The Nova Scotia Small Craft Survey

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Introduction

The Small Craft Survey of Nova Scotia represents a significant effort to salvage the remains of a vital element of the province's maritime heritage.[1] Unlike the large merchant vessels of the last century, the small craft upon which Nova Scotia's maritime economy has long depended have not been accorded much historical respect. Ironically these craft, so much a part of any harbour scene, were seldom the subject of paintings, photographs or reminiscences. It is as if they were so common that they escaped notice.

Evolving to meet local demands and to fill specific functions these boats reflect the skills and traditions of generations of Nova Scotians. Yet most of the traditional types of boats that were once so numerous are now endangered. Some have vanished forever due to technological advances, revised government regulations and new fishing methods. Still more alarming is the lack of data or reliable recollections of builders and owners. One of the most compelling reasons for this survey was thus the fragility of this valuable, yet oft-overlooked, historical resource.

As one of two major maritime museums in Nova Scotia, the Maritime Museum of the Atlantic has a responsibility to collect, research, preserve and interpret the province's small craft. The curatorial staff saw the survey as an opportunity to improve its fundamental approach to fulfilling this broad mandate. Prior to the survey the collection included seventy boats from fifteen to thirty feet in length. Decisions to acquire them were based upon the curatorial staffs knowledge of their historical and geographical importance, use and condition. For the most part collecting was passive and responsive, not systematic or proactive. The documentation of small craft by "taking the lines" and recording histories of use and construction techniques was rudimentary. The approach to small craft preservation was further exacerbated by the opening of the museum's new premises on the Halifax waterfront in 1982 and the subsequent expectation that the institution would accept, preserve and interpret more small craft than previously.

The intent of the survey was to place the collecting process on a more balanced footing by identifying significant boats that should be in the collection, by identifying further research on boat types, construction methods, builders and users, and by establishing the sequence in which collecting and research should be undertaken.

***The Northern Mariner/Le Marin du nord,* IV, No. 2 (April 1994), 11-30.**

Although the idea of a small craft survey had been discussed by museum staff for many years it was not until 1990 that it became financially feasible through a special grant from the Endowment Fund of the Nova Scotia Museum. The museum's case was quite strong. In 1985 the estate of the late Mary Lucille Holt donated a significant proportion of the required funds in lieu of a collection of sailor's valentines. At the time a commitment was made to the donor's daughter, Jane Dunn, that the money would be used to record the province's small craft.

In 1991 naval architect and marine surveyor David Walker was contracted to begin work on the survey. Acquiring his services meant that the project would benefit from his keen interest and knowledge of the province's small craft developed over a twenty-year period. The methodology adopted was influenced in part by similar studies undertaken by Howard I. Chapelle, Eric McKee, Christian Nielsen, B. and O. Fæøyvik, and Paul Lipke.[2] Unlike most of these writers, who concentrated on recording boats in detail, the Nova Scotia Small Craft Survey adopted a broader approach by including data on boatbuilders, users, geographical conditions and boatshops. This method enabled the survey to provide a more complete picture.

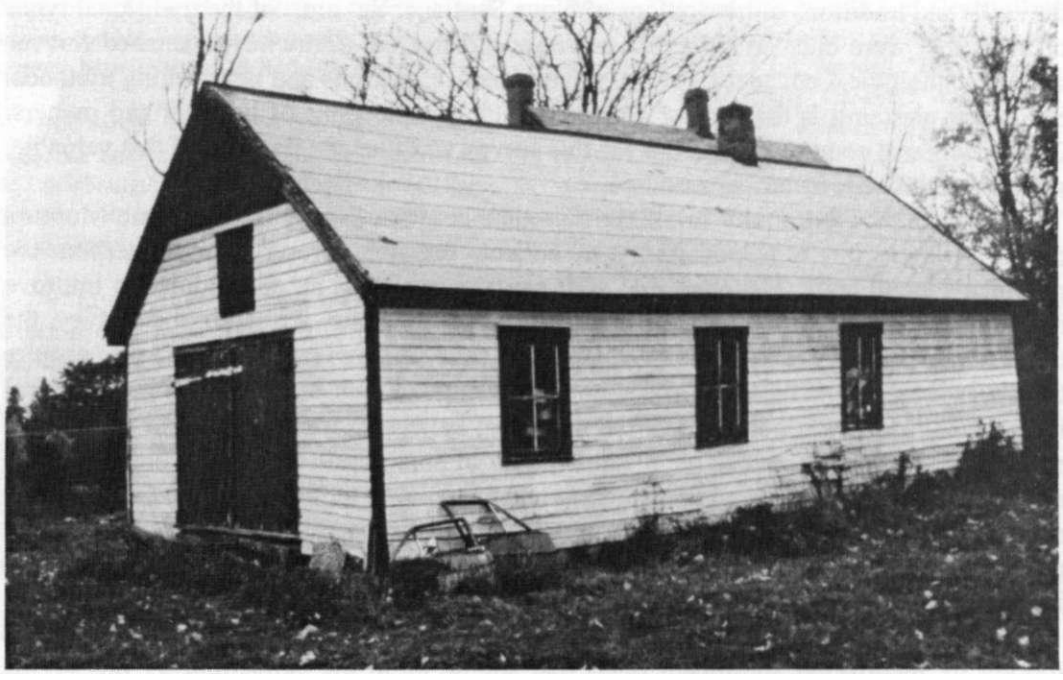


Figure 1: The late Will and Greg Hall's boatshop in Portapique, Colchester County. Used to build relatively small shad fishing boats around 1900, it has been closed for many years and hence remains an unaltered example of a traditional shop. It is covered in clapboard and the roof is pitched steeper than newer shops.

