters (Maritime Provinces Fishery Regulations) – JUS92-630-01, dated January 15, 1993. 25 pages, single sided

**1993- February**

Photocopy: Under cover of a letter from Mary Meagher, License Administrator, Nova Scotia Department of Fisheries to Mr. Freeman Libby, DFO and dated February 23, 1993, a report on "Trends on Clam Size in the Annapolis Basin". The report itself is 14 pages long and reports on a study to assess whether undersize clams are being taken and sold to plants. Report confirms what clam diggers claimed, and that up to 34% of winter harvest was undersized, although not all of these clams were sold to processors (24% of processor clams were undersized).

A second copy of above letter and report on harvested clam size.

### **1993-April**

Basin Fishers Association, Meeting with Mr. Legere, April 29, 1993 – minutes from the meeting, two pages, single sided. Meeting was to raise question about the decision to allow aquaculture to proceed in the basin. Concludes with a list of questions put to Mr. Legere but provides none of his answers.

DFO news release- April 19, 1993- 7,000 in funding for triploid atlantic salmon studies-3 pgs

### **1993-May**

Letter dated May 7, 1993 from Kenneth MacInnis Associates, Barristers, Solicitors and Notaries to the Hon. Leroy Legere, Minister of Fisheries, Nova Scotia regarding aquaculture developments in the Annapolis Basin and acting on behalf of the Basin Fishers Association. The document notifies the minister that aquaculture licenses recently granted may be illegal and threatens to launch an action against the province

SWNS Soft-Shell Clam Advisory Committee Meeting Agenda, for May 7, 1993.

Project Summary, Industry Services and Native Fisheries, DFO entitled: Seabed Disturbances from Fishing Activities, dated May 1993.

### **1993-September**

Backgrounder, Fisheries and Oceans Canada No. B-Sf-93-11E Entitled: Designer Feed: What you feed is What you get. Two pages, two sided. Dated September 28/1993

### **1994-**

One issue of The New Catalyst, Fall 1994, Number 28 (published on Gabriola Island, BC). Title page is entitled: "Farm Fish Fiasco. Totem Salmon in Peril".

### **1994- January**

News Release from the DFO dated January 31, 1994 regarding the Science Priorities for the DFO

Annapolis Basin Aquaculture Development Proposal-January 28/1994

Letter from Herbert M. Clarke, Chairman of the Fisheries Resource Conservation Council to the Hon. Brian Tobin, Minister of Fisheries and Oceans, dated January 28, 1994 and regarding scientific priorities. Advocating and ecosystem based approach to managing the fisheries and to forging real partnerships with fishermen and the industry.

### **1994-February**

Aquaculture Project Team Meeting, February 16, 1994. (7 pages, single sided)

### **1995-**

Undated – John McPhee article entitled: Fish farm project being expanded. Province rejects advisory group recommendations. Newspaper unknown but presumed *Digby Courier*.



Undated – Jon Percy Letter to the editor entitled: Dismayed by minister's move (to overrule locally appointed RADAC). Newspaper unknown but presumed *Digby Courier*.

Undated – Randy Brennan – Letter to the editor entitled: Rejects criticism of first aquaculture body. Newspaper unknown but presumed *Digby Courier*. [name of author missing from article but correction appears in subsequent clipping]

Undated - Headline entitled: Aquaculture interests of Joe Casey questioned in House – page 8. Newspaper unknown but presumed *Digby Courier*.

Undated – by John McPhee, article entitled: Local MLAs fend off calls for registration. [article speaks of calls for “resignation”]. Newspaper unknown but presumed *Digby Courier*.

Undated – Brian Higgs letter to the editor entitled: “Aquaculture a ‘reasonable addition’ to Basin”. Newspaper unknown but presumed *Digby Courier*.

Undated – no author – article entitled: AVABT Supports Aquaculture. Newspaper unknown but presumed *Digby Courier*

Undated – from the Hansard report of the April 27 Assembly Debates in Halifax. Article entitled: “Casey interests in aquaculture under question”. Newspaper unknown but presumed *Digby Courier*.

Undated – Anna-Maria Galante article entitled: Awarding of sites for fish farms raises questions. Newspaper unknown but presumed *Digby Courier*.

Undated – Gordon Mount article entitled: Despite tense moments, coexistence is aim. Newspaper unknown but presumed *Digby Courier*.

Undated – Anna-Maria Galante article entitled: Aquaculture flak forces resignations. Newspaper unknown but presumed *Digby Courier*.

