
FINAL REPORT AAFC-8

Documentation for Kintore Watershed Digital Data

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**Compilation of a Computerized Database using Data Assembled under the
Pilot Watershed Study of the Soil and Water Environmental
Enhancement Program (SWEEP)**

Prepared by:

Andrew Couturier
358 Metcalfe St., Guelph, Ontario
N1E 4Z7

On behalf of:

Agriculture and Agri-Food Canada
Centre for Land and Biological Resources Research
Land Resource Division
70 Fountain St., Guelph, Ontario
N1H 3N6

EXECUTIVE SUMMARY

This paper builds on earlier reports in this series by providing an overview of the digital data files associated with the Kintore Creek watershed. The overall aim of this report is to assist users of the Kintore database by providing a manual for interpreting the contents of specific data files. Accordingly, the report lists and describes both the available spatial coverages in Arc/Info format, and their associated attribute files. A more detailed description of the structure of individual attribute files follows.

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1. INTRODUCTION AND OBJECTIVES

This report is the last in the current series associated with the Indicators of Risk of Water Contamination (IROWC) project at the Ontario Land Resource Unit (OLRU) of Agriculture and Agri-Food Canada (AAFC). The project investigates the effects of agricultural activities on water contamination risk at a variety of spatial and temporal scales (MacDonald and Spaling 1995a,b). Previous reports have primarily focussed on organizing data assembled under the Pilot Watershed Study (PWS -- a major sub-program of the Soil and Water Environmental Enhancement Program (SWEEP)) into a functional GIS database (Couturier 1995a-f). The goal of these activities was to prepare these data for input to a procedure to assess water contamination risk at scales ranging in size from a few hectares to several hundred.

The Upper Thames Region Conservation Authority (UTRCA) has been gathering data similar to that of the PWS over the past several years for the Kintore Watershed (Merkley 1994), including hydrological data, water quality data and agricultural practices data. The UTRCA has supplied the OLRU with digital data files for the Kintore watershed for the years 1993 and 1994. Although substantial amounts of data exist for earlier years, the UTRCA was unable to provide these data because the monitoring was financially supported by another agency. The 1993 and 1994 data will be used to further test and modify the IROWC methodology at the small watershed scale. Before this can occur, a review of the Kintore data is required. Accordingly, this report describes the nature of the digital data received from the UTRCA and documents the structure of the data files which now form part of the OLRU database.

2. OVERVIEW OF THE KINTORE DIGITAL DATABASE

This section describes and documents the Kintore digital database, including a brief overview of the available spatial coverages and attribute files and a more detailed examination of the structure (item names, width, description, etc.) of specific files. The reader is reminded that all files discussed in this report are located in the directory **olru/gis-data/ondata/sweep/kintore**. Additional information concerning the Kintore data (methods, location of watershed, etc.) can be found in Merkley (1994).

2.1 Description of Spatial Coverages and Info Attribute Files

The Kintore digital database is comprised of four files (Table 1). Only one of these files, **KINTORE**, is an Arc/Info coverage containing spatial entities. This coverage consists of the landuse polygons which together make up the Kintore watershed (polygon boundaries/locations are static for 1993 and 1994). The positional accuracy of the polygon boundaries is unknown, however, the boundaries are exceedingly jagged and "blocky" in

appearance. In part, this may be a result of the conversion of the data from SPANS (raster format) to Arc/Info (vector format). The **LANDUSE** file contains the crop and tillage information associated with the landuse polygons (1993 and 1994), and is linked to the KINTORE.PAT file by a common item (noted in a subsequent section). The **DISCHARGE** and **WATERQUAL** files contain stream discharge data and water quality data respectively, but are not linked to any spatial features. Discharge and water quality data relate to distinct portions of the overall Kintore watershed (east basin or west basin), however, digital boundaries were not supplied by the UTRCA. They can, if necessary, be referred to in Merkley(1994). Discharge information is only available for 1993, while water quality sampling data span both 1993 and 1994. In addition, a soil map for the watershed is being digitized by ESS as part of a Green Plan contract and will be incorporated into this database when available.

Table 1. Definitions of Spatial Coverages and Attribute Files

TYPE	NAME	NO. RECS	LENGTH	DESCRIPTION
DF	KINTORE	238	20	Arc/Info coverage: landuse polygons
DF	LANDUSE	474	136	Landuse data linked with landuse polygons
DF	DISCHARGE	550	158	Hourly stream discharge
DF	WATERQUAL	108	110	Water quality monitoring data

2.2 Info Data File Structures

The remainder of the report documents the structure of individual data files associated with the Kintore watershed.