Source: Maritime Museum of the Atlantic, Nova Scotia Small Craft Survey.

Figure 2: The late Robert F. MacPherson's boatshop, west of Wallace, Cumberland Country, is an example of an expansion to accommodate the ever-increasing size of fishing boats. On the right is the original shop. The larger shop built to replace it has been expanded.

Source: See *figure 1.*

Figure 3: An older type of wooden Cape Island lobster boat at Clark's Harbour. Dawn Marie was built in Wood's Harbour in I962 and is fitted with a spray hood type cuddy with a vee front. Also note the relatively long open cockpit in a boat of only twenty-seven feet.

Source: See figure *1.*

To expedite the study the province was divided into forty sections, defined by prominent headlands, bays, county lines, and a preconceived sense of the extent of boatbuilding activity. As a result, some sections covered long stretches of coastline, while others encompassed considerably less. All boats — coastal, river and lake — were included if they were under fifty feet in length. To ensure the standardization of data three questionnaires were developed. The Boatbuilders Information Sheet was used to record information on the builder, his family, the facility in which he worked, and the type of boats built. The Small Craft Information Sheet was used to compile the boat's history and physical measurements, while the Resource Material Sheet was used to chronicle related material including the existence of half-models, photographs and plans. The forms are presented in an appendix to this paper.

Provisions were made to interview informants if time permitted. This aspect of the survey proved so successful that further funding was required to transcribe the tapes. Over 200 interviews, ranging in length from four minutes to four hours, enabled a number of conclusions to be drawn about builders, techniques, facilities and the like. Moreover, a photographic record was also compiled using colour slides. Almost 2000 slides of boats, boatshops, and related material were taken.

The survey concluded in July 1993 and the compilation of data is on-going. But a number of preliminary observations can already be made about boatshops, boatbuilders, boatbuilding and boats in the province.

Boatbuilders

Builders were located initially in three ways: by using a comprehensive list of contemporary and historical builders compiled by Lynn-Marie Richard, curatorial assistant at the Maritime Museum of the Atlantic; by looking for boatshops and finding their owners; and by word-of-mouth. The boatbuilders list proved to be an excellent primer. Although people enumerated in nineteenth-century census records were obviously deceased, their descendants were sometimes still building. As a result of the survey, the boatbuilders list has been significantly enhanced.

Boatbuilders were located in every part of the province, with the highest concentrations in the more prosperous fishing regions. From the 210 Nova Scotia boatbuilders interviewed a number of characteristics emerged. One is their relatively advanced age; most were seniors who had retired from the business, and the group of younger men entering or currently engaged in the profession is very small in proportion (see table 1). There is a perception that boatbuilding is not a business with a future, and some of the younger people building boats are clearly idealists rather than pragmatic businessmen.

The median age of the 168 builders who volunteered this information is 61.5 years, with a range between twenty-five and ninety-four. Almost forty-four percent are between sixty-one and eighty. Significantly, the areas with the largest concentrations of

builders have the youngest median ages. Conversely, Cape Breton builders are older than the provincial average, perhaps suggesting that boatbuilding is dying on the island.

Table 1.
Ages of Builders in the Survey

Age	No. of builders
21-30	09
31-40	23
41-50	29
51-60	23
61-70	32
71-80	42
81-90	09
90 +	01

Source: Maritime Museum of the Atlantic, Nova Scotia Small Craft Survey.

A large number of builders who started (or whose fathers started) building on offshore islands like Cape Sable, Tancook, Scaterie, Pictou and Bush Islands, eventually dispersed throughout the province. The Levies, Masons, Stevens and Atkinsons, among others, can now be found in areas far from their original settlements. As they moved they brought their building skills and traditions with them; the result has been a series of alterations to various regional boat types. The exception to this is Cape Sable Island, which has remained a centre for boatbuilding and today has the greatest concentration of builders in the province.

Family connections throughout the province are reasonably strong, and many builders had grandfathers or other relatives who constructed boats or ships. Brothers frequently operated boatshops in close proximity, in one case on adjacent lots. In one case twins ran boatshops within sight of each other. Partnerships were uncommon. It appears that wooden boatbuilding was essentially a one-man operation. Builders frequently told us that they worked alone except when steaming-in frames. Glass Reinforced Plastic (GRP) boatbuilding, on the other hand, is totally different: many shops are actually run by managers with a small number of employees.

Younger boatbuilders place more emphasis on marketing, while their elders relied more on word-of-mouth and the quality or design of their craft. Many older men built fishing and recreational boats for export; their clients, mostly Americans, frequently came in search of less expensive boats than those built south of the border. In one instance, two builders in widely-separated areas built for export with imported materials on imported moulds, the only Canadian component being the labour. In another case builders scattered throughout the province built boats and components for a manufacturer of moulded plywood boats in Mahone Bay, who in turn supplied markets in British Columbia and

Texas. The export market for Cape Island boats in the late 1940s and 1950s enabled at least one man at the southern tip of the province to be fully occupied in delivering boats to the United States by sea, often using a large boat to tow a string of smaller ones.

