

PLANNING AND DEVELOPING QUOTA SYSTEMS TO MANAGE HUNTING PRESSURE ON HUNT AREAS

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Abstract: Excessive hunting pressure on Florida Wildlife Management Areas during the early part of hunting season necessitated a system of control on number of hunters. Systems were developed to issue a limited number of permits to applicants on a first-come, first-served basis. FORTRAN and COMPASS computer programs were used to enter data and issue permits in 1 system while manual sorting and mechanical imprinting were used to issue permits in another system. A review of all 50 states revealed a variety of methods of application acceptance, processing and permitting. Planning and methodology including steps, time frame, and costs to implement a controlled hunt system are discussed. Recommendations based on collected data and past experience are presented.

Proc. Ann. Conf. S.E. Assoc. Fish & Wildl. Agencies 33: 173-180

Florida's quota hunt system was needed to control hunting pressure and provide an optimum hunting experience. Quotas are based on consideration of habitat types, regulations and game population levels of each management area. The decision of the Florida Game and Fresh Water Fish Commission to limit hunters on management areas during the first 9 days of hunting season was based on increased public use of management areas and public pressure to reduce overcrowding.

In 1951, 10% (9,710) of the licensed hunters in Florida (96,887) used public wildlife management areas. In 1961, 20% (33,619) of the licensed hunters (170,061) in Florida used public wildlife management areas. In 1971, 40% (101,475) of the licensed hunters (256,005) in Florida used public wildlife management areas. The need for some system to manage ever-increasing hunting pressure and to satisfy public demand to reduce overcrowding was needed.

Technical literature on systems to manage controlled hunts in the southeast is sparse. Whitehead and Turner (1970) developed a computerized technique using random selection to determine hunters assigned to hunting areas in Tennessee. They were faced with the problem of limiting public participation in an area where very limited resources were available. Their tests indicated that the fully automated mechanical system yielded comparable results with manual hand drawing systems at a reduced cost and time.

This paper examined methodology and findings concerning quota hunt systems in Florida over a 5-year study period from 1975-1979.

Special thanks go to the Word Processing Center of the Florida Game and Fresh Water Fish Commission. This project was financed using Pittman-Robertson Federal Aid funds through Florida's W-33 project. In addition, special appreciation is due to J. Hall and R. Barber with the USDI Fish and Wildlife Service. Pitney-Bowes equipment is used in our mechanized stamp system. Special thanks is due P. Himel of Pitney-Bowes for his input into this project. L. Rossignol, A. Egbert and K. Becker reviewed drafts and made many helpful comments.

METHODS

The totally computerized system used in Florida was analyzed to determine which steps were essential to accomplish planned objectives. Cost analysis was based on past cost for the computerized operation, estimated cost for a hand-stamped operation and costs for a mechanized permit issuing operation. The hand-stamped operation was used on 1 hunt; however, the other 2 systems were used to manage many hunts at once.

A review of different system alternatives was pursued. In addition to discussions with representatives of IBM, NCR, Burroughs, Wang Laboratories, Pitney-Bowes and several other major firms, a quota hunt survey was conducted. All 50 states were contacted by letter to determine their individual methods of application, acceptance, processing and permitting. Follow-up telephone calls polled states which did not respond to the letter. Several different questions were asked to analyze basic operations including the agency which administers the quota hunt, or controlled hunt, whether the selection and validation process was done by hand or by computer, and what problems have been encountered in the past and changes anticipated in the future. We requested examples of application forms and permits from each state.

Correspondence from the general public, operational costs and after-action analyses on past work were reviewed to determine problem areas in systems used in previous years. When developing any quota hunt system, factors such as ease of operation, simplicity of methodology, internal and external integrity, fast response time, error-free operations and economic efficiency must be considered. Three systems have been tried in Florida to accomplish the above-mentioned needs.

RESULTS

Results of planning efforts focused on regulating hunter density on wildlife management areas during the first 9 days of the hunting season using a permit system. Second echelon items are tasks that must be met in order to accomplish the primary objective.

Task 1. Information - Inform the public and involved agencies of current regulations and status of the quota hunt program.

Task 2. Distribution - Provide and distribute regulations, applications and permits to the hunting public.

Task 3. Processing - Issue quota hunt permits, rejection letters and maintain files of applicant hunters.