Table 2. Structure of LANDUSE Data File

COLUMN	ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	DESCRIPTION
1	LANDID	4	5	B	-	Landuse Polygon ID *
5	YEAR	4	4	N	0	Year
9	AREA	8	8	N	2	Area (ha)
17	LAT	11	11	N	4	Latitude
28	LONG	11	11	N	4	Longitude
39	CROP	40	40	C	-	Crop Type
79	SPRINGTILL	15	15	C	-	Spring Tillage
94	FALLTILL	15	15	C	-	Fall Tillage
109	COVCROP	20	20	C	-	Cover Crop
129	CFACOR	8	8	N	4	C Factor

*link to KINTORE.PAT file

Table 3. Structure of DISCHARGE Data File

<i>COLUMN</i>	<i>ITEM NAME</i>	<i>WIDTH</i>	<i>OUTPUT</i>	<i>TYPE</i>	<i>N.DEC</i>	<i>DESCRIPTION</i>
1	MM	2	2	N	0	Month
3	DD	2	2	N	0	Day
5	YY	4	4	N	0	Year
9	BASIN	5	5	C	-	Basin ID
14	D1	6	6	N	3	Hourly Discharge (m ³ /s) 1:00 AM
20	D2	6	6	N	3	2:00 AM
26	D3	6	6	N	3	3:00 AM
32	D4	6	6	N	3	4:00 AM
38	D5	6	6	N	3	5:00 AM
44	D6	6	6	N	3	6:00 AM
50	D7	6	6	N	3	7:00 AM
56	D8	6	6	N	3	8:00 AM
62	D9	6	6	N	3	9:00 AM
68	D10	6	6	N	3	10:00 AM
74	D11	6	6	N	3	11:00 AM
80	D12	6	6	N	3	12:00 PM
86	D13	6	6	N	3	1:00 PM
92	D14	6	6	N	3	2:00 PM
98	D15	6	6	N	3	3:00 PM
104	D16	6	6	N	3	4:00 PM
110	D17	6	6	N	3	5:00 PM
116	D18	6	6	N	3	6:00 PM
122	D19	6	6	N	3	7:00 PM
128	D20	6	6	N	3	8:00 PM
134	D21	6	6	N	3	9:00 PM
140	D22	6	6	N	3	10:00 PM
146	D23	6	6	N	3	11:00 PM
152	D24	6	6	N	3	12:00 PM

Table 4. Structure of WATERQUAL Data File

<i>COLUMN</i>	<i>ITEM NAME</i>	<i>WIDTH</i>	<i>OUTPUT</i>	<i>TYPE</i>	<i>N.DEC</i>	<i>DESCRIPTION</i>
1	BASIN	5	5	C	-	Basin ID
6	MM	2	2	N	0	Month
8	DD	2	2	N	0	Day
10	YY	4	4	N	0	Year
14	JULIAN	3	3	N	0	Julian Date
17	TIME	4	4	N	0	Time
21	STAFF	8	8	N	3	Staff Gauge (m)

29 TEMP	5	5	N	1	Temperature (deg. celsius)
34 TSS	6	6	N	1	Total Suspended Solids (mg/l)
40 AMMONIA	8	8	N	3	Free Ammonia (mg/l)
48 TKN	7	7	N	2	Total Kjeldahl Nitrogen (mg/l)
55 NITRITE	8	8	N	3	Nitrite (mg/l)
63 NITRATE	8	8	N	3	Nitrate (mg/l)
71 TP	8	8	N	3	Total Phosphorous (mg/l)
79 DRP	8	8	N	3	Dissolved Reactive Phosphorous (mg/l)
87 PH	6	6	N	2	pH
93 COND	3	3	N	0	Conductivity (uhmo/ml)
96 CHLOR	5	5	N	1	Chloride (mg/l)
101 POTASS	5	5	N	1	Potassium (mg/l)
106 SODIUM	5	5	N	1	Sodium (mg/l)

3. SUMMARY AND CONCLUSIONS

This report documents the digital spatial coverages and associated attribute files received from the UTRCA, which pertain to the Kintore Creek watershed. As indicated earlier, the accuracy of these data is unknown. These data will be used to apply and test the IROWC methodology at the small to medium watershed scale. This report will serve both as a guide for locating files of interest, and as a manual for deciphering and interpreting the contents of specific files. For additional information concerning the Kintore watershed and associated data, the reader is directed to Merkley (1994).

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