Undated – no author – article entitled: The battle of the Basin. Newspaper unknown but presumed *Digby Courier*.

Undated – Rachael Crowell article entitled: Minister approves aquaculture proposal. Newspaper unknown but presumed *Digby Courier*.

Undated – advertisement under the Navigable Waters Protection Act RSC 1985, Chapter N-22. D.B. Kenney Fisheries Ltd. Notifies of approval for aquaculture site license. Newspaper unknown but presumed *Digby Courier*.

Undated – Yarmouth byline – Workshops Open Doors - Newspaper unknown but presumed *Digby Courier*.

Undated – NS Fisheries Aquaculture Workshops advertisement. Newspaper unknown but presumed *Digby Courier*.

Undated – no author – Playing against stacked deck – BFA. Newspaper unknown but presumed *Digby Courier*.

Enright, Catherine 1995 European (Belon) Oyster Aquaculture Development Planning Report. Technical Report #95-09, Nova Scotia Department of Fisheries, Halifax. (32 pages). Prepared by the Subcommittee on European Oyster Culture Development under the direction of the Nova Scotia Department of Fisheries.

News Release, Fisheries and Oceans Canada No. NR-HQ-95-35E Entitled: Tobin Accounes 1995 Snow Crab Strategy. One page, two sided.

Map of Atlantic Fishing Zones (Subareas and divisions of the NAFO Convention Area) (one page). 1995

### **1995- January**

Basin Fishers Association, January 5, 1995 A Review of Recent Scientific Literature Regarding Fishfarming Worldwide. (annotated bibliography of 4 pages A4).

### **1995- April**

News Release, Fisheries and Oceans Canada No. NR-HQ-95-35E Entitled: Canada EU Reach Agreement to Conserve and Protect Straddling Stocks. One page, two sided.-april 15,1995

Backgrounder, Fisheries and Oceans Canada No. B-HA-95-10E Entitled: Improved Conservation and Enforcement Measures. (pertaining to EU Agreement). Two pages, two sided. Dated April 1995.

Backgrounder, Fisheries and Oceans Canada No. B-HA-95-11E Entitled: Chronology of Key Events: Canada EU Turbot Dispute. Two pages, two sided. Dated April 1995.

Backgrounder, Fisheries and Oceans Canada No. B-HA-95-12E Entitled: Highlights of the 1995 Atlantic Snow Crab Strategy. Two pages, two sided. Dated April 1995.

April 26, 1995 John McPhee article entitled: Aquaculture OKs may bring lawsuit. The *Digby Courier*, p. 3

### **1995-November**

Letter of November 21, 1995 to Gary Turner of the Aquaculture Coordination Office and to Glyn Sharp of the Marine Plants Unit regarding Algal Mat Thorne Cove, from Glyn Sharp. Marked as DRAFT

### **1996-**

Raymond, D. 1996 Report: *Annapolis Basin Aquaculture Industry Development Plan*. Prepared by Doane Richmond Chartered Accountants/Management Consultants for the Annapolis Basin Aquaculture Industry Association. (13 pages)

Newspaper article (no date) entitled: "Credibility, accountability lacking in handling of quarry, fisheries" by Terry Farnsworth of Digby

### **1996- January**

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One copy of the Digby Courier, Wednesday January 24, 1996. Vol. CXVIII, No. 30. Headlines on page one include: Changes Opposed by MLAs, Fishery proposals overlooking many; and Industry crosses its fingers. Aquaculture groups look for major Basin expansion.

### **1996- February**

Discussion draft of the February 1996 Nova Scotia Fisheries and Coastal Resources Act. Nova Scotia Department of Fisheries. (heavily marked throughout with felt markers).

### **1996- July**

Letter dated July 4, 1996 from Daniel Bernier of the Canadian Council of Professional Fish Harvesters to Terry Wilkins of the Basin Clam Diggers Association, with attachments: Canadian Council of Professional Fish Harvesters 1995 By-Laws (Extract). Adopted at the Constitutional Convention, April 23, 1995. (5 pages); Membership application form (4 pages)

Inter-Tidal Harvesters Coalition Guidelines (Updated July 20<sup>th</sup>, 1996) (5 pages)

### **1997-February**

Copy of Aquaculture License/Lease Application for European Oyster dated February 3, 1997 by Schafner Point Sea Farm, Annapolis Royal, including two pages of maps.