Task 4. Regulation - Regulate management areas in accordance with prescribed permitting rules and regulations.

Information includes letters sent to tax collectors informing them of dates, availability of applicants and permits, and necessary logistical information. Public meetings, press releases and public notice in the newspapers provided the public with information concerning the quota hunt program. Feed-back information by post-action analysis improves the quota hunt system on a yearly basis. Regional office reports, Commission reports and reports to the Federal Government document findings and provide further information on an ongoing basis.

Distribution tasks are necessary to provide regulations, applications and permits to the hunting public. The production of applications and the materials that are necessary for public consumption include contract negotiations and bids, layouts, contracts, printing and distribution to the tax collectors, their subagents and the regional offices.

Processing is a two-tiered system. Applications are received by mail, checked for proper postmark dates and complete information including name, address and hunt choices. Incomplete applications are rejected and returned to the sender. Complete applications are electronically time-stamped and sequentially numbered. If hunt

openings are available, the name of the hunt is assigned and printed on the permit along with the director's or other authorized agent's signature. If hunts are full, the applicant is informed. Printed listings are made of accepted and rejected hunters. Each application is retained for later reference should conflicts develop over the permit.

Our fourth task is regulation in which the management areas are regulated in accordance with prescribed rules and regulations. This function naturally falls under the Division of Law Enforcement of the Game and Fresh Water Fish Commission.

Forty-three regular management area hunts, 21 special hunts, a Rotenberger and an Everglades hunt were managed in Florida each year using a quota system. A hunter applied for the hunt of his choice on a three-part perforated card. Figs. 1, 2 and 3 illustrate the front and back of each part.



**1979-80
Quota Hunt Application**
Please read and follow all instructions before returning this application to the Division of Wildlife.

FRONT

IMPORTANT

This application is for quota hunts on Wildlife Management Areas during 1979-80. **Application must be mailed** (no phone calls or hand delivered applications) and postmarked no earlier than June 1 and no later than November 1. All applications are accepted on a first-come, first-served basis.

Only one application per person. Group hunt applications (up to five people) must be mailed in the same envelope with one application for each hunter in the group to assure the group of getting the same hunt.

More than one application per person will result in rejection of all applications.

BACK

QUOTA HUNT CHOICE

All hunts for first 9 days unless otherwise indicated.

QUOTA HUNT APPLICATION
Please read and follow ALL instructions before returning this application to Division of Wildlife.
Instructions
... 1. **PRINT** your name, address and zip code in all spaces provided on both sides of this form.
... 2. Glue the **TOP** tab from your new (1979-80) management area stamp in the space provided.
... 3. Choose five numbers from this card and fill in five choice boxes, in order of preference of your hunts.
... 4. Put **TWO** 15¢ stamps (one on front and one on back) of this card for return of **QUOTA HUNT PERMIT**.
... 5. Tear off this section of card and keep for your information. Fold remaining portion along solid lines, seal and mail to Division of Wildlife, Florida Game and Fresh Water Fish Commission.

- | | |
|--|--|
| South Florida Region (November 10-18) | 22. Gasikin |
| 1. Avon Park | 23. G.U. Parker |
| 2. Croom | 24. Floresta Perdida |
| 3. Green Swamp (Nov. 10-13) | 25. Robert Brent |
| 4. Green Swamp (Nov. 14-18) | 26. St. Regis |
| 5. Lykes Bros. Fishwaling Creek | 27. Point Washington |
| 6. Cecil M. Webb | Everglades Region (November 10-18) |
| Northwest Florida Region (November 10-18) | 28. Browns Farm |
| 7. Camp Blanding (Nov. 10-13) | 29. J. W. Corbett |
| 8. Camp Blanding (Nov. 14-18) | 30. Big Cypress |
| 9. Cypress Creek | Central Florida Region (November 10-18) |
| 10. Gulf Hammock | 31. Bull Creek (Nov. 10-11) |
| 11. Lake Butler | 32. Bull Creek (Nov. 12-14) |
| 12. Lochloosa | 33. Bull Creek (Nov. 15-18) |
| 13. Nassau | 34. Farnham |
| 14. Osceola | 35. Ft. McCoy |
| 15. Steinhatchee | 36. Georgia Pacific (Hudson) |
| 16. Tide Swamp | 37. Ocala |
| 17. Aucilla | 38. Richloam |
| Northwest Florida Region (November 17-25) | 39. Three Lakes (Nov. 10-11) |
| 18. Apalachee | 40. Three Lakes (Nov. 12-14) |
| 19. Apalachicola | 41. Three Lakes (Nov. 15-18) |
| 20. Blackwater | 42. Tomoka |
| 21. Edward Ball | 43. Reley |

Fig. 1. Instructional portion of the 1979-80 quota hunt application used in Florida.