Figure 4: A modern GRP Cape Islander at Glace Bay. *Wanda Marie No. I* was built in Clark's Harbour in 1986 and has a registered length of thirty-one feet. She has a much larger wheelhouse than the older boat and a raised forecastle, but still carries a riding sail. She is fitted for longline fishing with a chute at the stern.

Source: See figure 1.

Many production workers in contemporary GRP boatshops are women. But apart from this sector few females have been employed in boatbuilding, perhaps because most wooden boatshops were one-person operations. Nonetheless, a few women did help their husbands at peak times, usually with less-skilled tasks like painting. One woman, however, at one time or another performed every task in building a boat, and actually completed a half-finished craft when her husband was taken ill. Women also helped on the clerical side, keeping the books, ordering supplies and performing similar jobs. The daughter of one builder did this for many years; even after her retirement she could recall the strengths and weaknesses of timber suppliers, as well as where to get the best nails, fittings and similar materials at the best price. The boatyard had been her vocation.

Wooden boatbuilders had many interrelationships. They shared design moulds, lent designs via half-models, and even helped each other in production during busy times. Despite this spirit of cooperation, builders clung to their own methods and choice of materials. One would extol the virtues of a specific wood for keels while another who lived and worked at no great distance would decry this choice. Similarly, the construction details of one boat type were often belittled by a man with another specialization.

Boatshops

A number of older boatbuilders, like their fathers and grandfathers, built outdoors much like the builders of sailing ships during the last century. Boatbuilding today, whether in wood or plastic, is an indoor activity. The survey, however, indicates that boatshops were not common in Nova Scotia until the early part of this century and few really old buildings were located. Many, of course, have fallen victim to fires, decay or neglect during downturns in the industry, or were abandoned when the owner decided to move to larger or improved premises or died. The impetus to build indoors probably followed the adoption of a stationary gasoline engine to power band saws, planers and circular saws; maintenance made indoor operations almost mandatory. Much later, the introduction of electricity in rural areas made electrically-powered machinery more attractive. Early insulation, open wiring systems and open "squirrel-cage" motors, all of which were susceptible to dampness, required the protection of a building.

Three distinct types of boatshops were identified: purpose-built, adapted, and prefabricated. Traditional boatshops were purpose-built, varied in size and exterior finish, were built of wood, and conformed to their practical functions. Simple buildings with pitched roofs and end gables, they had a large door on one of the smaller sides through which the completed boat could pass. Today these doors almost always slide, but an occasional older small shop will have hinged double doors. The small door can be almost anywhere else the builder chooses, although it is usually nearest the house if the shop is on the same property. Occasionally a door is set into the larger boat delivery door, especially if the shop is not adjacent to water. A surprisingly large number of boatshops are not situated on the shore, so new boats have to be delivered to their launching sites, which in some cases are at considerable distances.

The average size of a traditional boatshop is forty-five feet long by twenty-five feet wide, for a total of about 1125 square feet. The smallest known building was twenty by twelve feet (240 square feet), little more than the size of a standard garage. Such small structures were used by builders of mini-capes or similar skiffs and punts. One shop was 100 by sixteen feet and another was 110 by twenty-one feet, suggesting that both had been smaller shops progressively lengthened over the years. Assuming that a medium-sized Cape Island boat about thirty-five feet in length with a thirteen-foot beam makes a "footprint" of about 400 square feet in a shop, then over one-third of the working space is covered in an average facility.

Inside, the central portion of the building is reserved for the hull, and the floor in this area is frequently left uncovered or hard-packed with cinders. It usually slopes toward the delivery door if the shop is on the water. The central area is surrounded on three sides by a level wooden working floor and along both long sides are workbenches, which usually run almost the full length. They are fitted with numerous vices and rests to support a hull length plank as the builder works it to size and shape. Windows are located directly over the benches to maximize the light. The closed end of the U-shaped working platform is usually where the fixed machinery is situated, with plenty of working room around it. Often a slot with a vertically-hinged flap cover is cut into an exterior wall adjacent to the planer or band saw to accommodate long lengths of timber.