Copy of a Province of Nova Scotia Department of Fisheries Aquaculture License/Lease Application dated February 3, 1997 for the cultivation of sea scallop and European oysters by Duncan Casey and Denn Robinson of Digby, N.S. (1 page form with two maps attached).

### **1997- April**

Photocopy of National Geographic "Earth Almanac", April 1997, entitled: Norway's Salmon Farms Leaking Like Sieves; Escapes Threaten Wild Fish.

### **1997-June**

Name reservation request form filled out by Terry Wilkins (one page)

### **1999-**

Cormier, Skip 1999 Cooperative Bacterial Monitoring Program for the Southwestern New Brunswick Soft Clam Industry, Prepared for the Southwestern New Brunswick Clam Resource Committee. (26 pages)

One copy of the Spring 1999 *Fundy Issues* (Issue 1 revised), Bay of Fundy Ecosystem Partnerships

### **2000- February**

Experimental Lease No. 8356, 23 February 2000, between Province of Nova Scotia and Innovative Fisheries Products Inc, "non-exclusive" lease to use the 1627 hectare area in St. Mary's Bay for the bottom cultivation of *Mercenaria mercenaria*. [One Year but includes four consecutive one year renewals at the sole discretion of the province.]

### **2000- December**

Opportunities for Clam Enhancement – Chezzetcook Inlet, NS. Chezzetcook Harbour Revitalization Association. December 2000. Photocopy of 18 page report.

### **2001-February**

Minutes of the February 15, 2001 meeting of the SWNS Soft-Shell Clam Advisory Committee, Grand Hotel, Yarmouth. Appendices include Agenda, List of members of the Queens County Fish and Game Association (for 2000); Order Varying the Close Time for Clams in Certain Waters of Nova Scotia (2000); and Draft II of the Advisory Committee's terms of reference. (all annotated in green ink).

### **2001- July**

Canadian Food Inspection Agency Fact Sheets on Amnesic Shellfish Poisoning (ASP), dated July 2001; Paralytic Shellfish Poisoning (PSP) dated July 2001; Diarrhetic Shellfish Poisoning, 8/14/03; and Human Illness Associated with Harmful Algae dated 8/14/03. All pages stapled together.

### **2001- October**

One page Map of Clam Harvesting Areas (Nova Scotia) dated October 8, 2001.

### **2001-November**

SWNS Soft-Shell Clam Advisory Committee, Terms of Reference, dated November 6, 2001.

### **2002-**

SWNS Soft Shell and Hard Shell Clam Management, hand dated 2002, (two pages, double sided)

### **2002- February**

Invoice from Atlantic Catch Data Limited, dated 98/31/02 and listing 3,579 pounds of clams, addressed to Terry Wilkins. Total invoice is for \$10.01. (One page).

### **2002- March**

Town of Stonington, Shellfish Conservation Ordinance, 3/4/02. With one attachment: Soft Shell Clam Management in the Annapolis Basis (sic) – Some Possible Next Steps. (8 pages)

### **2002-September**

Letter from Atlantic Catch Data Ltd. To Inshore Clam Harvesters dated September 26, 2002, notifying of the need to use new reporting documents stipulated by the DFO for monitoring and outlining the fees for submitting data to the DFO. (2 copies, single page).

### **2003- February**

Press Release, 02/09/2003 Clam Diggers Accuse DFO of Siding with Company. 2 pages.

### **2003-December**

DFO Discussion document entitled Preserving the Independence of the Inshore Fleet in Canada's Atlantic Fisheries, dated December 2003. (17 pages in French and in English).

### **2004-**

Impact Statement to the Judicial System and the Department of Fisheries from Secretary Treasurer of the Digby Co. Clam Diggers' Association, protesting against "bandit" clam diggers and calling for professionalization of the industry. (undated)

Brochure from DFO entitled: Maritimes Region Fisheries Management Scotia-Fundy Sector, Convenient Payment Options (no date).

Glossy fold out brochure entitled: Professionalization in Scotia Fundy. What does this mean to you? Scotia Fundy Professionalization Interim Board. (no date). ~ 2004

Information print out on Yarmouth Sea-Train courses on Marine Emergency Duties (2 pages). ~ 2004

Digby County Clam Association Membership List 2004 (73 members)

Government of Canada 2004 "Harvesting Shellfish in Atlantic Canada", fold out information brochure.