The application card is a key part of a successful system. It must contain all necessary instructions, information and designated space for the hunter's address, hunt choices, telephone number and area stamp information. If the permit can not be issued quickly, an acknowledgment portion should be included to inform the applicant of its receipt. Part of the application must be filed and retained for record. A portion of the application may be used for the actual permit and returned to the hunter, or the permit may be printed separately.

Computer processing was used in all systems we employed to provide listings of an accepted hunter's name, application number, stamp number and assigned hunt. One system relied on computer programs to enter information, check for duplication, assign

FRONT

Put your
 name and address
 here.

PUT STAMP
 HERE
 Post Office
 will not deliver
 without proper
 postage

ZIP

**Division of Wildlife
 Florida Game and Fresh Water Fish Commission
 Tallahassee, Florida 32301**

This part of the application should be on the outside so the postman will return it to us.

BACK

① PLEASE PRINT

LAST NAME _____

FIRST NAME _____ INITIAL _____

ADDRESS (PO #, STREET or RFD) _____

CITY _____

STATE _____ ZIP _____

AREA CODE () _____

TELEPHONE _____

② You MUST glue top tab from 1979-80 Management Area Stamp here for QUOTA HUNT ONLY

**1979-80
 QUOTA HUNT
 APPLICATION**

③ Put your choice numbers of management areas (in order of preference) in boxes below.

1st Choice	
2nd Choice	
3rd Choice	
4th Choice	
5th Choice	

If these choices are filled, do you desire any other available hunts?
 Yes No

Fig. 2. Informational portion of the 1979-80 quota hunt application used in Florida.

hunts and issue permits. The other two systems relied on personnel to assign hunts and issue permits.

In Florida, an area stamp is required to hunt in wildlife management areas. Control of quota hunt applications is established using numbered tabs attached to management area stamps. A person could only apply once unless he purchased more than 1 stamp. In the full computerized system, only the number was necessary since the computer checked for duplication. With the other 2 systems, the stamp tab must be attached or the hunter's application would be rejected.

In the totally computerized system, a portion of the application was returned to acknowledge receipt. Due to the time delay between receipt and permit processing, this acknowledgment was necessary to reduce inquiring telephone calls. In the mechanized imprinter system and the hand-stamp system the portion which had been the acknowledgment card became the actual permit. This was practical since permits could be issued individually rather than in a large batch, and there was only a shot delay between the time of receipt of the application and permit mailing. The permit in the totally computerized system was a self-mailer printed with the name, address and hunt area in batches of 3000 to 4000.

Fig. 4 is a flow chart of programs used in the fully computerized system. The programs sort and check hunter information, assign hunts, print permits, rejection letters and informational printouts. The final program updates the list of applicants and filled vacancies which are stored on magnetic tape until the next computer run. Entered information included the applicant's name and address, management area stamp number, sequence number and hunt choices. All information was placed on computer

Division of Wildlife
 Florida Game and Fresh Water Fish Commission
 Tallahassee, Florida 32301

FRONT

④ PUT STAMP
 HERE
 Post Office
 will not deliver
 without proper
 postage

PRINT
 your
 Name
 and
 Address
 here.

ZIP

⑤ Seal by moistening here and fold forward.

This is to certify that when validated, the person named is entitled to hunt legal game in accordance with the rules and regulations of the Florida Game and Fresh Water Fish Commission for the below named wildlife management area. This permit must be in possession for the time specified below. Not valid unless signed. This permit is not transferable.

BACK

IMPORTANT

WHEN VALIDATED AND RETURNED TO YOU—THIS
 WILL SERVE AS YOUR 1979-80 QUOTA HUNT
 PERMIT

FOR OFFICE USE ONLY

4-250 MISC (10-11-80) 2011

4-250 MISC (10-11-80) 2011

FOR OFFICE USE ONLY

 NAME

 MANAGEMENT AREA STAMP #

 SIGNATURE

Fig. 3. Permit portion of the 1979-80 quota hunt application used in Florida.

cards or magnetic tape until the next computer run. Entered information included the applicant's name and address, management area stamp number, sequence number and hunt choices. All information was placed on computer cards, magnetic tape or entered directly through terminals.