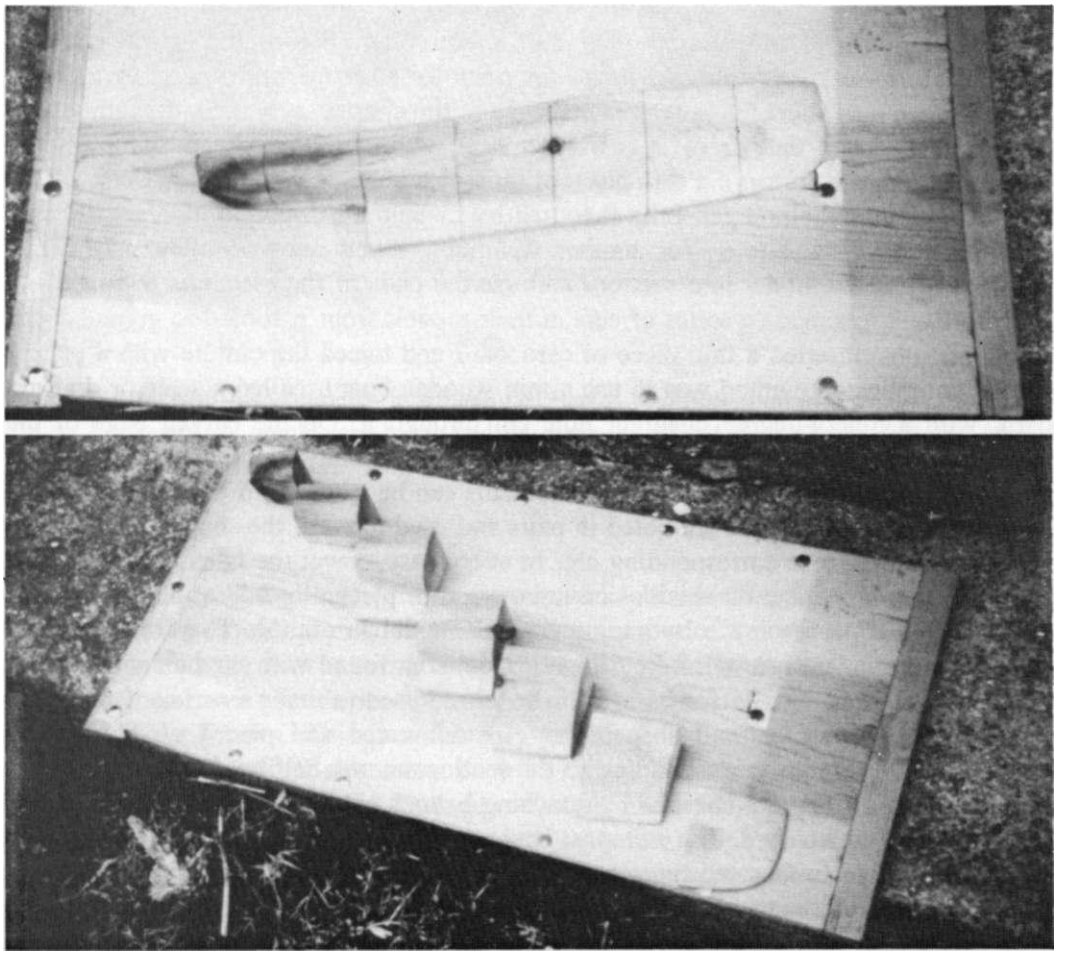
Heat is provided by one or more wood-burning stoves, although some newer shops use oil furnaces. The latter is often also the heat source for the boiler which supplies the steam box used to soften timbers and planks. Steam boxes are fixtures in all wooden boatbuilding shops. No two are alike; the variation in their design and operation is a study in itself. Often the shops have been expanded by the addition of lean-tos, added so the builder could accommodate larger boats or to add space for offices, stores, or additional machinery. Some added a complete new building bay, doubling the capacity of the shop. Clearly, further investigation of wooden boatshops would develop and articulate their regional differences, location, age, polar orientation, and expansion or development.

Adapted boatshops comprise a significant proportion of the buildings. Many were constructed originally as barns, garages, houses, or fishing gear stores. Barns were the most common. Others were modified cattle sheds, and in one case an old church had been modified. These boatshops were usually considerably larger than purpose-built facilities: the average is about seventy-three by thirty-seven feet (2675 square feet). Many had similar interior layouts for the building boats, utilizing a U-shaped bay, with the boat as the central focus, surrounded by working space and machinery.

Prefabricated metal boatshops, the vast majority of which are Quonset huts, are generally made from corrugated rolled sections bolted together in standard modules. The metal buildings average sixty-five by thirty-eight feet (2430 square feet). The proportions of all the buildings are similar, which suggests that the ideal ratio of length to width has been achieved (length is usually 1.75 to two times width). Many were erected using government subsidies after the introduction of GRP boats in the late 1970s and early 1980s. Non-traditional in appearance, the interior layout is often completely different from the shops described above. The long woodworking benches along the sides are no longer needed. Nor are windows in the curved metal sides. The floors are flat concrete so the moulds can be moved easily. Pumping equipment for the resin sprayers and glass fibre choppers and are the only machinery. If the hull is to be finished on site a woodworking shop is adjacent. All are artificially lit and have a large sliding metal door at one or both ends. A fan is located near the roof at each end to extract fumes and to allow fresh air to enter.

Boatbuilding

Building wooden working boats in Nova Scotia is no longer viable in 1994. Fishermen and commercial owners do not buy wooden craft because of the perceived advantages of GRP. Indeed, so pervasive is GRP that many extant wooden hulls have been covered in glass cloth and resin to extend their working lives. Steel, aluminum or ferro-cement construction have generated little interest among fishermen or other users. Building wooden pleasure boats remains an occupation for a few scattered boatbuilders, who generally produce individually-designed, high-quality, well-fitted sailing and power yachts.



Figures 5, 6: A half model for a Cape Island type boat, illustrating how the builder has sawn it into seven pieces to trace the shape of the sections. The tracings are then expanded to full size to make the moulds.