Annon. 2004 Innovative Fishing Aquaculture. Commerce Magazine Spring 2004. 2 pages. Plus attached note on SaulTeck Computer note pad with addresses for Ford Fisheries and Innovative Fisheries.

Newsletter on Innovative Fishing Aquaculture Spring 2004.

#### **2004-March**

Letter from Lucas Hill to Aegir Shellfish Incorporated concerning clam industry, dated March 30, 2004. (1 page).

#### **2004-April**

Proposal from the Digby County Clam Diggers Association and the Area 2 Clam Harvesters Association to Fisheries and Oceans Canada regarding the management board participation in decisions about access to closed areas (for the 2004 season). Dated April 2004.

List for Elected Representatives to the Clam Advisory Committee (dated April 13, 2004) and including phone numbers (3 pages).

Annapolis and Digby Clam Management Board, Management Plan for 2004-2006, dated April 15, 2004. Lists 25 items in "the Plan", including management, conservation and research plans. Annotated loose copy of the above plan, with specific items commented on in ink.

Internet download printout on Ocean Tidal Technical FAQ (dated 27/04/2004). (3 pages)

#### **2004- May**

DRAFT Annapolis and Digby County Clam Management Plan dated May 2004 and with notation that new sections are in bold print, including some annotations on the new sections to some of the items – as with "no approval of new types of harvesting methods" annotated to state: "without prior consultation and agreement process".

Under cover of fax from Jacinta Berthier (DFO office), minutes of the Ad Hoc meeting of the SWNS Soft Shell Clam Advisory Committee (Contaminated Area Access Meeting), dated May 6, 2004. Agreement seems to have been reached that licence holders adjacent to the closed area should be employed, subject to adding or removing names from an approved list by the processor "based on sound management practices of the company" (????). Also includes threat from processor to take any harvester who strikes against low prices off approved list of harvesters.

#### **2004- June**

Fax notice from DFO addressed to CHA 2 Emergency Shellfish Closure Distribution List and notifying of closures put in place on Goat Island, dated June 25, 2004 (4 pages, single sided).

#### **2004-July**

CH 2 2004 Management Plan (fax copy labeled Arthur Bull), and dated July 07/04.

Envelope addressed to Ken Weir, Area II Annapolis and Digby Clam Management Boards, from Parks Canada, containing letter dated July 19, 2004, from Theresa Bunbury, Operations Superintendent. The letter notifies of upcoming Parks Canada events association with the Annapolis Royal historic sites that will impact on parking needs.

#### **2005**

CH2 Clam Enhancement Project Document (undated) outlining goals, objectives and project description for May-September 2005. Appendix A, Project Scope lists Arthur Bull and David Scarratt as Project Managers. (4 pages)

CH2 Clam Enhancement Project document (1 page) attached to "Gulf of Maine Council on the Marine Environment, Action Plan Grants Program 2005-2006, Request for Proposals". (3 pages)

A Policy Framework for the Management of Fisheries on Canada's Atlantic Coast, DFO Communications Branch, 2005.

Gulf of Maine Clam Management Study Tour, Draft Itinerary

Maine Sea Grant sponsored single page brochure on Georges River Clam Project

Single page brochure entitled Community Based Fisheries Management Is Working in New England.

Single page brochure advertising "Clam Day" in Rockport, sponsored by the Maine Soft Shell Clam Advisory Council

Course outline for Building Individual and Team Performance.

Appendix A, Project Scope for the Clean Annapolis River Project Annapolis Basin Sustainable Resource Management Project (undated) (two pages).

Undated note from Dave Scarratt, Annapolis/Digby Clam Enhancement Project, regarding notes from a meeting held on Thursday and the outline of the enhancement project. (2 pages)

CH 2 Clam Enhancement Project, Scientific Protocol (undated) from David J. Scarratt, Project Coordinator with attached page on "Project to explore the feasibility of enhancing clam-flats in Annapolis and Digby Counties". (2 pages)

Single page with map and discussing Monitoring and Evaluation protocols. Map is of Clam Harvesting Area 2.

CH2 Clam Enhancement – two page description of methods. (same document reappears as single page doc).

Two page document headed “David Scarratt, Coordinator” and appearing to be the minutes from a meeting on clam enhancement. (Undated)

Draft document from Ian Marshall, Area Director, DFO, Southwest Nova Scotia on Opening/Closure Criteria, Areas of Responsibility and DFO-Conservation and Protection Branch. (undated) (2 pages)

Proposal to Establish an Annapolis Basin Clam Advisory Committee, submitted by Denise Sullivan, Ecological Monitoring Researcher, Clean Annapolis River Project, to DFO, Resource Management. (undated) (4 pages)

Form entitled “Application for a Contaminated Shellfish Harvesting License”, DFO. (undated) one page – two sided.