In the mechanized systems, a tickometer assigns sequential numbers and dates to applications. The numbered applications are then sorted into slots established for each hunt area. A record sheet in each slot reflects the number of permits issued and remaining for each management area. The final step is the permit printing using an electronic addresser printer with an automatic document feeder. The permit is printed on a portion of the application form and returned to the applicant. The information portion is then sent to the State data processing center where the application number, applicant's name, assigned hunt and management area stamp number are recorded on magnetic tape to provide a continuously increasing file. Upon request, we are provided complete alphabetical printouts for reference if a hunter has a permit problem.

The manual system relied on personnel to accomplish each step of the permitting process. Hand operated automatic numbers are used to stamp consecutive numbers on applications. Time recorders were used to stamp date and time received on the applications. Stamps printed on glued paper were affixed to part of the application and returned to the hunter as his or her permit. Record maintenance was the same with both the manual and mechanized systems. Table 1 given an approximate cost comparison of the 3 systems enacted.

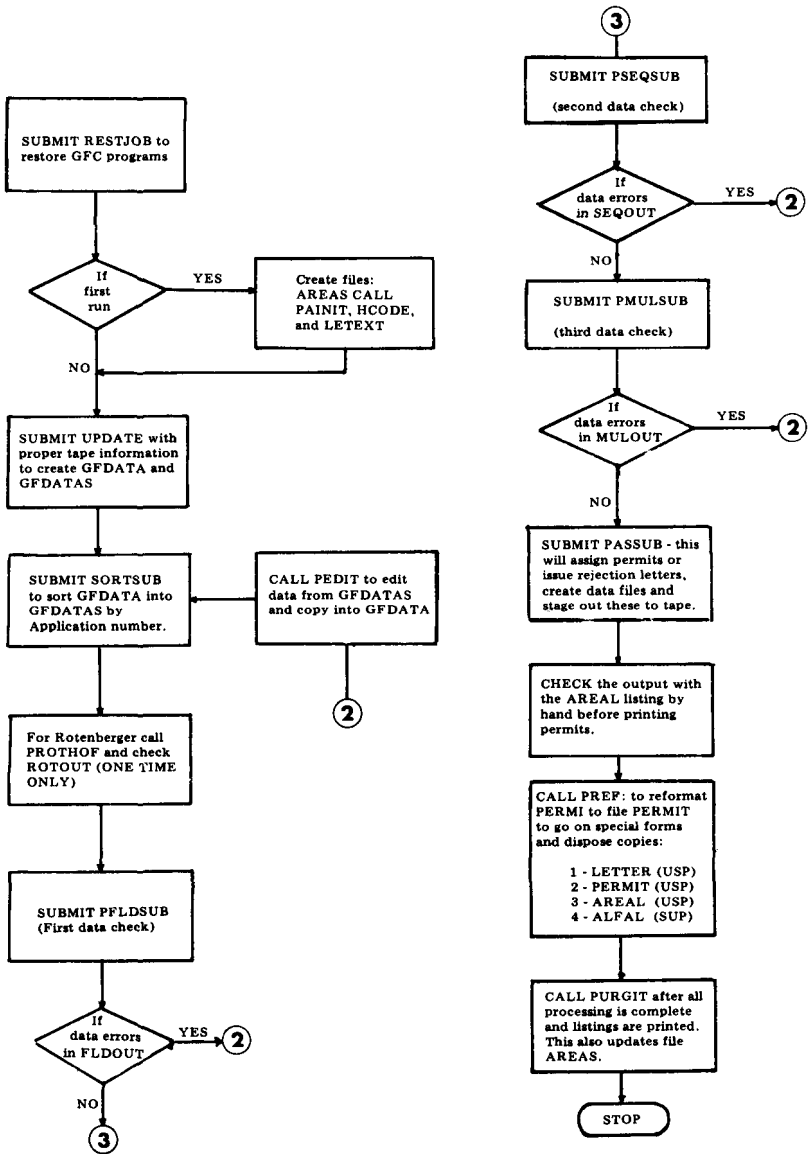


Fig. 4. Flowchart of computer programs used to issue permits and create data files in the totally computerized quota hunt system used in Florida.