Source: See figure 1.

No universally accepted method of building a wooden boat exists in the province. The survey, however, has provided some useful insights into the different ways of using and interpreting half-models, the sequence of hull construction, and the variety of materials and their influence upon design.

Half-models are almost always carved from a single pine block. The most common scale is 3/4-inch to one foot, because a builder's ruler or tape can be used to transcribe measurements (1/16 inch equals one inch at this scale). Other scales vary between 1/2 inch to one inch to one foot. The models are interpreted in a number of ways to transcribe the chosen shape into figures, drawings or scale sections to build a set of moulds (templates).

Perhaps the most common method of interpreting a half-model is to form a bar of lead to the model shape and use it as a template for a section drawing. A variation is to cut or file a lead sheet into a template shaped to the chosen section. Both methods are well-established and date from an era when lead was common, cheap and plentiful. Another variation is to carve a thin piece of pine or other soft wood to the shape of the required section, a method generally favoured by Lunenburg County builders. Stiff card was sometimes a substitute. Yet another technique, albeit one not often used, is to transversely cut the model into sections and use the ends of the pieces as templates. A number of builders made a series of cuts in their models from garboard to gunnel at the desired stations, inserted a thin piece of cardboard and traced the outline with a pencil. A more complicated method was to use a thin wooden board, called a scale or drafting board, with a ninety-degree quadrant hole cut through it. On the curved edge of the quadrant is an arc with a radius line every ten degrees. The half-model is inserted through the hole and held by small nails so measurements can be taken from the arc to the hull. The dimensions and degrees are noted in pairs and used to mark the shape on the mould loft floor on a full size corresponding arc. In every case except the latter, builders drew scale sections with offset dimensions on a narrow thin piece of wood at the appropriate points on a hull profile made by tracing the half-model in outline. The drafting board serves as a permanent record of the design and is often found with the half-model.

The figures derived from the half-model are used to make a series of full-sized moulds which determine hull shape. They are fabricated and placed on the keel at predetermined locations corresponding to the sections on the half-model. After they are fitted and aligned they are checked by attaching battens or ribbands which are removed as the planking is attached. The stempost is shaped and attached to the keel along with the sternpost, horn timber and transom, the latter of which becomes the final mould.

When larger boats were required, builders did not always go through the process of carving a new half-model. Instead, moulds were simply increased in size by adding material to each side or by splitting them at the centreline and adding material. This expanded the breadth; boats were lengthened by placing moulds at larger intervals on a longer keel. Hulls were deepened by adding more material to the top of the mould. This method of enlarging a vessel without changing the original shape was a favoured Nova Scotia building practice and perhaps explains the endurance of the Cape Island boat shape.

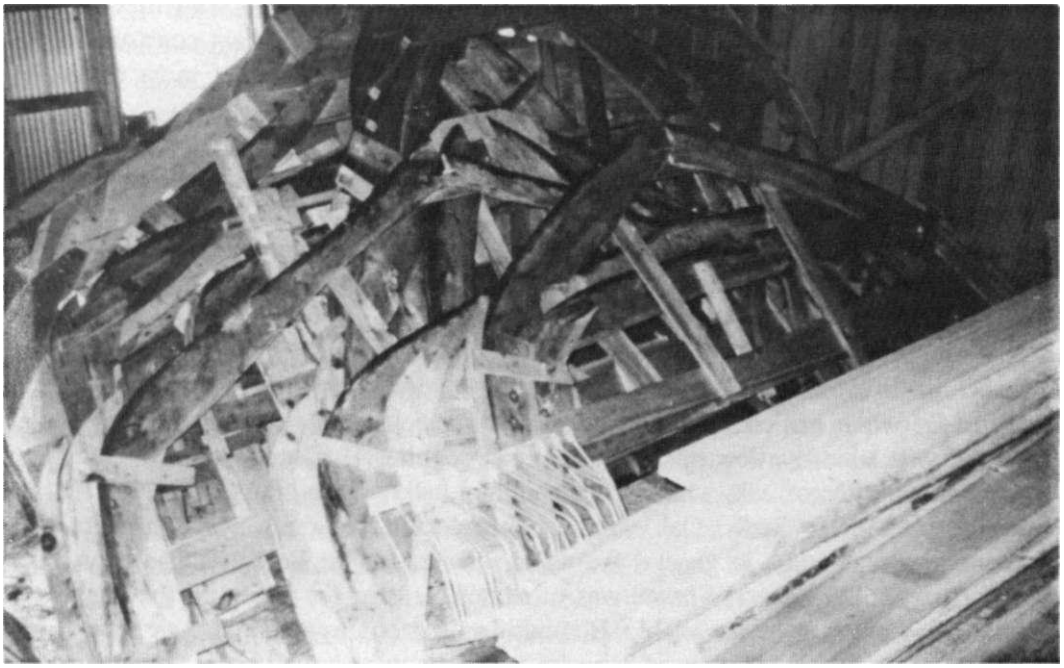


Figure 7: Sets of full-size moulds in Roland DeChamps' old boat shop in Shelburne, Shelburne County. A mould which has had the beam expanded in the lower left and stacked seasoning timbers are in the lower right.