DFO newspaper advertisement notifying commercial fishermen of the importance of training for fishing vessel operators. (undated)

Annapolis Watershed Resource Committee Code of Conduct. (one page)

Service Canada handout titled “ Employment insurance- Changes to how Employment insurance is calculated”. Refers to a pilot project beginning October 30<sup>th</sup>, 2005.

#### **2005- March**

CH2 Clam Enhancement Project, 2005, Advisory Committee Meeting, March 24<sup>th</sup>. (3 pages)

#### **2005- May**

Email dated 04 May 2005 from Dave Scarratt to Angela Smith (Inspection Branch) regarding an update on the Enhancement Project. Attached is a long set of email exchanges between Mr. Scarratt and the DFO. (5 pages)

#### **2005- September**

Email dated September 25, 2005 from David Sanborn to Butch Taylor containing the minutes from the Georges River Shellfish Committee Minutes of September 12, 2005 and agenda for 11-7-05

#### **2005- November**

Yellow page listing “Changes Proposed 11/2005”

#### **2005- December**

Georges River Shellfish Management Annual Commercial License Allocation Procedures, 2006 Drawing, dated December 8, 2005 (7 pages)

Georges River Regional Shellfish Management Ordinance as amended December 8, 2005. (14 pages)

2006 Georges River Regional Clam Management Plan, approved December 8, 2005. (5 pages)

Draft Version of Media Release regarding Province Wide Coalition Opposing Privatization of Clam Beaches. (1 page)  
~ 2006

Draft CH2 Clam Harvesters Association Proposals for 2006-7, with background, methods and estimated budget, by David Scarratt. (3 pages)

Glossy fold out brochure for "Fishing 2006" 17019 May, Glasgow, Scotland.

Packman, G. A. and Associates 2006 Selection and Use of Indicators to Measure the Habitat Status of Wild Pacific Salmon, Report prepared for the Pacific Fisheries Resource Conservation Council. (154 pages)

Nelitz, Marc et. al. 2006 Managing Pacific Salmon for Ecosystem Values: Ecosystem Indicators and the Wild Salmon Policy. Report prepared for the Pacific Fisheries Resource Conservation Council. (97 pages)

Guidelines for the Harvest of Shellfish from Contaminated Areas under Special Licence for Decontamination. Fisheries and Oceans, SWNS 2006 (11 pages).

Two drafts of a letter addressed to the Minister of Fisheries, Canada and the Minister of Fisheries and Aquaculture, Nova Scotia from the Digby County Clam Diggers Association which contain a proposal to engage Annapolis Basin Clam Diggers in the Rehabilitation of their resource. ~ 2006

### **2006- January**

Sullivan, Denise 2006. Gulf of Maine Clam Management Study Tour Summary Report. Prepared for Bay of Fundy Marine Resource Center, January 2006. (10 pages)

Draft 1 of Clam Harvesting in Annapolis Basin: time and an opportunity for change, two page document dated 25/0/06. (2 copies)

One copy of "A Wake-up Call: Clam Harvesting in Annapolis Basin: time and an opportunity for change" two page document undated

One copy of the *Taliaq Mi'kma'ki, Quarterly Newsletter of the Native Council of Nova Scotia*, January 2006.

### **2006-March**

One copy of the Digby Courier of March 16, 2006 with a front page story entitled: Clams, OHVs don't mix.

Newspaper article entitled: "Harvester: ATVs causing harm to clams". Dated March 19, 2006. Newspaper unidentified

News Update for Monday March 20, 2006 regarding ATV damage to clam flats.

Newsletter (glossy) produced by Bilcon Corporation entitled: Whites Point Quarry Update, dated March/April 2006.



**2006-June**

Internet download from Southeast Shellfish Co on Clams and Clam Prices dated 6/3/2006 (2 pages)

Newspaper Article: "Institutionalizing Pollution?" by Stephen Hawboldt, December 21<sup>st</sup>, 2006- In the Annapolis Valley Spectator.

**2006-December**

Printout titled "For immediate release- public meeting to discuss leasing of clam beaches" Dated December 25<sup>th</sup>, 2006.