These 3 methods have been tried in Florida; however, many states have different equipment and techniques used to manage controlled hunts.

Of the 50 states, 44 (88%) indicated that they had some type of quota or controlled hunt system. In the administration of the selection and permitting process, 70% of the states indicated it was through their Wildlife Division, 27% of the states handled it through their Game and Fish Division, while 3% of the states administered their program

TABLE 1. Approximate cost comparisons of alternative methods for conducting controlled hunts based on need to handle 40 to 70 thousand applicants.

ITEM - TYPE OF COST	VARIABLE	MANUAL		
		CURRENT PLAN	STAMP PLAN	MECHANIZED STAMP PLAN
Applications	No	\$ 5,000	\$ 5,000	\$ 5,000
Postage	Yes	10,500	500	500
Telephones	No	400	400	400
Personal Time (\$3.50 per hour)	Yes	19,584	26,608	14,000
Envelopes	No	250	250	250
Stamp Machines	Yes	150	150	0
Date Machines	No	250	250	0
Machine, Computer or Keypunch Costs	Yes	21,000	6,000	11,000
Copy Machine Costs	No	150	150	150
Support Personnel (Word Processing, Secretarial)	No	500	500	500
Permit Stamps	Yes	0	500	0
Embosser	Yes	0	350	0
Reporting and Analysis	No	150	150	150
Permits	Yes	1,900	0	0
Miscellaneous Supplies	Yes	50	50	150
TOTAL		\$59,884	\$39,858	\$32,100

through their Department of Natural Resources. Differences between states in organizational structure contribute to this percentage distribution.

Sixty percent of the respondents indicated that their selection was accomplished by computer while 40% indicated they had a hand selection process, 59% were of a drawing or lottery-type, 36% were based on random number selection, while 18% indicated their selection was based on a first-come, first-served basis. These percentages total over 100% because some states indicated they employed different methods of selection for different hunts. In the processing or validation of permits, 57% used some type of hand validation and 43% used the computer. Fifty-five percent mentioned that there were some current problems in their methodology and proposed changes in their current system.

All states had a set date and time when applications would be accepted. Upon receipt, applicants were notified of acceptance or rejection. Most states furnish some listing, either a computer printout or typed list, of accepted personnel. Often this list was furnished to field personnel in charge of the hunt.

Some means of distributing applications to the public was used in each state. In most cases, this was done in conjunction with hunting licenses through county officials such as tax collectors or treasurers. Permits are then issued from the central office of most agencies.

A result of correspondence concerning the 1978-79 quota hunt season in Florida provided additional insight when reviewing operational procedures. A total of 349 letters were received in the Division of Wildlife quota hunt office. Of these, 38% were requests for duplicat permits and another 32% wanted information as to the whereabouts of their permit. Applications for permits written in letter form comprised 14% of the correspondence. Inquiries concerning information about the quota hunt and requests for applications were found in 13% of the letters. Three percent of the letters involved corrections needed on applications already in the office (address change, management area stamp, etc.), while less than 1% of the correspondence involved complaints concerning the quota hunt system. Approximately 40% of the letters received during the 1978-79 quota hunt involved routine matters that could be promptly handled. The other 60% of the correspondence involved some form of response requiring research or additional time demands upon divisional personnel.

DISCUSSION

Our experience indicates that the mechanical imprinter system provides quicker, more efficient and more economical service to Florida's hunting public than other methods investigated. The system as a whole is simpler than the totally computerized system. Employee turnover causes less discontinuity in the imprinter system since almost anyone can be trained quickly to perform the basic operations.

The preferred method of processing would be largely dependent on the number of applicants and available resources. If less than 5,000 application are handled by a system, hand embossers or stamps using part-time labor would likely be most efficient. We handled more than 40,000 applications using the mechanical imprinter system with no problems. Computer processing might be preferred in the information was computerized for other reasons such as issuing hunting licenses, creating mailing lists or if the agency owned and operated a computer system.

LITERATURE CITED

Whitehead, C.J., and W.L. Turner. 1969. Computer application to drawing for special permits. Proc. Annual Conf. Southeastern Assoc. Game and Fish Comm. 23:32-36.