Source: See figure 1.

Planking and framing are other areas in which builders frequently diverged. Many planked over the moulds after adding a minimum number of frames, while the rest of the steamed frames were bent into the completed hull before removing the moulds. Others placed steamed frames inside the ribbands; after they had been fitted, they attached all the planking to the frames. This is commonly called shell construction. The moulds are removed and longitudinal structures, such as carlins and sheer clamps, are added and floors and engine beds installed. Virtually all boats under fifty feet in length have steam bent frames. The exceptions are flat-bottomed craft like dories and some types of punts, which have natural crook, sawn frames or built-up frames with clips.

Essentially, these were the ways in which most builders erected or assembled a wooden craft. But there were differences in detail, the most important of which was the planking-first or framing-first option. In Lunenburg County builders made only temporary moulds from braced, steam bent framing wood; when the hull was near completion the bracing, called stay-laths, was removed. Steamed frames are always secured to planks with galvanized clenched nails, a feature which has characterized Maritime-built workboats for decades. Because the galvanizing begins to deteriorate and rust starts almost

as the nails are clenched, more fastidious builders fastened fishing boats with ring nails of bronze, monel or similar alloys, a practice used in recreational boat construction for many years. A few builders used alloy screws, as do the builders of more expensive yachts.

A lack of consensus as to the best type of wood for boat construction was evident. If a pattern exists it is that the most commonly available local woods are chosen. In areas where hardwoods are scarce or of poor quality, Lunenburg County is most often cited as the best source of supply. Nonetheless, some woods are more common for various components than others. To illustrate this point we can examine the woods used in Cape Island boats. In these craft the keel was most often made from Lunenburg County red oak, although local versions like sour and grey oak were also used. Some builders, however, never used oak, claiming that it was too porous for underwater use or that it slivers badly when hauled up skidways. Ash, birch, elm and maple are other popular selections, with birch (yellow or white) the most popular. The stem, sternpost and apron were also most often of oak, which was sometimes used even by those who claimed that it was unsuitable for keels. Oak was also often used for the vertical, unimmersed backbone areas, although in general the wood selected for the keel was also chosen for the other backbone timbers. Spruce was often selected for the knees on the backbone, with hardwoods used when available. Boatbuilders sometimes acquired their knees from specialists, since making them was hazardous if rocks, which could turn into dangerous projectiles, were embedded in the roots.

Transoms were almost always flat and made from hardwoods (only two builders interviewed used softwoods), the precise species varied considerably. On boats with curved hulls frames and timbers are always steam bent oak or hackmatack, with the occasional builder using ash. Virtually everyone considered hackmatack best, even those using oak. Those using hackmatack were derogatory about local oak, believing it a poor choice because it rotted quickly if continually wet, as in bilges and skegs. The popular choice for planking was pine, although many who used it claimed it was too soft. Spruce, a much harder wood often found on Bay of Fundy boats subject to constant abuse at wharves due to wide tide differentials, was a close second choice. On the Northumberland coast edge-nailed boats were also mainly spruce-planked due to a lack of good sized or first quality pine and spruce. Consequently, only narrow plank sizes could be obtained knot free. Spruce was also most popular for beams and knees, while virtually all the remaining wood used on Cape Island boats is plywood.

Pleasure boatbuilders often select better quality and different types of wood. The keel and backbone are almost always imported white oak from the United States or Ontario. Likewise, the timbers are usually steam bent oak, and planking is often imported mahogany, usually the so-called Philippine variety. Plywood is now used in the interiors for bulkheads, decks and other structures. All these practices are reflected in the final cost of the product. Even without the fittings, gear and trim associated with either recreational or fishing boats, there is a huge cost difference. Today very few boatbuilders construct both working and pleasure craft.

GRP fishing boats became popular in Nova Scotia by 1980. The move to this material was so pronounced that many wooden boatbuilders had to adapt or permanently close their doors. By the time of the survey, forty-eight percent of the 1209 boats noted in various sections were GRP-built and their average age was only 6.5 years. Building GRP boats is relatively simple compared to similar wooden craft. A plug is built to the exact shape and size of the required final hull and the exterior is finished to a high polish. The plug need not be structurally sound, or of similar scantlings to a boat, but simply rigid and self-supporting. In the early years of GRP construction a wooden boat of suitable size, shape and general acceptability was used as a plug. Today plugs are made from Styrofoam blocks or plaster covered laths. The plug is waxed and a female mould built around it with layers of glass cloth and resin, sometimes with a "filler" core of end-grain balsa or foam. This mould is made in two halves and joined at the centre line with bolted flanges. The halves are reinforced and braced so that they are self-supporting and are fitted with castors so they can be moved freely. The plug is removed and destroyed.

To build a hull, the mould's interior is waxed and the hull is formed inside from layers of glass cloth and resin. To make them lighter, most builders fit end-grain balsa blocks or foam cores between the inner and outer layers, in effect creating two hulls separated by a lightweight spacer core. There are two methods of applying resin: with an air-powered gun which premixes the components at the nozzle or in small batches hand-mixed in pans and applied with paint rollers. After curing, the hull is removed by unbolting the two mould halves. Some builders have moulds to make GRP foredecks, cuddies and wheelhouses, but as these are subject to individual preferences they are not popular despite the economies of scale. The boat is finished by adding plywood bulkheads, floors, engine-beds, decks, and fittings for wheelhouses or cuddies. The wood is often completely coated in fibreglass cloth and resin to preserve it. As confidence in GRP increased, some builders modified their moulds to make longer boats by installing a removable transom and lengthening the overhang. Occasionally the skeg was also lengthened to decrease the overhang. The Cape Island hull shape has also been altered by splitting each half-mould and adding a "pie-slice" from the forefoot, leading aft and twisting port and starboard into the wide flat after run. It is relatively easy to build a deeper hull.

GRP materials are few in number and virtually standard throughout the industry. Only two basic components are required: resin and fibreglass. The former is a combination of a polymer and a hardener. When combined in the correct quantities curing time can vary due to the ambient temperature. The product is an impermeable plastic, with little tensile strength. The second component is fibreglass, which comes in sheets of various weaves and densities, or matted bats, similar to long staple felt. When these materials are impregnated with resin the result is a very hard, but not brittle, material with some flexibility, yet with considerable tensile and compressive strength, especially compared to other materials of similar density. It can be moulded into shapes of almost any complexity and is ideal for hull construction. Regulations for building GRP boats are established and monitored by the Canadian Coast Guard, Ship Safety Branch, various

classification societies, and the Nova Scotia Department of Fisheries. Rules are based on experiment and experience. Chemical mixes and cloth weights are also specified.

Boats

A major objective of the survey was to identify and compile data on Nova Scotia-built boats. This was so successful that fifty-six forgotten types were found. Each was identified and classified by type, size, use and significance. The most complete record is in the individual section reports, but table 2, a typical page from the final report, provides some indication of the variety.

While the summary strongly suggests that traditional wooden small craft have virtually disappeared, it did uncover many retired examples of interesting, useful, varied and technically novel boats. From the collected information there appears to be a far greater variety of boats in the province than in all New England, an area extensively combed by researchers for many years.

Unfortunately, no boats were fully documented due to the lack of time to either lift their lines or record their structures. Such tasks take three to five days in the field, depending on location, boat type, size, condition, and weather. Only enough time was provided to complete the identification of boatbuilders, boats and boatshops, and to conduct interviews; along with travel time to and within each area. This critical function will be undertaken later as resources become available.

The Cape Island boat has caused the demise of the geographically-unique small boat. Cape boats have been translated and built in a variety of forms in many communities. The changes continue; as with all good designs, this is an on-going process. Pressures caused by different fishing methods and gear, various construction rules, distinct sizes or types of propulsion, varying demands from owners and changing regulations have influenced its development. It is extremely difficult to describe a Cape Island boat definitively, as subtle changes continue depending on where, by whom, or even for whom it is built. Fishermen often influenced wooden designs, but their influence has diminished today because of the relative inflexibility of GRP moulds. Innovative builders have now found ways of adapting moulds, however, so that a hull shape can be altered. Width changes are only minor, but a boat's length can be altered within a given range by simply adjusting the length of the overhang aft of the sternpost.

The transition from wood to GRP is virtually complete for Cape Island boats. Although the last wooden "Caper" has probably not yet been built, the demand has all but disappeared. For other small craft the change has been slower. Mini-capes or moss boats have also been built in GRP but some wooden craft are still being constructed and sold. The only other boat type to survive the transition is the Cape Sable Gunning Skiff, of which there are many GRP examples. River punts are still being built of wood, albeit in most cases by owners and users rather than commercial builders. The only change has been from plank to plywood construction. Virtually all other indigenous wooden boat

types are no longer being built or used. The only viable wooden boatbuilding seems to be recreational, but there is little activity in this sector.

As this preliminary analysis indicates, the survey was conducted at a critical juncture in the history of boatbuilding in the province. The shift from wooden to GRP construction has meant replacing traditions with new skills. Within the next decade, older wooden boatbuilders will have passed on; seven have died since the survey commenced. Their knowledge of the qualities of various woods, construction techniques, regional idiosyncrasies, and techniques peculiar to the trade and tradition have disappeared with them.

In the wake of the survey, it is evident that a considerable effort is required to preserve even some of the material history of the small craft in Nova Scotia. The tasks of acquiring or documenting endangered boats, boatshops, half-models and photographs, and recording boatbuilders' experiences and construction techniques, is daunting, especially with restricted budgets. Nonetheless, the Maritime Museum of the Atlantic and the Fisheries Museum of the Atlantic in Lunenburg have begun analyzing the results of the survey in the hope of preserving this integral, yet fragile element of maritime heritage.

NOTES

* David A. Walker is a Naval Architect and Research Associate at the Maritime Museum of the Atlantic, where Marven E. Moore is Manager of Collections.

1. Due to the nature of the original research upon which this article is based, comprehensive footnotes, which for the most part would have cited our working notes, have not been included. Readers who desire more specific information should contact the authors.

2. See, for example, Howard I. Chapelle, ***Small American Sailing Craft*** (New York, 1951); Eric McKee, ***Working Boats of Britain*** (London, 1983); Christian Nielsen, ***Danske badtyper;*** B. and O. Fæøyvik (Ed. A.E. Christensen), ***Inshore Craft of Norway*** (London, 1979); Paul Lipke, ***Plank on Frame*** (Camden, ME, 1981).

Appendices

N.S. SMALL CRAFT SURVEY

Matitime Museum of *th*e Atl*an*tic
1675 Lower Water Street
Halifax, Nova Scotia, B3J 1S3

Area_____Date_____

Small Craft Information

Part One

Present Location:,
Owner:_____ Address

Previous Owner(s):

Designer:_____ Builder:
Date & Place Bit:

Part Two

Type of craft:_
Name:_____ .Reg'd No._
Dimensions: L.o.a.. B. extr _____Depth, Draft
Build: Planking: Carvel Clinker No_____Material
Frames: No_____Dim's x_____Mtl _ _____Bent Sawn
Thwarts: No_____Mtl_____ Fore Dk Side Dk Washbd
Fixed Keel Centrebd Daggerbd No Keel Ballast
Transom Double ended Other Description
Fastenings: Clenched Nails Nails Screws Other
Paint: Hull (Above WL)_____(Below WL)_____ Intr
Propulsion:
Sloop Schr Yawl Gaff Boom Bowsprit Note.
Inbd Outbd Gas Diesel No Cyls_____Make____
Rowing Paddling Sculling Other_____
Thole pins Oarlocks No_____
Structural Changes: Apparent_____
Described _____
Condition: V.G. Derelict Describe

Small Craft Information Sheet

Part Three

Are there similar vessels in the area? yes no (if yes) How many

Were there similar vessels in the area? yes no (if yes) How many.

When_____ Details_____

Have you any photographs_____

Have you any Half Models or Plans_____

History of the use: fishing sport pleasure multi use reversion of use

Describe _____

Location of use_____

History, etc.: _____

Were there other builders of similar craft in the area?

Part Four

Sketches of Unique Details:

Recommendations:

Record Acquire Photograph Interview Other

N.S. SMALL CRAFT SURVEY

Matitime Museum of the Atlantic
1675 Lower Water Street
Halifax, Nova Scotia, B3J 1S3

Area_____Date_____

Boatbuilder Information

Part One

Name:_____Age:___
Address:_____
Name of Business:_____
Address:_____
Location of Boatshop:_____
Size of Boatshop:_____
Was Operation part time/full time:_____
No. of Employees:_____Dates of operation:
Previous Owners:_____
Relationships if any:
Machinery/Equipment:_____
Power:_____Method of Production:_____
Other Boatbuilders in Area:_____

Part Two

Types of Boats:_____
Size(s):_____
No of Boats Built:_____Annual Production:_____Total Production:
Did you use/own Half-Models:_____
Do You have any boatbuilding ephemera, Catalogues, etc:_____

Part Three

Buyers:_____
Locations of Buyers:_____
Use of the Boats:_____
Cost of Boats:_____Diff. from beginning to end of Career:

Recommendations:
Interview further Photograph Acquire Other

N.S. SMALL CRAFT SURVEY

Matitime Museum of *th*e Atl*an*tic
1675 Lower Water Street
Halifax, Nova Scotia, B3J 1S3

Area_____Date _____

Resource Material

Item:_____Accession No:
Owner: _____
Address:_____
Location of Material:
Description:_____

Availability:

Significance:

Photograph: Yes No Number taken
Sketch:

Recommendations:
Record Acquire Photograph Interview Other

NOTE: For Material such as: Half Models, Photographs, Plans, Fishing & sporting equipment, etc.

Section & Page	Boat name	Brief description	Remarks and/or Recommendations
01/02-08	Double-ended Guide Boat	**Recreational.** Found in the Pennant area, now disappeared, used for fishing, hunting and transport on the lakes of the area	This boat has all but been forgotten, and needs to be researched as there do not appear to be any examples left. [MMAJ
01/02-08	Sambro Flat	**Fishing, transport.** A clinker planked boat. 14'- 18' long, with a flat plank keel and transom. Used in the local harbour and built locally.	There is an example of this boat in the MMA collection, but there is not a great deal of peripheral information, needs research. MMA
03/04-16	Bush Island Boat	**Fishing.** A double ended, powered, open boat ranging between 24' and 32' in length. The most distinguishing feature of *th*is craft is the distinctive and unique canoe shaped stern in profile. No longer being built, though once prevalent in *th*e LaHave Islands region. Usually powered wi*th* a single cylinder make and break engine. FMA have an example in *th*eir collection	There is a good example of this boat in FMA and plans etc. at MMA. [FMA]
03/04-18	Bush Island Double-ended Punt	**Fishing.** A 16' carvel planked boat used in the lobster fishery round the rocks and ledges of the many LaHave Islands. Rowed or sailed, and no longer in use.	Further research needed on this craft, little information was obtained during the survey of the area. [FMA]
03/04-19	Bush Island Skiff	**Fishing related.** A 14' round sided, flat bottomed dory skiff with carvel planking. Used round the island as a tender and sheltered water lobstering. Said to be prevalent on the island, but only seen as a replica.	Fur*th*er information needed, a replica boat has been built by a local builder. Materials used were not fully in keeping with a traditional local craft. [MMA]